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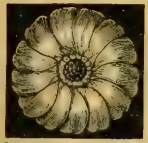
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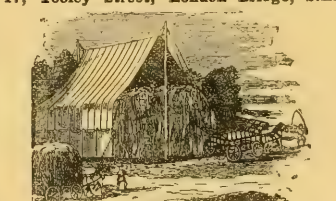
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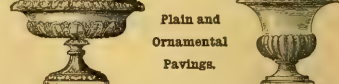
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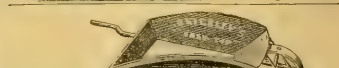
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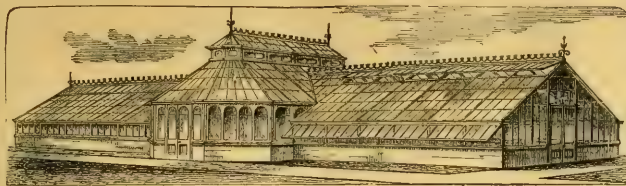
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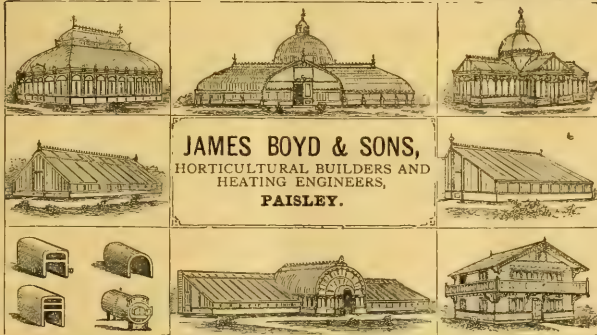
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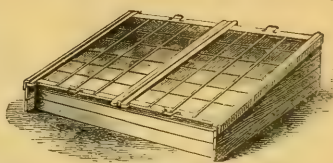
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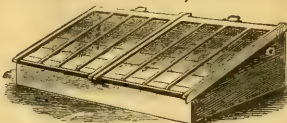
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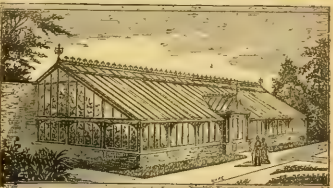


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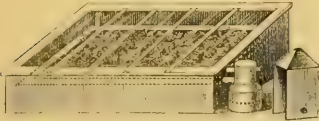
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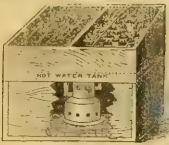
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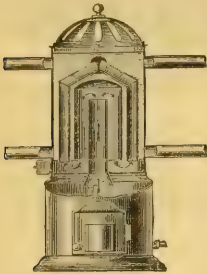
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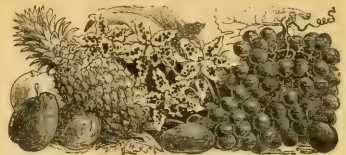
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THE

Gardeners' Chronicle.

SATURDAY, JULY 3, 1886.

EATON HALL.

THIS, the principal seat of the Duke of Westminster, is four miles from Chester. Horticulturists from the south, the eastern, or western parts of England, who attend the Liverpool Show, could easily visit Eaton by breaking their journey at Chester, and in so doing would have an opportunity of seeing, not only one of the best appointed and well kept gardens in the kingdom, but also the finest private residence of modern date in Europe. Our illustration (see supplementary sheet) gives an idea of the magnificent character of the building, but the full extent is not shown, the photograph from which it was taken not including the whole. It is of polished stone, and as substantial in its construction as it is imposing in its appearance.

The surroundings are in keeping with the mansion, the pleasure-grounds are extensive, and kept in excellent order.

The extent of glass erections devoted to the cultivation of plants, flowers, and fruit, is on a scale similar to the rest of the establishment. Most of the houses are of comparatively recent construction; they combine the essentials of being well adapted for the cultivation of the different things grown in them, and of enduring for a long time, stone or some other imperishable material being used wherever it could be introduced. The principal block of plant-houses is connected with a corridor, 400 feet long and 18 feet high. This long vista, with the back wall densely covered with plants, and the roof gracefully festooned with climbers, combined with the lines of flowering subjects temporarily brought in to keep it gay, presents a floral picture unique in its way. Callas, scarlet Pelargoniums and Schizanthus, large and profusely flowered, were the principal occupants a few weeks back, and produced an effect not to be easily forgotten. Each of the large houses attached to, and standing at right angles with this glass-covered way, has some particular kind of plant or plants that forms the leading feature in it. In one of these houses are Roses covering the entire roof, with others loosely encircling the pillars; Camellias occupying the body of the house. Another was filled with specimen Azaleas, finely in flower.

Two others are mostly occupied by Eucharis amazonica, in the cultivation of which Mr. Selwood has been so successful, and latterly so unfortunate, for the dreaded mite has nearly destroyed the whole stock; but a fresh start has been made, and a house is full of new plants which look promising. One of these houses is filled with a mixed collection of stove plants. Another is the Lily-house, with its roomy central tank always containing a number of plants alike beautiful and interesting. One of these spans is filled with Dracenas, and other plants of like character, and the roof covered with Stephanotis laden with flowers. In the Camellia-house the plants are planted out in a centre bed, on one side of which there is a row of seedling *Luculia gratissima* not two years

old, yet most of them are 5 feet high. They are well furnished, and all flowered last autumn; some of them showed a trace of *L. Pincana* in their flowers.

Toxicophlea Thunbergii is a favourite here; a considerable space of back wall in one of the houses of a long lean-to range being devoted to it. *Diapladenia boliviensis* is also grown largely. The double form of *Tabernaemontana* is another white flower grown in quantity; some of the plants are 7 feet high. Of another house *Gardenias* are the principal occupants, with quantities of *Clerodendron Balfourii*.

Orchids occupy two of the four houses in which Pines, now done away with, used to be grown. These houses are very light, and with the plants as they are, well up to the glass, there is little doubt of their growing well. Another house is devoted to *Cattleyas*, *Lælias*, and others requiring an intermediate temperature. *Odontoglossums*, and other cool kinds, having a house to themselves.

Fruit, as might be supposed, is grown in large quantities, and on the whole is well done. Vines occupy ten or twelve houses; the first Grapes this season were cut on April 8. In the second viney Black Hamburgs were nearly ripe the second week in May; Madresfield Court were about three weeks later. Other houses to follow with Muscats, and the late crops for winter, were of very promising appearance. Five houses are filled with Peaches; the earliest being forced to come in at the beginning of May, others to keep up a succession. The trees are in good condition, and are carrying good crops. Figs occupy a considerable space—fine trees, bearing abundantly. A large tree of Negro Largo that has been often moved was carrying a grand crop of wonderfully fine fruit. One of the most remarkable of the houses of indoor fruits is a large house of Plums; the trees are big, and in beautiful condition, occupying the back wall, and a trellis along the front. The principal sorts are Green Gage, Transparent Gage, and Coe's Golden Drop, thickly and evenly set, so that thousands will have to be thinned out. Strawberries in vast quantities are forced—Keens' Seedling and Sir Harry are the only sorts grown. An unusually fine crop of Melons occupied one of the houses; some were ripe, with great numbers coming on.

The various houses devoted to fruit are situated in what used to be the kitchen garden, but which is now principally occupied by hardy fruits, which are very well grown. In addition to the walls, on which are the usual kinds of trees, Pears and Apples, in the shape of bushes and pyramids, are present in quantity, and in very good condition. Mr. Selwood has in this garden a number of very useful movable span-shaped frames, about 2½ feet high, and as wide at the bottom as will admit of their being placed over rows of early Peas, Potatoes, French Beans, or Christmas Roses (which latter are grown in large quantities), and for covering which they are used at the end of the year, coming in for the other things named in succession, as also for Strawberries to fill up the time between the latest forced and the first from the open ground. At the middle of May a quarter of this fruit was nice and snug beneath them. They are open at the ends, so that they butt together in continuous lines, and in this way admit sufficient air to whatever is under them.

CITRON CULTURE IN CORSICA.—The Citron seems to be the most important article of trade in Corsica. It is stated to have much improved of late, after some years of stagnation. The 1885 crop was very large. About one-fourth of the annual produce is usually exported to England in brine, to be there manufactured into candied citron. The remainder formerly went to Leghorn, to be manufactured for Holland and America, but two large preserving factories are now at work at Bastia, and the whole of this important manufacture will probably be carried on in the island in future.

New Garden Plants.

GUNNERA MANICATA.*

A FEW days ago the new curator sent in a specimen of a huge *Gunnera* to the herbarium to ask if it was the true *manicata*, and I was astonished to find that not only had we no specimen of the plant in the herbarium, but that, although it has been before the world twenty years, that it has never been described. Upon reporting the state of the case to Mr. Nicholson he immediately applied to Sir George Macleay, and procured from his gardener, Mr. Ross, a fine specimen in full flower, from which the annexed description and diagnosis has been made, and which is now in process of being dried for our herbarium.

G. manicata was discovered about 1865 in Southern Brazil, by the unfortunate traveller Libon. The locality is described as marshes at the foot of the first ramparts of the Serra do Mar, at a place called Campos de Lages. It does not seem to have been found by any one else, and Professor Kanitz, who recently monographed the order Haloragaceæ for the grand *Flora Brasiliensis*, edited by Martius and Eichler, had never seen a specimen, and merely mentions it by name. No other *Gunnera* has been found anywhere on Brazilian territory. It is quite distinct specifically from the Chilean and Bolivian *Gunnera chilensis* of Lamarck, which is almost always known in gardens by its later name, *G. scabra*, of Ruiz and Pavon. This is rather less robust than *manicata*, with fewer narrower scale-leaves at the base of the peduncle, leaves different in shape and texture, thicker, with the basal lobes much shorter and incurved; flower-spikes very much shorter and stiffer, individual flowers much smaller, and, if our live *Keck* plant represent it properly, with much shorter styles and stamens deciduous in an early stage of the flower, instead of remaining till the styles are fully developed. Very likely the flowers are polygamous, and in some of them no stamens are developed.

The following description of *G. manicata* is drawn up entirely from Sir G. Macleay's specimen:—

Rootstock very thick, decumbent. Scale-leaves very abundantly produced round the base of the peduncle, equalling it in length, lanceolate, lacerated, at first pale pink and membranous, finally becoming brown and scarious. Proper leaves with a green terete petiole, 3 feet long, 2 inches thick, copiously armed with spreading prickles; blade cordate-obovate, 4 feet in diameter (Libon says the leaf attains 5 metres in circumference), with a basal sinus 15–18 inches deep, and two imbricated round basal lobes, paler green than in *scabra*, quite glabrous on both surfaces, not nearly so stiff in texture, and not so scarious, palmately lobed to a depth of half a foot, lobes irregularly toothed; petiole attached at the base of the sinus; primary ribs five, muricated on the underside of the leaf, the two outer forked a short space above the base, the three central ones below the middle, the former running out into three lobes apically, the latter into two lobes apically, so that the total number of lobes is twelve. Peduncle stout, muricated, half a foot long. Panicle narrow ovoid, about 2 feet long and 4 inches in diameter, formed of innumerable ascending fascicled cylindrical spikes half a foot long, with a green lanceolate bract 1½–2 inches long at the base of each; axis of the spikes ½ inch diameter; flowers laxly disposed, apetalous, hermaphrodite; ovary green, globose, ½ inch in diameter; calyx-teeth two, minute, deltoid-cuspidate, placed alternately with the stamens; styles two, divaricate, cylindrical, as long as the ovary, joined only at the very base, hairy all the way down; stamens two, as long as the styles, with a stout green cylindrical filament as long as the subglobose reddish-brown anther; pollen yellow.

* *Gunnera manicata*, Hort. Lin'ën. Belg. Hort., 1869, p. 104 (name only); A. DC. in DC. *Prod.*, vol. xvi., pt. 2, p. 606 (name only); Kanitz, in *Fl. Bras.*, vol. xii., pt. 2, p. 382 (name only); Rodigas, in *Il. Hort.*, 1884, p. 125, tab. 128, x.c. (coloured figure, showing general habit, without description).—Herbacea maxima, caudice brevi, petiolis crassis elongatis teretibus muricatis, foliis cordato-obovatis, palmatis flaccidis glabris lobis basalibus magnis imbricatis, pedunculis semipedalibus crassis muricatis foliis rudimentariis copiosis serotinis rubellis cinctis, floribus parvis hermaphroditis in panicula bipedali ramis spicatis laxissimis flaccidis bracteis semipedalibus dispositis, ovario globoso, dentibus calycinis minime deltoido-cuspidatis, petalis abortivis, stylis ovario æquilongis, staminibus erectis filamentibus ovario æquilongis filamentis crassis antheris subglobosis æquilongis.

As the description of *G. chilensis* in the *Prodromus* is evidently drawn up from herbarium specimens I will give a short one made from the living plant, to compare with the above. The date of publication of Lamarck's name, *Gunnera chilensis*, is 1789; of Ruiz and Pavon's name *Gunnera scabra* is 1797; and they evidently mean the same species.

Caudex erect, about a span long; scale leaves fewer and not so brightly coloured as in *manicata*; petiole terete, 3 feet long, 1½ inch thick, copiously muricated; blade cordate-obovate, 3 feet in diameter, dark green, very rugose, quite glabrous, much firmer in texture than in *manicata*, with a broad open basal sinus, and short rounded basal lobes incurved like those of *Viola cucullata*; peduncle terete, muricated, ½ a foot long, above an inch thick; panicle oblong-cylindrical, 15–18 inches long, 3–4 inches in diameter; spikes erecto-patent, stiff, cylindrical, 1–1½ inch long, ½ inch in diameter, with a linear bract at the base; flowers densely disposed, reddish-brown, just like those of *manicata* in structure, but much smaller, with the anther either not developed or falling in an early stage.

Our wild specimens of *G. chilensis* in the *Keck* herbarium are as follows:—1. Juan Fernandez, Douglas; 2. Chiloe, Captain King; 3. near the city of Valdivia, Lechler, 222; 4. Lake of Quintero, Valparaiso, Bridges, 216; 5. Andes of Bolivia, at an altitude of 3000–3200 metres, Manden, 898. André states that in Guernsey the leaves reach a diameter of 2–2½ metres.

Of allied species described in the *Prodromus*, *G. commutata*, Blume, is known very imperfectly and not localised; *G. insignis*, A. DC., was discovered by Oersted in Costa Rica; *G. bracteata*, Bennett, from Juan Fernandez has usually a little petal developed; and *G. pelata*, Philippi, from Juan Fernandez, has petalate leaves. *G. bracteata* is figured by Hemsley in the *Botany of the Voyage of the "Challenger,"* t. 84. Besides these there have been since been published *G. glabra*, Philippi, from Juan Fernandez; *G. brephagæ*, André, in *Il. Hort.*, n.s., t. 111, from New Granada, with petalate leaves; and *G. umbraculifera*, Linden, *Cat.*, 1875. If any of these are alive in English gardens it is desirable that descriptions made from the living plant should be placed on record. *J. G. Baker.*

ABIES PINSAPO.

IN a previous number (October 10, 1855) we gave an illustration of a single cone and a branch of this distinct and handsome Silver Fir. To make the illustration more complete, we now add a sketch showing the arrangement and form of the male catkins (fig. 1). It will be seen that they are placed in the axils of the leaves on all sides of the branch (owing to the way in which the leaves spread on all sides). Each catkin is about half an inch in length, oblong obtuse. The anthers are Pear-shaped, rich violet colour, and the connective is prolonged at the back into a short, abrupt point, not shown in the drawing. The pollen grains are provided with two air-sacs. In our previous note we alluded to some peculiarities in the growth of the tree, and, among other things, to the circumstance that the terminal bud of the shoots usually expands first in spring (as in many other Firs). This, however, is not constant, for in some shoots pushing out of season in the autumn of last year some, but not all, of the lateral buds were more advanced than the terminal one.

THE COLONIAL EXHIBITION.

No. V.

CYPRUS.—The exhibits from this recent addition to the British possessions are not numerous, but they are nevertheless of very great interest, particularly from an antiquarian point of view. There are, however, comparatively few vegetable products, and these include sections of the principal timber trees, and collections of fruits and seeds, none of which call for any remark except, perhaps, some fine pods of the Carob bean, St. John's Bread or Locust (*Ceratonia siliqua*), and a sample of a coarse kind of molasses or honey, extracted from them. These dark brown or blackish beans are well known in most towns, and are usually to be seen in small shops in poor neighbourhoods, being sold to children who eat them for the sake of the sugar they contain. About 30,000 tons of these

beans are annually shipped from Cyprus, the average price being about £3 per ton. They are principally used for making the patent cattle foods now so much advertised. At one time Locust pods had a reputation for clearing the voice, and were used for that purpose by singers.

An object of especial attention from Cyprus is the native cart, such as has been in use for over 2000 years, and is still used in the island. Its construction is of the roughest character, the wood being simply hewn with an axe, and the whole put together without the use of a nail.

CANADA.

Next to the Indian collection the Canadian exhibits occupy the greatest space. The agricultural trophies, consisting of cereals in the upper portion, and a splendid collection of fruits such as Apples, Pears, Cherries, Raspberries, preserved in fluid with all their rosy tints, and some very large and very bright red Cranberries in the lower portion, attract, of course, much attention. These fruits are so interesting as to demand special notice, and may therefore

other 18 feet 8 inches; each trunk is about 14 or 15 feet high, they are said to weigh 5 tons each, and are the largest logs in the whole exhibition; they are certainly most noble specimens. A piece of each is cut out in front, and polished to show the grain, which is even, of a beautiful deep red colour, easily worked, and takes a good polish; the wood is very generally used by cabinet-makers in Queensland and New South Wales, as well as in India and Burma, where the tree also grows. The trunks in question were grown on the Blackall Range in the Moreton district. Woods are particularly well shown in the Queensland court; the collection is very complete; they are all carefully selected and are well cut, polished, and labelled, and amongst them are some of more than usual interest, especially amongst the Liliaceae, Palms, and Filices, such, for instance, as *Dracena angustifolia*, *Ptychospermia Normanbyi*, *Licuala Muelleri*, *Dicksonia Youngii*, &c. These, of course, are more of scientific than commercial interest; but there are a very large number that should attract the attention of the

are labelled as being made of "grass grown and plaited by natives"; the price of a single hat varies from 15s. to 20 guineas.

WESTERN AUSTRALIA.

The most remarkable exhibits in this court are the marvellously fine specimens and blocks of Jarrah wood (*Eucalyptus marginata*). A portion of one enormous trunk lies on its side—the cross section of the base of which is highly polished, showing to great advantage the beautiful deep red colour of the wood. A magnificent specimen of curly Jarrah, which has dark, wavy, transverse markings is also shown. It is called a counter top—much too beautiful, however, for such a use—and measures probably 14 or 15 feet long long, by some 2 feet or 2 feet 6 inches wide. The woods shown in this court, like those from Queensland, are exceptionally well prepared and polished. Jarrah wood is well known to be the most desirable of all woods for moist or damp situations, indeed it may be said for any situation, as it bears not only changes of temperature without injury, but it also resists the attacks of Teredo, white ant, or any similar destructive agency. As proof of its durability a specimen is shown that has been lying on the beach at Bunbury for a period of thirty-six years, where it has experienced the action of the waves, sun, wind, and sand without any apparent injury. Several other interesting woods are to be seen in this court, and one notable object is a Black Boy trunk (*Xanthorrhoea*) 20 feet high—a remarkable specimen, beside which is a fine specimen of *Kingia australis* in flower.

VICTORIA.

Here, as in the other Australian courts, the products of the genus *Eucalyptus* are very prominent. Mr. Joseph Bosisto, the President of the Victorian Commission, who has been so long and so well known for his work in the development of the oils and resins of the *Eucalypti*, is a prominent exhibitor of these products, amongst which are essential oils of *Eucalyptus amygdalina*, *E. globulus*, *E. oleosa*, *E. dumosa*, *E. citriodora*, *E. obliqua*, &c. These oils have antiseptic and disinfectant properties, and that of *E. globulus* is tonic and stimulant. Here also are cigarettes of the leaves of *Eucalyptus globulus*, recommended for bronchial and asthmatic affections; *Eucalyptus* disinfectant pastilles, the fumes of which are said to be of great service in diseases of the respiratory organs, and to have the effect of driving mosquitos out of the room. The resin of the Black Boy or Grass-tree of Australia (*Xanthorrhoea australis*) is also shown. It is soluble in spirit, producing a deep amber colour, employed in staining wood to imitate Cedar and Oak. It is stated that in Mr. Bosisto's factory in Western Gippsland 12,000 lb. of *Eucalyptus* oil are annually produced, and as many as six tons of *Eucalyptus* leaves are manipulated daily. There is a remarkably good collection of Victorian woods, each specimen having a representation of the plant yielding it painted upon it: a slab of *Eucalyptus rostrata* measures some 10 feet by 3 feet. An excellent catalogue of Victorian exhibits is published by authority, in which are many useful notes on the woods and other vegetable products.

SOUTH AUSTRALIA.

This court will best be remembered for its scene on the Murray River, illustrating aboriginals at home. A very good collection of Australian fruits, of forest trees and shrubs, are shown in table-cases, and a representative series of South Australian woods well selected and arranged in convenient-sized panels. As an illustration of the growth of the Cork Oak (*Quercus suber*) in the colony, a specimen of cork is exhibited, grown at Mount Lofty, near Adelaide, at an elevation of 2300 feet. The trees were raised from acorns obtained from Spain in 1884, and that from which the exhibited specimen of cork was taken was in January of the present year 20 feet high.

Tobacco also seems to have made some advance in the colony. An Adelaide firm exhibits manufactured Tobaccos, and the note referring to them in the South Australian catalogue is as follows—"This firm commenced the manufacture of Tobacco in Adelaide about nine years ago, and now have a factory replete with the best and most modern machinery, which is driven by a 20-horse power engine, and the presses are worked by hydraulic pumps. About sixty persons are employed in making twist, plug, nail-rod, and other kinds and grades of Tobacco. Carpenters' and



FIG. 1.—*ABIES PINSAPO*: MALE FLOWERS. (SEE P. 8.)

be passed over in this general sketch. Woods also are very prominent in this court, as might be expected. A very good collection is shown beneath this trophy, and the trees are illustrated by a series of excellent photographs. In the centre of the court are some fine slabs of Columbian Pine. The very fine series of woods from New Brunswick are especially attractive, each wood being shown in various stages of bark in old and young wood, longitudinal and transverse sections, and on the chief panel of each wood is a painting of a branch in flower or fruit. Between the panels of each kind are small pilasters of branches with the bark on of the same tree. Some finely selected woods form this group, and among them are American Larch, Spruce, Hemlock, Maple, Beetle-nut, Ash, Birch, Oak, Beech, &c. Articles in Birch bark are numerous, and on the south-west basin is a real Birch bark canoe.

QUEENSLAND.

This court is contiguous to Canada, and the first things that strike us on entering it are two magnificent trunks of Australian Cedar (*Cedrela toona*); one of these measures 20 feet 5 inches in girth, and the

cabinet maker. An excellent descriptive catalogue of these woods has been prepared by Mr. F. N. Bailey, F.L.S. (Colonial Botanist), which consists of eighty-six pages, and treats of 427 woods arranged under their natural orders and genera.

NEW SOUTH WALES.

Though the collection from this colony is very extensive, and there are some fine sections of timber, the vegetable products on the whole are not striking, nevertheless there are some interesting exhibits, for instance, a large quantity of a woolly substance like fur is labelled "Pulse from base of stalks of *Macromia spiralis*," a new product, it would seem, from a Cycadeous plant, used, we suppose, for stuffing cushions. A curious and interesting ethnological collection is shown from New Guinea, amongst them several singular wooden drums ornamented with festoons of the hard seed shells of *Pangium edule*, which are probably used for the rattling sound they would give when shaken, as well as for their ornamentation. One case is filled with the celebrated Cabbage tree hats made from the split and plaited leaves of *Livistona australis*. They

MESSRS. J. CUNNINGHAM & SON'S
old-established nursery at Oak Vale has been
long celebrated for Rhododendrons, many fine

varieties of which have been raised by the veteran, Mr. Cunningham. Notwithstanding the inroads of that terrible person—the builder—who here, as in the case of many other nurseries in the vicinity of large towns, has encroached on the space, there is, we understand, still a fine collection of this favourite evergreen shrub.

Orchid Notes and Gleanings.

ODONTOGLOSSUM VEXILLARIUM.

MR. RIDOUT (p. 797, vol. xxv.) has been very successful with the culture of this plant. Nine and ten blooms on a spike are the largest number I ever heard of. We have had eight flowers frequently, and some of the bulbs on our largest plants produced four spikes to one bulb, and with an aggregate of twenty-eight flowers. Mr. Ridout will pardon me if I venture to say the last sentence in his letter is rather vague. "They do best by being kept gently growing nearly all the year round." May I ask at what time of the year they are not to be kept growing? I would prefer the sentence I have quoted minus the word "nearly." I counted the flowers and spikes as nearly as I could on our large plant; but on cutting off the spikes on which the flowers were still perfect, three days ago, after the flowers had been open four weeks, I find the number is slightly understated—there were forty-nine spikes and 289 flowers. The plant was purchased at Stevens' sale rooms in February, 1878; and I may add that the bulbs and leaves produced this year are larger than they have ever been before. I see no reason in the appearance of the plant to doubt that it will be larger and stronger next year. I have now repotted it with its associates.

Prof. Reichenbach described the Orchid in the *Gardener's Chronicle* for May 27, 1872, in his usual quaint way, and was very desponding about its successful introduction and culture in England. All previous introductions up to that date had died in the passage; and the Professor says, "That will no doubt be the fate of others; new importations will be tried, though nobody can pretend [assert] without being a charlatan, that any new importation will be successful, and in a short time, no doubt, there will be nothing more left of it, as with so many other lovely Orchids." It was first introduced successfully by Mr. Chesterton when collecting for Messrs. Veitch of Chelsea, and flowered in the Exotic Nurseries, Chelsea, in 1873. It received a First-class Certificate from the Royal Horticultural Society on May 7 in that year. The plant had two spikes of four flowers on each. Messrs. Veitch exhibited another plant the following month, on which were two spikes with six flowers on each. This was "the largest plant yet seen." *J. Douglas.*

A THREE-ANTHERED CATTLEYA MOSSIE.

A singular form of this well-known Cattleya was handed me the other day by way of a curiosity. The sepals were involute at the sides, but otherwise normal, while the petals were altogether wanting. The apex of the column exhibited the unusual phenomenon of bearing three anthers. The central and normally situated one was perfect, and contained four pollinia, although it was smaller than is usually the case. The lateral pair, although seriously deformed, proved on inspection to be real anthers, developed undoubtedly by separation from the column. Whether this separation was in any way materially assisted by the absence of the petals may remain an open question. Both cells of the anther were in each case present, but only the outer one contained a full-sized pollen mass. The others were much smaller, or altogether absent, while the loculi containing them were small and more or less fleshy. The pollen masses were much softer than usual, and easily separable into the normal groups of four pollen grains, which the microscope showed to be of unusual size, but thin walled and nearly transparent. The connective, or what corresponds to such in typical stamens, was much enlarged, petaloid, fleshy, and rose-coloured, with a median dark line. A strong nerve could be detected continuous with this, and extending to the base of the column. The labellum was somewhat malformed, but otherwise normal. *J. P.*

PHALENOPSIS FROM MR. PHILLBRICK'S GARDEN.

The Oldfield Orchids are, as our readers know, celebrated for containing many gems of the great Orchid family, and which are almost always well grown by Mr. Heims, Mr. Phillbrick's gardener. As instances of remarkable development under culture we have been favoured with the sight of a flower of *Phalenopsis grandiflora*, of the unusually great depth of 4½ inches in the sepals, and the same width across the petals. The bloom is delicately suffused with purple, although the aspect at a short distance is that of a white flower. The side-lobes of the lip are yellow instead of rose coloured, as in *P. amabilis*. The other flower is *P. Sanderiana*, also of a large size, 3½ by 2½ inches, a fine flower for this species. The colour is of a deep purplish-rose, veined with deeper tints of purple. We cannot remember to have seen a deeper coloured flower.

COTTONIA PEDUNCULARIS.

Little or nothing seems to be known respecting this curious and interesting Orchid in gardens, and no notice is taken of it in gardening dictionaries and other publications, such as Loudon's *Encyclopedia of Plants*. There are a number of plants in Sir George Macleay's garden, Pendell Court, introduced from India, some of which have been flowering for a considerable time. Two distinct species, or at most three, are all that are known belonging to the genus. The largest and most important is that under notice with a branching flower-stem bearing numerous dark coloured flowers. There is an uncoloured figure of it in Wight's *Figures of Indian Plants*, vol. v. t. 1755, under the name of *C. macrostachya*. Lindley is the authority for the accepted name, and the plant would seem to enjoy a considerably wide distribution in India and Ceylon. The sepals and petals in the living specimen examined are narrow, pale brown, revolute at the margin, and reflexed. The most striking feature of the flower, however, is the resemblance the labellum bears to that of some species of *Ophrys*, such as *O. bombylifera*. It is oblong in outline, slightly constricted in the middle, hairy or pubescent at the sides in the lower half, deep brown, almost black, and shallowly bifid at the apex with a tooth in the notch. This organ is also notable for a curious depression about the middle on the upper surface, and a small bifid or toothed crest near the base. This latter is shown in the figure quoted, but no notice is taken of it in the description furnished by the *Genera Plantarum*. The linear, bifid, rigid distichous leaves remind one of a *Saccolabium* or *Acicler*.

SELF-FERTILISATION OF EPIDENDRUM VARIEGATUM.*

THE curious method of fertilisation exhibited by this plant deserves notice as being somewhat singular, since it is effected in every case by purely mechanical means. The lip is so situated in proximity to the column that it can exert pressure on its under-side, and the anther is held in place by projecting horns which hinder it from being easily detached. Without being in any way displaced from the anther-case, the pollen masses become enlarged and consequent upon the pressure of the lip against the column are squeezed so that they distend laterally inwards and thus come into contact with the stigma. The lip even when bent back with some force, returns to its place with a strong spring, and it would therefore be impossible for any but a very large insect to exert sufficient force, to effectually separate the lip and the column and give room for the admission of the pollen masses. Besides if sufficient force was used as to detach the anther case, it would in most instances fall from the flower, carrying with it the pollinia—owing to the peculiar form of the lip. In the course of some four years, during which the growth of this plant has been carefully watched, no instance has been observed in which the flowers have failed to fertilise, and the anther-case has always remained attached to the column, together with the persistent flower until the seeds are ripe and the capsule bursts—a circumstance tending to prove that fertilisation is self effected.

The plant itself, according to Lindley in *Folia Orchidacea*, appears to be very variable; he places it in § Osmophytum, to which it in all allies, *E. fragrans*

* *Epidendrum variegatum*, Hook., *Bot. Mag.*, t. 3151. *E. carolinense*, Hook., *Bot. Mag.*, t. 3295. *E. crassilobum*, Pöppig and Endl., *Nouv. Grac.*, 11, p. 7, t. 102, according to Lindley in *Folia Orchidacea*.

and *E. cochleatum*, also belong, and to the former of which it bears a great resemblance, being scarcely distinguishable except when in flower. *J. H. Hart, Superintendent Government Cinchona Plantation, Jamaica.*

NURSERY NOTES.

GLOXINIAS AT MESSRS. HOOPER & CO.'S, TWICKENHAM.—Although these are now past their best, yet the remainder of what must have been a grand sight is well worth seeing. Messrs. Hooper & Co. are renowned for their Gloxinias, and justly so. The strain seems a very good one, although the foliage would not suit every one's taste, many preferring those with drooping foliage, which hoods over and covers the pot; but if the plants be grouped this character is not noticeable. With only one or two exceptions the plants are of the erect-flowering type. The colours of Messrs. Hooper's strains leave nothing to be desired, and defy description; all shades of red and blue abound, and mixtures of both colours are seen. A noticeable variety is one named *reticulata*, having red spots on a white ground, and a brilliant patch of carmine at the junction of the lobes of the corolla. The throat is of a reddish coloured ground, having delicate pencilling of a deeper shade. The carmine spot gives it a very attractive character.

Another variety (unnamed) has a most curious appearance. First, there is a pink band all round the corolla, which is much crimped and fringed. The flowers look at first sight as if they are fading. Next this band is a deep crimson ground shading off into a chrome-yellow in the throat. If not beautiful, this form is at least peculiar, and worthy of cultivation. "Distinction" is a name given to a handsome large-flowered variety with regularly formed flowers; the edging is of a pale violet, succeeded by a dark band, thus gradually streaked off on a pure white ground. The name which has been applied is very appropriate. We noticed one plant which had flowers with a white edge, then with a band of red, and running through most brilliant shades of red and violet to a decided violet in the throat. Another mixed form was most delicate. A pure white rim was followed by a patch of a mixture of colour, beginning with a very pale pink, and then gradually becoming streaked over with pale violet, with a reddish tinge, succeeded by white running down the throat, which towards the base is spotted with an indescribable reddish-blue. Contrasting with these highly coloured forms a plant with perfectly white flowers, with the exception of the yellowish-green throat, attracted our attention. The colour of the throat was so clear and fine that it set off the otherwise white flower to great advantage. The foliage of this plant completely covered the pot, and the entire plant was most pleasing. Numerous other forms are to be seen. It is difficult to make selections for special remark from among so many beautiful forms. Both pale and dark coloured forms are plentiful. The greater number are red flowers, but still blues are by no means rare. There are spotted forms of both colours, which are both numerous and good, having fine large flowers, which are perfect in form. The plants now in flower are all last year's seedlings, and have made good healthy plants, producing abundance of flowers. Besides these in flower at the present time Messrs. Hooper have a large batch of young plants now coming on, and which promise to be as great a success.

BEGONIAS AT MESSRS. LAING & CO.'S.

The Begonias at Forest Hill are again a special feature, and give promise of being as great an attraction as ever. They have been flowering for some time in great profusion, and will continue to do so during the season. The number of plants now being cultivated in the houses and planted out is enormous, amounting to something like 200,000, 18,000 of which are doubles. In the show-houses, filled with Begonias, there are about 1000 plants now in full bloom, and which present a very imposing and gorgeous spectacle.

The single-flowered varieties are of great size—too large, to our taste—6 and 7 inches in diameter being about the average. The plants are very healthy, growing vigorously and producing flowers in such profusion that they seem masses of colour; a house filled with such plants as these in all their various shades of red and yellow, and pure white, can only be imagined, not described. The same may be said of

the double forms—only, of course, they are not of such great dimensions. We took special note of a few of the most attractive forms, among which were the following:—Illustration, a double bronze-yellow, slightly flushed with salmon-pink; Virginalis, a double white, a most desirable variety, the flowers being erect; Randolph, also a double of a most rich deep and brilliant carmine-crimson colour. It is a free flowerer, but has one slight disadvantage, in having long stems. A double creamy white flower of a good regular form is Marchioness of Stafford. Mrs. Amy Adcock is a double pale crimson with a white centre; this is a very pleasing variety. A variety that has been frequently noticed before is Davis hybrid, fl.-pl., but it is of such a rich red colour, and so graceful in appearance that one cannot pass it by without notice. Charmer is one of this year's seedlings, and has been twice certificated. It is a single white, with a rich crimson edge. The flowers are large and plentiful. Truly it is well named. A plant of a somewhat novel character, having red flowers with the lateral segments tipped with white, has received the title of Piebald. Of the white-flowered class, a specially pleasing one is White Perfection, with large pure white flowers. These are a few of the most noticeable, but where so many varied and beautiful forms are so abundant it is impossible to enumerate all. To appreciate them thoroughly they have to be seen, and we would strongly recommend lovers of these popular flowers to pay a visit to Forest Hill, and judge for themselves.

MESSRS. KELWAY'S HERBACEOUS PÆONIES.

The remarkable collection of cut blooms of these, shown by Messrs. Kelway & Son, of Langport, at the meeting of the Royal Horticultural Society on the 22d ult., must have come to many persons as a great surprise. These dashing hardy flowers are represented in many gardens only by the well known crimson form, that the wide range of varieties shown on this occasion, not only by Messrs. Kelway & Son, but by Mr. T. S. Ware, Tottenham; Messrs. Barr & Son, Covent Garden; Messrs. Paul & Son, Cheshunt; and Messrs. E. H. Krelage & Co., of Haarlem, ranging in colour from shining deep maroon to pure white, through many intermediate shades, must have astonished some gardeners as well as the general public. The fact is that Kelway & Sons are so constantly raising seedlings that the varieties increase rapidly, but it is only on occasions like this that one has an opportunity of seeing not only how large and fine the new forms are, but how greatly they vary in colour. And what a sight it must be at Langport to see 5 acres of Pæonies in bloom; and that there may be the best opportunity for comparison, two plants of each variety are put out every year, in addition to a large number of seedlings.

Some patience is required in raising seedling Pæonies. The seeds take one or two years to germinate. The plan adopted at Langport is to sow them in the spring in drills in a cold frame, but wide enough apart for plants in pots to be placed between them during the winter. Here the plants remain till they are two years old, and then they are planted out in the open ground to bloom. Another space of two years is required before they flower in a satisfactory manner; and so some amount of patience is required, like that exercised by raisers of Tulips. The soil at Langport is a heavy loam resting upon a bed of gravel, and it seems difficult to imagine one better adapted for the growth of Pæonies.

Varieties are increased by root division. This is done about November, when the roots are broken or cut up into pieces, much as those of Rhubarb are, but each piece must have an eye, or no plant can be expected; and what bolder, more showy, and striking hardy border plant have we flowering in June than these herbaceous Pæonies? They are accommodating in the matter of soil, but in a good deep loam they do remarkably well. What a range of varieties there is to select from is shown by the fact that Messrs. Kelway & Son catalogue something like 320 varieties. These are all double flowers; in addition they have a list of seventy-two single varieties.

Of the double forms the following are extra fine:—Lady L. Bramwell, silvery-rose, extra fine, large and full; Mymotus, deep crimson-maroon; Acunum, bright rosy-purple; Lactatus, pale rose; Beatrice Kelway, having broad pink guard petals, and a white centre; Feronia, pure white; Papirus, bright purplish crimson; Abora, pale purplish-rose; Princess

Beatrice, broad, bold pink guard-petals, the centre creamy-white and pale pink; Frances, delicate pink, margined with white; James Kelway, rich, shining maroon-crimson; Princess Patricia, broad white guard petals, and delicate primrose centre; Mortia, pale peach; Carnica, delicate rose; Lady Carrington, blush, the centre petals having a distinct Picotee edge of red; Macella, the guard petals lively rosy-pink, broad and bold; the centre a bunch of thin golden petals, a few of them tinted with purple; Princess Henry of Battenberg, shining maroon, very fine; Princess of Wales, delicate pink, margined with white, extra fine; Prince of Wales, pale lustrous, maroon; Orbus, delicate rosy-purple, extra-fine Vesulus, deep pink, paler on the edges; Silenus, bright rose; and Albion, soft peach. This is a selection of the leading varieties in a large and varied collection.

A few of the most attractive of the single-flowered varieties will be found in Prince Alexander, pale rose, large golden tassel in the centre; Millais, bright deep rosy-purple; Princess Victoria, delicate blush, almost white; Pinetux, bright crimson; Crimson Gem, pale purplish-crimson; Queen of May, pale rose; and Catulus, bright purplish-crimson. These are but a few, there are other varieties varying in colour.

A WATER FUNGUS: MITRULA PALUDOSA, FRIES.

Few fungi of the summer and autumn attract more admiration than the pretty little fungus here illustrated (fig. 2). It is the Marsh Mitrula (*Mitrula paludosa*, Fries), which grows upon dead leaves, moss, and twigs, as they float in quiet drains and other water places.

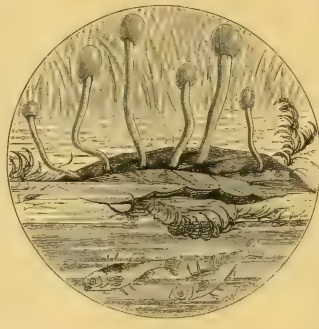


FIG. 2.—A WATER FUNGUS: MITRULA PALUDOSA, FR.

The stem is white and slightly hollow, or piped, and the club-shaped top is orange in colour and stuffed. There is a perfectly white variety, named *M. alba*.

The majority of fungi only require a moderate amount of moisture for their sustenance, for instance, too much moisture is fatal to Mushroom growth, but the plant before us cannot live unless it grows in a semi-submerged condition. A second fungus, the allied *Vibrissaria truncorum*, Fries., grows in similar positions on submerged wood as does *Peziza clavus*. *Mitrula* is an Ascomycetous fungus, i.e., the spores are all borne in sets of eight within transparent bladders or "asci," which asci completely invest the surface of the top or "pileus." The distinction is an important one, as in the Club fungi found under Clavaria, the spores, which grow in fours, are all free, i.e., without any microscopic investing bladders or sacs.

Mitrula paludosa, is remarkable for its singular habitat, pretty form, and beautiful coloration. It is not uncommon in some of the pretty water-courses of Wales, Devon, Cornwall, &c. *W. G. S.*

CAMPANULA ALLIONI.

This is a very beautiful Campanula, remarkable for its mode of growth, the rootstock being creeping, rooting into the soil and sending up shoot stems with linear sessile leaves, and relatively very large, bell-shaped, violet-blue flowers about 1½ inch long. These flowers grow singly at the ends of the branches. Sir Joseph Hooker remarks (*Botanical Magazine*, t. 6588), that the creeping rootstock adapts it well for its habitats, which are the moving slopes of soil at the base of precipices. It is a native of the Alps of Piedmont and Savoy. Our illustration (fig. 3) is from a drawing of M. Sendtner of Munich.

REPLANTING VINERIES.

ANY one having Black Hamburg Vines in the early or second early houses, which, through old age or other cause have not yielded satisfactory crops during the last year or two, I would strongly advise to cut all the bunches as soon as the berries are ripe with 9 or 10 inches of wood attached to each bunch, the ends of which should be placed in bottles of water (having a few small pieces of charcoal in each) in the Grape or other cool room. This done root out the old Vines, remove the soil from a narrow strip of the border, say 5 feet wide or less, see that the drainage is all right, placing over it a layer of turf, grass side down, and afterwards fill the space excavated with a compost consisting of five parts of good turfy loam, one of wood ashes, one of lime rubble, one of fresh horse-droppings, and about an ordinary sized garden barrowful of fresh soot, mixing the whole before using. In preparing the border make allowance for the soil subsiding 5 or 6 inches within as many weeks from the time of making it.

PLANTING.

Before doing this clean the structure thoroughly, washing the walls with hot lime-wash. If the cultivator be not provided with home-grown Vines of course he will have to buy them from some firm reputed for the cultivation and sending out of clean, healthy plants. These, when thoroughly moist at the roots, should be turned out of the pots and the soil all round the ball of roots and earth slightly loosened and be then planted at 3 feet apart about 1 inch deeper than they were in the pots, making the soil firm about them. In planting them put a support to each, and fasten them to the trellis, but leave the ties long to allow of the subsidence of the soil. This done, give tepid water through a rose to settle the soil about the roots, and afterwards give a slight mulching of rotten dung. Shade the Vines with mats for a few days, until the roots have taken to the new soil, and with this object in view, and to freshen up the foliage, which, under the circumstances, will show signs of flagging, damp them slightly overhead three times a day until they have made fresh growth, after which morning and afternoon will be often enough, damping, however, the surface of the border, pathways, &c., twice during the interval, during bright sunny weather, to promote a growing atmosphere.

Assuming that the Vines have been stopped once or twice during the last few months, and that in each case the laterals resulting from the said stopping have been pinched out as soon as they appeared, thereby causing the latent bud at the base—which, if the laterals had been allowed to grow, as is frequently the case, would not move until next year—to push into growth after the lapse of eight or ten days, the sap in the meantime will be necessarily directed to the development of both stem and buds below. Thus treated, a uniform plumpness of buds is secured the entire length of the rods. When the Vines so stopped have made 24 inches of fresh growth, stop them again in the manner indicated, and repeat the operation to the end of the growing season, except in the case of temporary Vines, which are to be cut down after they have fruited next year, these may be pinched hard at 3 feet from the bottom of the trellis; but should there be any danger of the buds in the axils of the leaves bursting, a few of the laterals and sub-laterals near the top of each rod so disposed can be allowed to grow to draw off the sap and thus prevent the fruit buds from pushing into growth. In order to concentrate all the energies of the individual Vines in the thickening of the rods and the enlargement and consolidation of the buds proceeding from their bases, the lateral shoots springing from the same source must be stopped at the first or second joint, as also should the sub-laterals, and those which may afterwards appear should be pinched close back. These remarks are also applicable to that portion of the Vine between the ground and the trellis to insure uniform thickness of main stem from its base. Better results will be secured from Vines so treated than would be the case from rods, the laterals of which have been allowed to grow uninterrupted during the previous season with a view to encouraging a corresponding amount of growth at the roots.

Vines thus treated will reach the top of the rafters before the end of the season, and may be allowed to bear a few bunches each next year. This method of procedure has everything to commend its adoption,

seeing that a crop of Grapes is taken from the old Vines this year in sufficient time to establish young ones for carrying a crop next year. Remarks on the watering of the borders, ventilation, temperature, &c., will be found at p. 687, vol. xxv. *H. W. Ward, Longford Castle.*

Floxiſts' Flowers.

THE CARNATION AND PICOTEE.

It is very interesting to observe the influence of different seasons on the plants under our care. Sometimes the weather is propitious; more frequently it is the reverse; but, whatever may be the difficulties we have to contend with, sooner or later the flowering season will come. "While the earth remaineth, seed time and harvest, summer and winter, day and night shall not cease." We may take the same

weather. The pest may be destroyed by dusting with tobacco-powder, or if the plants are under glass by fumigating with tobacco-smoke. Some flowers when fully expanded are much injured by tobacco-smoke: the Carnation and Picotee blooms receive no injury whatever from it. I like to keep up a succession of bloom for as long a period as possible, and for that purpose a few plants are placed in a warm house; these are now in flower, and very beautiful they are, especially some of the brighter coloured selfs. During the spring months I depend upon the perpetual flowering varieties to keep up a succession of bloom until the summer flowering type come into flower. Many intending exhibitors will probably read these lines, and those who have plants in pots should place them under glass as soon as the flowers show colour; but it is well to bear in mind that they must not be shaded too much, and the nearer they can be placed to the glass the better. The house should be freely ventilated night and day, and merely shaded from bright sunshine. Those who have not the convenience of a house in which to

fancier will find many hours occupation in attending to his plants during the months of June and July. There is disbudding, tying the stems to the sticks, brushing off green-fly, trapping earwigs (another troublesome insect, which eats the petals through at the base, and when the flowers are cut the petals drop out). The old fanciers place cards to the flowers on which to display the petals, which some tasteful persons do not approve of. This is a matter for private consideration. I never use manure-water at any time during the growth of the plants, nor when the flowers are expanding.

Those intending to form a collection of the best varieties should attend the exhibitions of the several Carnation Societies, North and South. They can there see the best varieties exhibited, and purchase those that take their fancy. Every Carnation and Picotee grower ought to be a seedling raiser, and proving the seedlings is one of the most interesting of the many details of the fancier's work. The work must be done in a methodical manner. The plants from which it is intended to save seeds should be placed, if possible, by themselves, and they ought to be hybridised every day when in flower; and in attending to this necessary operation of the gardener's art a good deal of judgment is necessary. Not only must the very best varieties extant be selected as seed and pollen bearers but the classes ought not to be mixed. The Carnation and the Picotee are each subdivided into six classes, exclusive of the yellow ground Picotees, and it is only proper that the scarlet bizarre Carnations should be kept by themselves; and the same holds good to the end of the chapter. The seeds ought to be sown about the first week in April over a hotbed; they will very speedily vegetate, and must be pricked out in boxes 3 or 4 inches apart, to be planted out in the open ground as soon as they are large enough. They will form large, handsome specimens, if they are allowed 18 inches each way, and the quantity of flowers they produce is truly astonishing; we have had upwards of 200 on one plant. A few of the very best varieties must be selected to grow again, and the best way to preserve them is to dig up the plants and pot them. The layers on such plants usually form roots much more freely than they do on those that have been grown in pots all the year round. Each plant will produce on an average about twelve layers, which may be tested in various positions next season; some may be grown in pots, and others planted out in the open ground, to prove their adaptability as border plants. For this purpose the self-coloured flowers are the most popular, they are better adapted to cut for placing in bouquets, &c. Many will come white. I had from 700 seedlings last year, three or four very fine white varieties raised from the ordinary flakes and bizarres; this at first sight seems very extraordinary, but we must not forget that both bizarres and flakes are white, that is, they have a white ground, more or less pure, on which the colours rose, red, purple, maroon, scarlet, &c., are deftly laid out in flakes and stripes. *J. Douglas.*



FIG. 3.—*CAMPANULA ALLIONI*: FLOWERS BLUE. (SEE P. 12.)

promise to ourselves, in reference to the choice flowers we cultivate. Seasonal difficulties we shall always have, and the present season has not been a favourable one by any means. We have always boasted that the Carnation and Picotee stand any amount of frost if the plants are kept dry; but I certainly found the weakly plants were considerably injured this year, although those with a vigorous constitution passed through the trying spring very successfully. I can generally tell in May whether they are late or early, for this reason: most of the plants are placed in cold frames at a uniform distance from the glass, and about the 1st of May they have usually grown so much, that the lights cannot be moved off without injuring the rising flower-stems. This year they were quite three weeks late at that time, and the weather since has not been favourable to rapid growth.

In ordinary seasons the general Carnation bloom is at its best near London about July 20, but we have had such adverse seasons recently that this date is not to be depended upon; on one occasion we had to place the plants under glass to get the flowers in by August 7. Green-fly has not been so troublesome this year as usual, nor have we as yet seen any black thrips; these latter do considerable damage in very hot

place their plants may have a few frame-lights to spare. The plants may be arranged on a bed, a row of posts should be driven into the ground on each side of it; the tops of the posts ought to be 9 inches higher on the north side than they are on the south. A rail should be nailed on the top of each row of posts to support the lights. Some shading material may be nailed on to the posts to prevent winds from blowing underneath; but it ought not to be fixed quite to the top of the posts, leave about 6 inches all round for ventilation. It is necessary to throw some very slight shading over the glass during bright sunshine when the flowers are open. If they are shaded too early they lack colour.

Many of the best varieties of Carnations and Picotees have a tendency when well grown to burst their pods; this is a serious fault, as a flower with a pod split down one side is an unsightly object. It is caused by the pod being too full of petals; and may be prevented by slitting the pods down a little on the upper side; it is the under side which always splits, and, as a further precaution, some of the flowers may be tied round the calyx with a strip of matting. During hot weather the plants require plentiful supplies of water at the roots. The Carnation

COLONIAL NOTES.

A RAMBLE AMONGST TREE FERNS.

RECEIVING an invitation to make one of a party or the above purpose I soon came to a conclusion on the matter. After a railway ride of some forty miles the station was reached, where waiting I found a conveyance, two horses in tandem, and a lady driver. Here allow me to digress a moment for the information of your fair readers in England. These horses, with others, had been trained personally for this lively and uncommon way of driving by this young lady of some seventeen summers, and right well had she performed her task; the secret of her success, I afterwards learned, being kindness and fearlessness. Such is her influence over these animals that they refuse to allow gentlemen to saddle or ride them. Whilst chatting on the subject of long drives with horses she merrily replied, "But mine are fond of them;" but she added, "they require to be driven judiciously." After a thirteen miles' pleasant journey, we came to our rendezvous—my friend's homestead, which lies nestling on the confines of an immense forest. Here, I found vinerias with their luscious fruits ripe (when invitations are doubly acceptable), and pot plants of no mean order, Coleus,

Begonias in variety, Petunias, Fuchsias, Pelargoniums, &c.—the flower and fruit garden, in harmony with the surroundings. Darkness shortly afterwards put an end to further inspection. After the usual preliminaries next morning, we started on adventure No. 1. Here the early morning impressions are, that hardly anything in Nature can exceed the wild, weird grandeur of these primeval forests, grey with the ravages of untold storms—standing as they do memorials of many centuries of time, having given shelter to the Moa bird (long since extinct) and the Maories alike. We came across a forest giant, the Totara [*Podocarpus Totara*], which had been felled a few days previous to our visit, and which measured 9 feet in diameter across a fresh-sawn cut 2 feet from the ground, and which was calculated to have close upon 1000 rings or to have grown as many years. Here we soon found some of the objects of our search—*Cyathea dealbata*, towering above the Dicksonias, and vying with them for the supremacy. Here also were two other varieties of *Cyatheas* which we could not determine. In close proximity we found growing in marvellous profusion, *Pteris lucida* and *P. scaberula*, with *Gleichenia Cunninghami*, locally called the Umbrella Fern. In this immediate neighbourhood, in small rivulets, we found, almost hidden in verdure, that charming Queen of Ferns, *Todea superba*, and the *Todea hymenophylloides*. The latter is certainly the most handsome, with its graceful fronds fully 2 feet in length, and its beautiful plumose pinnae. To see these in their native habitat undisturbed, is something to admire and remember. Here also we came across a veritable bridge of live Ferns, *Tern Ferns* cut down and laid across each other (with minor ones interlaced), and growing notwithstanding their prostrate condition; for so tenacious are they of life in their native habitat that they insist upon growing whether standing upright or lying down. Frequently we came across them where they had been ruthlessly cut down and left, afterwards growing exactly the shape of an immense tobacco-pipe, with its bowl upright, 3 or 4 feet in height.

At every turn huge *Polystichums* and *Pteris* barred our progress. The chief feature of this forest is that you are constantly meeting with groups of different species of Ferns. There is a carpet of dwarf ones, such as *Doodias*, *Blechnums*, and *Aspidiums*, which it seems almost barbarous to trample upon. Farther on the nodding plumes of the tree species seem to court your admiration, until your sense of discrimination gets mazed, and your note-book of memory fails. There also we came across the New Zealand Mistletoe, suspending itself exactly like the English one in tufts, but unlike it in one respect; it seems here at any rate to attach itself to only one species of tree. There is some controversy as to whether it is a real Mistletoe [*Loranthus* sp.], certainly it is a parasite, and, therefore, of the order *Loranthus*, for we closely examined its structure; leaves tough and leathery, 2 x 1 inch, entire, acuminate, and red berried. At this auspicious moment a shower of rain checked our further progress, and we retreated for lunch.

Our next adventure (No. 2) was a more serious undertaking—no less than the ascent of a creek some 20 yards wide, and about 2 miles in length—a rushing stream, with numerous rough and large boulders. The first glance convinced us it would be a slow, difficult, and uncertain journey; but we had two lady guides, and therefore could not honourably retract; so we donned bush costume, and prepared for the worst. This creek is arched over with, of course, evergreens in all stages of life and decay, conspicuous amongst them being the *Grisselinia littoralis*, the New Zealand Laurel, festooned with lichens and mosses, the latter drooping 2 feet in length; clinging also to these were *Asplenium flaccidum* and *A. bulbiferum* in friendly combat for the mastery with *Polypodium Billardieri*, and *tenuellum*. Each side of this creek is walled in by rocky terraces, draped with Ferns of many species and varieties; amongst others we recognised *Cytidium falcatum*, *Lomaria Patersoni*, *L. Fraseri*, *L. procerum*, *Polystichum angulare*, *P. proliferum*, *Pteris longifolia*, with its stately fronds; and several *Nephrodiums*—indeed, here fern-dom had certainly run riot. Occasional breaks in these terraces revealed witching glens, contributing their tiny sprays into our noisy stream. Still scrambling higher, after frequently emptying our boots of clear cold water, we came upon a peculiar and distinct variety of *Lycopod*, furnished only with a simple viry rhizome in unlimited lengths; about

every 12 inches it pushed a single strong rootlet into the soil, and threw up a spreading frond or branchlet, resembling a miniature tree moss. Pushing our way still higher up we came upon a gem, the rare *Hymenophyllum filicifolium*, with its delicate tracery and black spores, the finest of the filmy Ferns, fronds 12 to 15 inches in length. Here also (for we were getting nearer the foot of the ranges and therefore more and more in the shade) was *Acrophorus hispidus* in abundance, and the neat little lace *Asplenium*. The terraces were now becoming more perpendicular, the result being that mosses and lichens were taking the place of Ferns, and lovers of these might have revelled in delight, so beautiful were the specimens. Climbing was now becoming difficult, when a sudden bend disclosed a charming cataract some 14 feet clear fall, a miniature Niagara; this blocked our further progress upwards. After an interval of rest we decided upon our return journey, which we found as difficult as the upward one. After a damp and exciting struggle we reached our starting point, where we found our faithful quadruped waiting to convey us to less exciting scenes, and where we soon satisfied our eager appetites. *T. Smith, Timaru, New Zealand.*

FORESTRY.

THINNING.

THE thinning of young plantations, more especially such as are being operated upon for the first time, should now be taken in hand and continued till about the end of August. This is all the more necessary in recently formed woods at high altitudes, as by thinning during the summer months the remaining trees are better able to withstand the succeeding cold weather than when the work is performed at the usually specified time in the autumn or winter. Of course this rule must not in all cases be applied generally, as it is well known that timber cut during the summer is inferior as regards lasting qualities to that felled at any other time. In thinning elevated plantations let the work be executed with great caution, as the results occasioned by the free ingress of cold winds are oftentimes serious in the extreme. Rather thin often, and remove little at a time than undergo any risk, and pay attention that the outer line or lines on the exposed sides are left thicker than those within the woodland. Collect the poles in lots, keeping each kind separate, and arrange according to size. The lots had best be formed along the sides of the clearance roads, and where facility for removal is guaranteed. In such woods the branches may be of but little value; still, for the health of the trees and tidiness of the woodlands they had better be made into faggots, and either sold at once or carted home and stacked for winter use in the mansion. By so doing all forest produce is utilised, and the ever-increasing insect pests kept considerably in bounds.

HEDGING.

Now is the time to prune with a sharp switching knife all sorts of hedges—Yew, Box, Privet, Thorn, Beech, or Hornbeam—and at the same time it will be advantageous, and, perhaps, obviate the chances of its being forgotten altogether, to thoroughly clear the ground along the base of each, freeing it from all rank weeds—indeed, weeds of any kind—and removing any dead or dying plants and twigs. Collect the prunings with a rake into heaps, and either have them conveyed to some suitable place for such rubbish, or burned on the spot. In the case of Yew prunings, or, indeed, those of Laurel and Rhododendron, the best way is to reduce them to ashes on the ground, as all three are highly deleterious to farm stock generally. Yew branches in particular should never be allowed to lie about within the reach of horses, cattle, or sheep; and it is likewise well to remember, that in a half dead state the foliage of this tree is even more dangerous than when newly cut. In cleaning along the base of fences, the hoe and rake are, perhaps, preferable to any other tools, although good results frequently follow a shallow digging of the soil, but in so doing take great care not to come in contact with, nor to injure the surface roots. Bear in mind that clean kept hedges, and such as receive an annual trimming, will last much longer, and form a more impenetrable fence with less cost for repairs and attendance than those which are allowed to run wild and have their own way. *Lawn and nursery*

hedges may receive two trimmings annually, one in early June, and the other in August, thus keeping them at all times in a neat outline and inducing a close even growth. *A. D. Webster.*

The Flower Garden.

PELARGONIUMS.

WHERE the necessary house-accommodation for wintering bedding Pelargoniums in 4-inch pots exists, the present is the best time to begin propagating for next year. Select a sheltered situation with a good exposure to the sun, and one well provided with drainage. Throw this into 3 or 4 feet beds; get a mixture of leaf-mould and sand in about equal quantities, and mix this with 2 inches of the soil in the beds. On this the cuttings should be pricked off from 2 to 3 inches apart. They will be rooted by the usual time, and ready for potting up in August. This is a capital plan for saving labour in the busy months of spring. With this plan only about one-half the usual quantity of Pelargoniums are needed to fill the beds, as the plants are much larger and they flower more abundantly than when struck later on in the autumn.

SUB-TROPICAL BEDS.

Special attention must be given here, in order to induce the plants to make a vigorous growth, they must receive copious supplies of water and a mulching of well rotted manure. See that all tall growers as *Cannabis*, *Ricinus*, *Wigandias*, &c., are securely staked. Frequently stir the surface of all flower beds with the hoe, or where that is impracticable with a small hand fork. This is of great importance, especially where water has been artificially applied. Flatten down edgings of *Cerastium* and clip them into proper shape; this is frequently requisite in order to keep it in proper trim. *Santolina* will often require the same treatment, or else it will soon out-grow its proper bounds.

RANUNCULUS.

should be lifted out of the beds as soon as the foliage and stems turn yellow, or else they are apt to again start into growth. These are best stored in sand and placed in a cool shed or cellar.

CREEPERS.

These should have their shoots thinned and regulated as growth proceeds. Lay in sufficient young growths to furnish all bare spaces, and expose them well to the influence of light and air, in order to have the wood well ripened for next season's display.

HEDGES, &c.

Clip hedges into the desired shape, also plants which are used for the embellishment of Italian and geometric flower gardens. These are cut into all sorts of architectural figures, but I must confess I never saw any beauty about them; they are too stiff and formal. Sweet Bays and Laurels are better trimmed with the knife, as the shears mutilate the foliage, causing it to turn brown on the edges.

SOWING, &c.

A sowing of *Mignonette* and many other of the hardy annuals may still be made. For late flowering stake any of the tall growing kinds, to prevent them falling over. A good sowing of *East Lothian Stocks* should also be made at once. If these be pricked into a cold frame, wintered with slight protection, and planted out in spring, they will be in full flower by the middle of June, and will continue flowering throughout the summer. Divide and strike cuttings of any new plants which are scarce. *W. M. Baillie.*

PLANTS AND THEIR CULTURE.

COLOURED-LEAVED PLANTS.

THE foliage plants in this department, such as *Alocasias*, *Marantas*, *Anthuriums*, *Fittionias*, *Cyanophyllums*, *Spheroignes*, &c., will be much benefited by having frequent waterings of liquid manure. Keep the syringe well at work amongst the plants, regulating the young growths as they come up, otherwise some of them will get crippled in pushing through the older foliage and stakes. A watch must be kept for fly on the young leaves. *Cyanophyllum*

magnificum and *Spherygyne latifolia* must be kept in the shadiest part of the house. All the above plants are moisture and shade lovers, but shading must not be used more than is necessary to prevent burning or discoloration of the foliage. For *Crotons* plenty of light, heat and moisture are the conditions most favourable to their growth; to ensure this the plants should be freely syringed both morning and afternoon, shutting up early so as to husband some heat. The plants should now be making rapid progress, and liberal supplies of water at the root will be required. *Crotons* are well adapted for table decoration, especially those with long, narrow and spiral foliage when grown with a single stem in 6-inch pots.

CALADIUMS.

Caladiums should now be growing away freely; any small bulbs or eyes which were not ready some time ago for potting should now be potted. Caladiums do best in loose rough soil, such as fibry loam, leaf-mould or peat, and few plants are more effective during the summer months than are dwarf sturdy specimens of these. A selection should be kept in suitable sized pots, so as to be available for decoration when wanted. If the plants be subjected to plenty of light, their stems and leaves will become much stouter and stronger, and the colouring much brighter and more fully developed than when shade is employed beyond what is absolutely necessary to keep them from burning.

DRACENAS.

These most accommodating plants may now be set in any cool structure, provided they have been prepared for it during the past few weeks, by being gradually hardened in a drier and more airy house. There are few if any stove subjects that will stand the sudden changes of temperature and hard usage that the *Dracenas* will. There are now so many varieties, and the range of colour in their leaf-markings is so wide, that a fair collection should be in every establishment where summer or winter decoration is required; and although the *Dracena* stands the effects of usage indoors with impunity, it is advisable to change them as often as possible. *A. Evans, Lythe Hill.*

THE ORCHID HOUSES.

DENDROBIUMS.

THE house we set apart for these runs east and west, and as we use the thinnest tiffany for shading, that is fixed on the outside, so that the sun can exercise its full power on the plants grown in this way. They will stand a much stronger fumigating when grown thus, providing all the plants are moist at the roots. It has been thought by some persons that *Dendrobium thyrsiflorum* and *D. densiflorum* are injured by being grown in too much sunlight, and that spot is induced; but I think there is some other cause for the spot on the leaves. Many of the *Dendrobiums* will now be far advanced in growth, and will be making fresh roots from the base of the new pseudobulbs; those that are looking extra strong might require a small shift if they are under-potted, but should be disturbed as little as possible in the operation, for if the least check is given to the plant it will often start another growth instead of finishing the first, and with our short summers it requires very great care to mature these late growths. The *Dendrobiums* are better for being confined at the root, and usually succeed better when overpotting is avoided. I find the best way to treat large plants, if they have lost their roots through the soil getting sour, is to pot them back into much smaller pots, and then plunge the pot in a larger one, filling up round it with crocks, and covering the surface with lumps of peat and moss; but I do not think it good practice to place one basket inside another if it can be avoided: for the wood soon begins to decay when buried, and rapidly causes the whole compost to be unfit for the roots to thrive, besides breeding injurious fungi. Any of the plants in baskets where the material at the roots is getting sour might have this picked out carefully with a small pointed stick, and be top-dressed with live sphagnum and fibrous peat. Any specimens in pots that require more room place the pot inside a larger one, and fill round with crocks and top-dress. It is not prudent to break the inside

pot when a plant is making growth nor to make a larger hole in the bottom, as nearly all the new roots of these Orchids show themselves on the surface. With regard to *D. Wardianum* and *D. crassinode* it does not seem to make much difference whether they are in pots or baskets, or if suspended from the roof or standing on the stage when the house is a very light one. *D. Jamesianum*, *D. infundibulum*, and *D. longicornu* grow and flower well on the north side of our *Dendrobium*-house at the cooler end, the bottom ventilator near them being left open night and day during the warm weather. *D. Cambridgeanum* is allowed to flower in this house, it being afterwards taken into the house where the *Lycastes* are grown and hung up near the glass until spring, when it starts to grow, it being then taken back into the *Dendrobium* house proper. *Epidendrum arachnoglossum*, *E. xanthinum*, and *Cytropodium punctatum* all enjoy the sunny house in which the *Dendrobiums* grow, and *Thunias* grow and flower well here also. There are some *Dendrobiums* which are found to do best when started in more heat than those already named, and taken into a cooler house when they have nearly finished their growths. Running out on one side of our *Phalænopsis*-house is a narrow very sharp pitched span-house, in which such *Dendrobes* are suspended from the roof: here they have the same temperature as the *Phalænopsis* at night and in dull weather; but when the sun shines the shading is put on for a time in the morning and rolled up early in the afternoon, so that the *Dendrobiums* have plenty of sun without its doing harm to the other plants in the house. The following are those that we treat in this way:—*D. Ainsworthii* x, *D. albo-sanguineum*, *D. Bensonie*, *D. bigibulum*, *D. Brymerianum*, *D. Harryanum*, *D. Lowii*, *D. luteolum*, *D. McCarthie*, *D. Phalænopsis*, *D. rhodostoma*, *D. splendissimum*, *D. superbiens*, *D. Dearei*, *D. devonianum*, *D. endocharis*, *D. Findleyanum*, *D. formosum* giganteum, and a few others. As bright warm days may now be expected keep plenty of moisture about the *Dendrobes*. A very simple way to charge the air with moisture is to take a well packed syringe, and placing one finger over the jet, exert pressure sufficient to disperse a very fine spray on to the roof, at the same time walking backwards, and not directing the water on to the plants, but letting it fall all around. The plants are not injured in the least, although the sun may be shining hotly, if the shading be of the thinnest. It has been necessary recently to keep the fires going in the warm divisions of the Orchid-houses, so as to keep the East Indian house at about 70° at night, and the Cattleya-house with a little air admitted at about 65°. The ventilators in the *Odontoglossum* and *Masdevallia* houses can be left open night and day. *A. Woolford, Downside, Leatherhead.*

The Kitchen Garden.

SEAKALE.

THAT intended for forcing should be looked over, and where there are more than two growths to a plant the surplus ones must be removed, and if extra fine Kale be desired, one growth only should be retained, and any flower-spikes that may make their appearance should be cut out. Keep the ground clean between the plants by hoeing until the leaves meet overhead. As a top-dressing for this plant apply nitrate of soda at the rate of from 4 to 5 cwt. per acre.

GLOBE ARTICHOKE.

These will now be throwing up their flower-spikes, and also a quantity of suckers; and with the object of throwing as much strength as possible into the blooms, the latter should be removed, with the exception of from three to four for next year's yield. Great advantage would result if during dry weather these could be copiously watered with liquid-manure, and afterwards mulched with rotten dung. In some instances it will be found necessary to thin out, not only a portion of the flower-spikes, but also some of the too thickly placed flower-buds, in order to obtain large, fleshy, well-developed flower-heads.

ASPARAGUS.

As a rule, cutting for this season will have ceased; the beds therefore, should be thoroughly cleared of

weeds before the foliage has become too dense. This may be accomplished either by a light sufficient top-dressing of salt, or by hoeing and hand-weeding; and in any case a good top-dressing of "Fish," or some other approved artificial manure, should be applied after discontinuing cutting. This is the most efficacious and best method of applying a stimulant to Asparagus during summer. When means and convenience will allow, waterings of liquid-manure or sewage during hot weather would be most beneficial, and its effects more lasting; but as applications of this kind could only be possible in certain cases, and under certain conditions, top-dressing, as described above, is the most practical, and therefore most generally adopted method of summer dressing. Where the aftergrowth is very luxuriant, and attains some considerable height, and is consequently exposed to the force of the wind, some support should be given, either by stakes and tying, or by placing forked stakes amongst the foliage, similar to those used for Peas. Failing either of these methods, the latest and most exposed growths can be shortened from 2 to 3 feet with a knife.

VEGETABLE MARROWS.

Those that were planted in dung-frames for an early supply, and that have been allowed to run from under them, can now have the lights and frames removed entirely. Clear away all old discoloured leaves and weakly growths, and regulate and peg down the leading shoots, that they may root and assist the parent plant. Ridge Cucumbers will likewise require attention in much the same way, and both will want plenty of water during hot weather.

HERBS, &c.

Shallots and Garlic will soon be ready to lift, which will be apparent by the withering of the foliage; after being pulled they should remain on the ground for a few days, in order to get firm and thoroughly dry, and afterwards cleaned over and stored. All herbs required for use in a dry state must be cut as they come into bloom, and should be spread thinly on boards in any dry airy structure, and kept turned until thoroughly dry, when they are best tied up into convenient bunches and hung in a suitable place ready for use.

GENERAL WORK.

This will mainly consist of attention to growing crops, in removing all refuse, and clearing the ground from a previous crop and preparing it for a successional one. Borders being cleared of Cauliflowers, after being forked over, come in well for French Beans, Early Horn Carrots, &c., for late autumn supply. After early Potatoes, Turnips, small kinds of Summer Cabbage, Coleworts, &c., make a good succession. The two last-named can be picked out from 3 to 4 inches apart, in rows a foot asunder, and afterwards thinned to proper distances for successional purposes. Plant out all kinds of Kale, Broccoli, Cauliflowers, and also a late batch of Brussels Sprouts.

WATERING.

This will be necessary during hot weather, particularly in the case of newly transplanted subjects and seed beds; and in the event of continued dry hot weather some of the more permanent crops will also be much benefited by liberal supplies of water, which when once commenced must be regularly given until rain falls. All watering outside should be done as late in the day as possible, and the water used for the purpose should, if possible, have been exposed to the action of the sun and air. *John Austen, Willey Court.*

ORANGES IN VALENCIA AND CORDOBA.—The Orange crops in Valencia, Spain, appear to be suffering much from the competition from the large and increasing crops from Florida and California, thereby closing the United States markets to the Valencia crop. The loss of this outlet causes excessive exportation to Great Britain, and consequently unremunerative results. The quantity of Oranges exported from Valencia during the season from November to June amounted to about 2,000,000 cases. From Cordoba, however, the bitter Orange is exported in increasing quantities. It is much grown in this district, and during the last five years the produce grown has increased from 2000 boxes to 6000; one box contains 500 Oranges. They are all shipped to London and Liverpool, and are used for making marmalade.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	July 6	Show of the National Rose Society, at South Kensington. Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms. Royal Caledonian Horticultural Society's show (two days). Richmond (Surrey) Horticultural Society's Summer show.
WEDNESDAY,	July 7	Wimbledon and District Horticultural Society's Show. Sale of Imported Orchids from Messrs. Shuttleworth, Carter & Co., and others, at Stevens' Room. Sale of the Royal Horticultural Society of Ireland.
THURSDAY,	July 8	Bath Rose Show. Sale of Imported Orchids from Mr. F. Sander, at Stevens' Rooms. Rose show, at Brighton Aquarium (two days). Rose show, at Westminster Aquarium (two days).
FRIDAY,	July 9	Sale of Imported Orchids, at Protheroe & Morris' Rooms.

A SUMMER sun, an extensive and varied exhibition should render the PROVINCIAL SHOW OF THE ROYAL HORTICULTURAL SOCIETY at LIVERPOOL a great success. At any rate the Society deserves to succeed, for it has gone into the matter with spirit. Mr. BARRON has worked with his usual quiet energy and careful method, and he is well seconded by his staff, and by that of the Liverpool Botanic Garden. The exhibition held in Wavertree Park, adjoining the Botanic Garden, and in communication with the "Shipperies," was formally opened on Tuesday last by Sir DAVID RADCLIFFE, the Mayor, at the request of Sir TREVOR LAWRENCE, the President. Some complimentary remarks passed between the two notables, and the opportuneness of so agreeable a neutral ground being provided for the warring politicians of the time and place was appropriately commented upon by both speakers. The exhibition is, as we have said, large and varied. If we miss some features which render the Ghent Quinquennials so remarkable—the Palms, the Cycads, the Tree Ferns, the outdoor exhibits—these deficiencies are in a measure supplied by the adjacent Botanic Garden, upon which we have reported in a previous number. The details of the show must be looked for in another column; but we may here allude to some of the more prominent features. The principal part of the exhibition is held in a huge tent of four bays, well filled and well arranged, but from its flatness lacking variety on a first impression; the canvas covering it is too opaque, and in dull weather would seriously interfere with the effect, but under a broiling sun, such as we had on Tuesday and Wednesday, this was of little consequence. Other tents are devoted to fruit, vegetables, cut flowers, and miscellanea, while in the grounds are implements, boilers, and the farrago of varieties one generally sees on such occasions.

Foremost we must mention the Orchids. These are mainly contributed from the neighbourhood of Liverpool, and they constitute a display never before equalled at a provincial show of the Society. Mr. HARDY takes the lion's share of the honours, followed by Mr. HARVEY. The former gentleman wins the 25 guinea cup—Lancashire "le coop."

Next to the Orchids the most important exhibit is constituted by the Crotons exhibited by Messrs. KER, of Liverpool. These are magnificent plants, well coloured and well grown. Stove and greenhouse plants are fairly well represented by well grown, well bloomed specimens, and Ferns, excepting Tree Ferns, are well shown. British Ferns prove their right to take part in such displays, and Messrs. BACKHOUSE's filmy Ferns constitute the most remarkable collection of the kind for variety and numbers that we ever remember on such occasions. Messrs. R. P. KER & SONS send a group of Bromeliads that makes one wonder why our exhibitors do not more often show these plants. Messrs. J. LAING & Co. show a fine lot of Caladiums. New plants, to our regret and surprise, are scarcely represented, and together with the comparative absence of Palms, Tree Ferns, Cycads, and the

like, testify to the change that has come over public horticultural displays of late—a change which, while it favours a few specialties, such as Orchids, Roses, and market-plants tends to ignore subjects of more general and varied interest; but this is an accident of fashion and of commerce.

Herbaceous plants are exceedingly well represented by choice collections from Messrs. BACKHOUSE, PAUL & SONS, and HARVEY. Messrs. BARRON & SON of Elvaston, contribute a fine collection of choice well grown specimens—Conifers in tubs—one of the finest exhibits in the show, though not comprising much novelty. The same firm also shows a small but fine collection of standard and other Hollies. Tree Carnations are well shown, especially by Mr. LEOPOLD DE ROTHSCHILD; Mr. TURNER of Slough has also a good set.

Cut flowers comprise Roses, in which the Tea section is splendidly represented. A glorious set of Peonies is shown by Messrs. JAMES DICKSON, of Chester; and Messrs. KELWAY, of Langport, have also a fine lot. Bouquets and table decorations comprising nothing of special importance, the good ones are light, feathery, with the flowers well individualised; the bad ones are, as usual, lumpy and crowded. Fruit is weakly represented, and vegetables, though of excellent quality, are in smaller quantities than we expected.

Garden literature, a novel feature in these exhibitions, was very poorly represented, very few of the curiosities of literature being represented, and modern books being only imperfectly shown. Landscape-garden plans were numerous, some very ill suited for the purpose, but others, though presenting no special feature, apparently well designed.

Mrs. CUSSENS showed some bold, free drawings of Roses on panels, and Mrs. HARRY TURNER may be recommended for her vase, decorated with a painting of JACKMAN'S Clematis, but other exhibitors in this class were scarcely up to the mark, and some ill-advised persons must needs deface and obscure looking-glasses by attempting to paint flowers on them.

Messrs. CARTER & Co. show a nice collection of annuals; Messrs. JAS. DICKSON & SONS, and Messrs. BARRON of Elvaston, have a fine series of ornamental foliage trees which makes us wonder such beautiful and interesting plants are so much neglected.

Messrs. VEITCH's group of miscellaneous plants was deservedly admired, consisting of a background of noble Anthuriums, such as Veitchianum, Warocqueanum, and others, with masses of Hydrangea paniculata grandiflora, Hæmnanthus hirsutus, the white variety; a small group of carnivorous plants in fresh condition, the blue Exacum macranthum, Neprolepis rufescens tripinatifidum, and other choice plants being interspersed.

The greenhouses and boilers present nothing that we need note in a general sketch like this, but Messrs. WEEKS show a very ingenious arrangement for heating a living room. It consists of an arrangement of water-tubes at the back; the fire is open by day, and at night by the application of a *couver feu*, or curfew, is converted into a slow combustion apparatus, by means of which the heat is retained for a long period without need of attention to the fire.

For a full report of the exhibition, and the meetings held in connection with it, we may refer to other columns of this issue.

THE results of the competition for the PRIZES TO YOUNG GARDENERS offered by this journal and presented at Liverpool on Wednesday last by the President of the Royal Horticultural Society, as reported in another column, are, on the whole, very satisfactory. Considering the number of candidates there are very few essays that can be considered bad; almost all attained what we may call a fair average, and a few were certainly considerably above what could fairly have been expected. In estimating the value of the papers we bore in mind the opportunities, circumstances, and positions of young gardeners in general, and we laid special stress, by allotting double marks

to evidences of original or independent observation, and to the application of the facts of botany and vegetable physiology to practical cultivation.

The essays were all sent in marked by a motto or other device by which the writer could be identified, an envelope marked in a similar way, and containing the writer's real name and address, being sent with the essays. None of these envelopes, except those belonging to the successful candidates, have been opened. As usual on such occasions, there was little relative difficulty in allotting the first and second prizes, but much more in determining which should take third place. In fact, there were several that were nearly equal, and it required repeated examinations to determine which was entitled to precedence.

Of the remaining essays little need be said. Some were good in some points, weak in others, few or none wholly bad. Many of them are defective in the knowledge of root-structure, the long-explored notion of "spongioses," unfortunately retained in many modern gardening books, being still adhered to. This points to a defect in many garden books which we have often had occasion to note.

From what we have seen, we feel confident that all the candidates will have been benefited by the competition. It has evidently called forth their powers of observation, excited their interest, awakened new ideas in their minds, and brought home to them a sense of what they had less perfectly realised before—the cardinal importance of the root and its action in matters pertaining to the cultivation of plants. If this be so, and we believe it is, then not one of the candidates will regret having entered upon the competition. Some have discovered that "Science" is, after all, only orderly knowledge, and now express their surprise at the opinion held by some that there is anything antagonistic between knowledge and practice, as if the best practitioner were not he who combines the fullest knowledge of his subject with the greatest capacity of applying it in practice.

The 1st prize of £10 is awarded to—

P. SEWELL,

Royal Botanic Garden, Edinburgh; whose paper is very good, and illustrated by excellent drawings.

The 2d prize of £5 is awarded to—

HARRY A. BUNYARD,

Royal Horticultural Society's Garden, Chiswick.

The 3d prize of £2 is adjudged to—

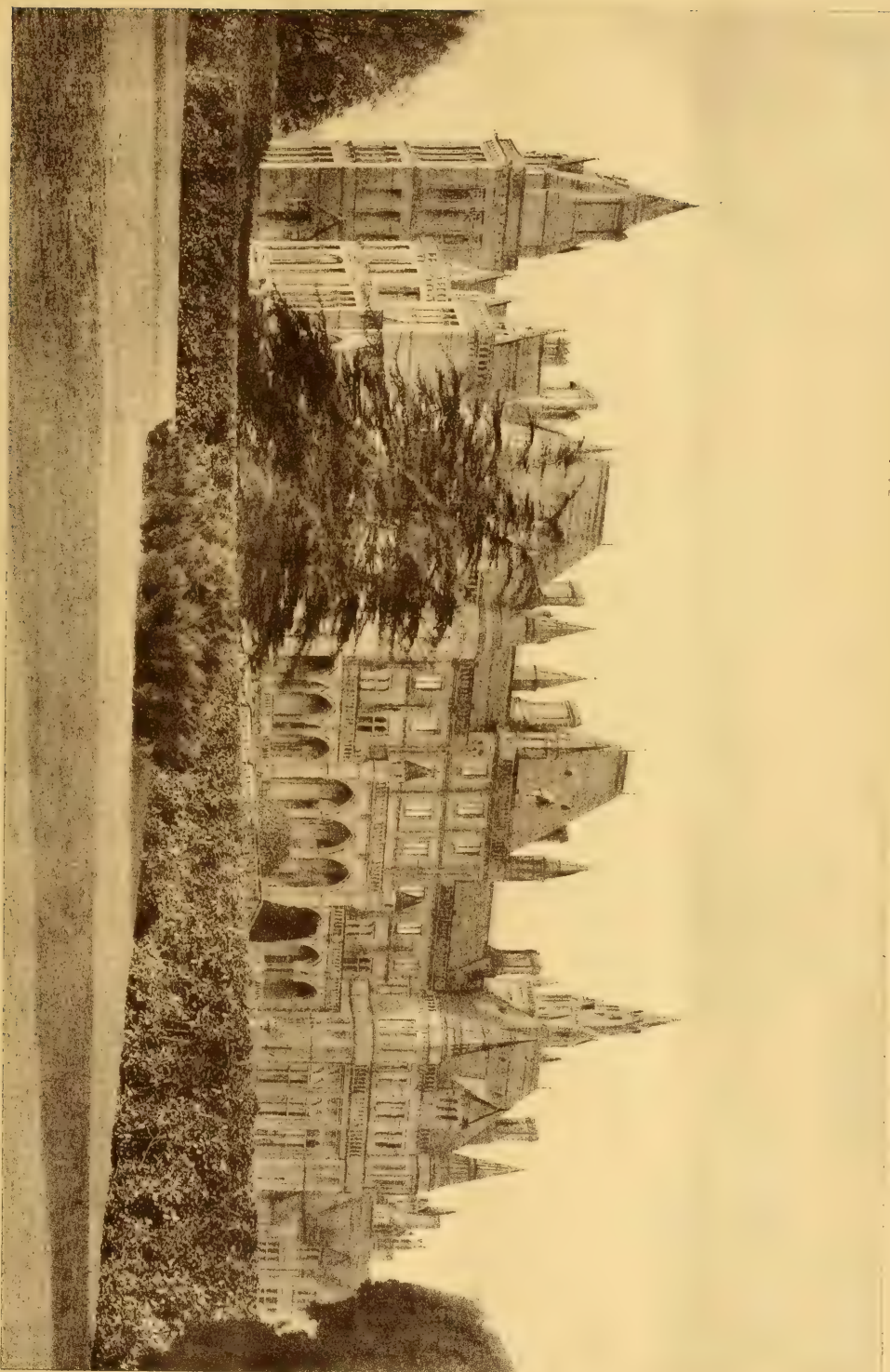
JOHN DUNCAN,

Royal Botanic Garden, Edinburgh.

All the essays whose receipt has been acknowledged have been read and re-read, and in some cases read a third time. The three first, to which prizes were awarded, have been already mentioned. Two of them were illustrated by excellent drawings. The following comments have been made on those which failed to reach the prize standard. Many of these are nevertheless very meritorious, and they have been classed in three groups, as under:—

First-class.

"Industry is the Key to Progress": relatively deficient in cultural matters.—"Adscriptus glæbe" shows unusually good knowledge of what a root really is, but is weak in cultural matters.—"Altiara Peto" and "Spes et Perseverantia" must have worked in the same garden, if not at the same desk.—"Primrose": a good essay, but smacking too much of mere book learning.—"May Flower": a good essay, which would have attained a higher place had the writer not wandered so much from the subjects laid down in the programme. "May Flower" has evidently acquired much information, and we hope we may meet with him again as a writer.—"Tantus Amor Florum" sends a good paper, especially in the practical portions.



EATON HALL.



Second-class.

"Vinca": a good practical paper, but the chemistry would have been better omitted.—"Bucks" shows considerable powers of observation, but his inferences are often questionable.—"Strathearn" shows a good

Third-class.

"Nihil" need not apologise for his handwriting, which, if not elegant, at least is legible—a matter of much greater consequence; "Perseverance," good in cultural matters, but otherwise defective; "Picotee"

Ilex;" "Omega" "thinks he has said enough;" is that why he uses the last letter of the Greek alphabet for his device? He has evidently taken pains, but under the circumstances he will not be surprised if we do not class him A 1. "Water-pot": your



FIG. 4 —WELLINGTONIA GIGANTEA AT WANSFELL, WINDERMERE. (SEE P. 18.)

knowledge of root-form. Query, did not the ice form on the germinating seed? What proof is there that the seed actually germinated in the ice?—"I. J. C." is commended for what he has done, but he has overlooked many points; a similar remark applies to "Excelsior," who will have to get higher yet, though he seems to be on the right track.

asks for sympathy and encouragement, and he deserves it—his knowledge of root-action is good, but he has not sufficiently brought out its application to practice; "Caractacus," "Lady Dell," "A Would-be Botanist," "Whittingtonian," "Ad Valorem" demand no special note.

Unclassed.

"Nil Desperandum I." (nine pages); "Quercus

can wants filling up. "Perseverance leads to Success": so it does. "Tibolt's" practice to his superior officer we cannot commend. "Nil Desperandum II." (five pages): we agree that you should have a good groundwork to root in, and we commend the spirit of observation and experiment you manifest. Let your practice be based on correct observation and judicious experiment, and you

will never despair. "Dendrobium densiflorum" has apparently got his information from some obsolete book; his notions of the action of roots require, in many respects "radical reformation." "Espinier" is no doubt right when he says that if we understood better how plants grow naturally, we should be more successful in growing them. "Nil Desperandum III." (five pages) should certainly not despair, but he will have to improve his knowledge of root structure and action. "Natura est artis magistra" has a fair knowledge of structure, but some departments are not touched at all; "Cambrian" is short indeed; "Live and Learn" — we hope he will; "Salopian" goes a little too far when he assigns consciousness and thought to roots. The remaining essays do not call for special remark.

— JOHN LEECH'S PICTURES.—In reply to a desire very generally expressed that the date of execution should be appended to each of JOHN LEECH'S pictures, we learn that the publishers intend to provide this information in a comprehensive index at the end of each of the volumes, so as not to confuse and in some degree disfigure the pages by the continual intrusion of dates.

— EXCURSION OF BELGIAN HORTICULTURISTS.—A Belgian tourists' agent is about to personally conduct a party of horticulturists to London, its environs, and some of the midland and western counties, including Elvaston, Chatsworth, Liverpool, Eaton Hall, Trentham, &c. The date fixed is from July 15 to July 25. The programme sketched out for the excursionists has been furnished by "Honorable Sir ROBERT HOGG." It is to be regretted that our Belgian visitors did not time their visit so as to be present at the Liverpool show. The Colonial Exhibition does not figure on the programme.

— THE BOILER CONTEST AT LIVERPOOL SHOW.—An account of this competition will appear in our issue for next week, the trials taking place too late for the publication of results this week.

— WELLINGTONIA GIGANTEA.—O. O. WRIGLEY, Esq., Bridge Hall, Bury, Lancashire, sends us a photograph taken by his son, and which we now reproduce (fig. 4, p. 17) of one of eight Wellingtonias now growing in his sister's garden at Wansfell, Windermere. These eight specimens were purchased in the autumn of 1864, and were so small when planted that an old man and boy carried them on a hand-barrow from a local nursery garden situated about a mile off. The specimen which is here represented is now 40 feet in height, has a trunk circumference of 8 feet, at 1½ foot above the ground, and its spread of branches close to the ground is quite 10 feet all round. Another specimen out of the same lot is an equally noble looking tree, being 42 feet high, 8½ feet round the trunk, and is one mass of greenery from its summit to the ground.

— PAPER PULP FROM YUCCA BREVIFOLIA.—An English company started in San Francisco for the purpose of converting the Yucca brevifolia into paper pulp, has, it is said, suspended operations for the present, the venture having proved unsuccessful. Notwithstanding the failure of this company, it is confidently stated that the business can and will yet be made to pay handsomely.

— RESULT OF THE NITRATE OF SODA PRIZE.—The following has been forwarded to us for publication:—Carrying out the scheme of prizes offered by the committee of the Saltpetre Producers' Association (Comité Salitrero at Iquique, Chili) for the best popular essay treating of the importance of nitrate of soda as a manure, and the best mode of its application, the judges—Professor L. GRANDEAU, Nancy, France; Professor ADOLF MAYER, Wageningen, Holland; Professor D. PETERMANN, Gembloux, Belgium; Professor G. THOMS, Riga, Russia; Professor PAUL WAGNER, Darmstadt, Germany; Mr. R. WARRINGTON, Rothamsted, England—have made the following awards:—1. To the essay with motto "Gau, theurer Freund, ist alle Theorie," a partial prize of £350 (7000 marks). 2. To the essay with the motto, "Pour pratiquer l'agriculture . . .," a partial prize of £150 (3000 marks). On opening the accompanying envelopes the author of the first essay was found to be Dr. A. STUTZER, Principal of

the Agricultural Experimental Station at Bonn; and the author of the second essay, M. A. DAMEAUX, Professor in the Agricultural Academy at Gembloux. It should be remembered that essays competing for the second part of the prize offered—namely, £500 for the best essay treating of the same subject on the basis of new, personal, experimental investigations—must be sent to one of the above-named judges on or before January 1, 1887.

— LESCHENAUTLIA BILOBA.—Notwithstanding all the panegyric statements that have been made with regard to the various species of this genus, and especially the one under notice, they continue to be meagrely represented in British gardens. The same thing applies to the whole order Goodenievce containing some highly beautiful and extremely interesting little plants, generally considered difficult to cultivate. This is the fault of L. biloba, figured in the *Botanical Register*, 28, 2, and flowering in the temperate-house pits at Kew. The deep blue flowers with a yellow bearded throat are really fascinating. The corolla of course is split to the base on one side, and the wedge shaped, unequal sized segments are deeply bifid at the apex, with a tooth in the notch. The whole plant does not exceed a foot in height, and is much branched, with slender twiggy branches densely clothed with linear very small leaves. Careful attention must be given not to over-water this and allied plants. VEITCH & SONS of Exeter, who first flowered this species in Britain, obtained a large Silver Medal for it from the Horticultural Society. The name was formerly spelt *Lechenaultia*, and L. Drummondii and L. grandiflora are synonyms of this species.

— COLONIAL AND INDIAN EXHIBITION.—At the Conference held on Wednesday, June 30, Professor W. FREEM read a paper on "Colonial Forestry," in which, after referring to the inquiries of the Select Committee on Forestry, and to the scheme which had been submitted to it by the Secretary of the Surveyors' Institution, respecting a national school of forestry, he proceeded to deal with the present condition of forestry in the larger colonies. In Canada there is need of conservation of existing forests, and of tree planting over the vast prairie regions; several of the provincial governments have already moved in the matter, and everything now seems ripe for the establishment of a department of forest conservancy under the Dominion Government. In New South Wales the Forest Conservancy Branch is under the Minister of Mines, and was established in 1877. There are 5,390,513 acres of land set apart as timber reserves, equivalent to 2.7 per cent. of the area of the colony. The salaries and expenses of the officers of the conservancy amount to nearly £10,000 per annum. The total expenditure from 1877 to 1884 was £75,923, the revenue, £85,992. Nurseries are being established for the propagation of the most suitable trees, indigenous and foreign. In Victoria, 952,367 acres of State forests, and 285,334 acres of timber reserves are, in conformity with the State Forests Conservancy Act, placed under the Department of Agriculture, but even this area is not commensurate with the demand for timber for industrial purposes. In 1883, the revenue from woods and forests was £8580, and expenditure £2538. In South Australia, the Forest Conservancy is under the Commissioner of Crown Lands, and was established in 1876, since when the revenue has practically balanced the expenditure, and upwards of one and a half million trees have been added to the property of the Colony at an actual cash disbursement of only about £2000. The approximate value of permanent improvements is £115,000. The area devoted to forest purposes is 150,000 acres. In 1884 the Conservancy distributed gratis more than 200,000 young trees, at least half of which survived transplantation, and cost the Colony less than 2d. each. In Queensland there are twenty forest rangers under the Department of Public Lands, with 1,572,752 acres of proclaimed timber reserves, and 202,575 acres of reserves for State forests. One reserve is used as a plantation for growing seedlings for distribution. In New Zealand, out of a total area of 66,394,400 acres, 34 million acres of Crown lands still remain, of which 10 million acres are forest. Under the New Zealand State Forests Act, 1885, a Forestry Department has just been started, and is placed under a responsible Minister of the Crown, who acts as Commissioner of

State Forests. The Government assists planting on the part of landowners, by subsidy or otherwise. In Cape Colony, by an Act passed in 1876, public bodies are allowed half their expenses in tree cultivation. There is a Superintendent of Woods and Forests, and conservancies have been established at Knysna, King William's Town, and in the Western Division. To encourage planting, over one million trees are raised annually in nurseries, and distributed gratis or at low rates. It is believed that the Crown Forests would, if regularly and carefully worked, produce a revenue of at least £235,000, the sum which leaves the colony every year to pay for imported wood—for imported railway sleepers alone, £83,000 was expended in 1883, £44,000 in 1884, on American and Swedish timber. In Australia and Cape Colony, English forest trees are being successfully cultivated. In all the Colonies the reckless waste and wanton destruction of former days have given place to wise systems of conservancy, such as are worthy of tree-loving people.

— GARDENING APPOINTMENT.—Mr. THOMAS TOWNEND, lately under Mr. GLEN, Wentworth Woodhouse, Rotherham, has been appointed Gardener to the Hon. Lady ALICE EWING, Coed-Derwen, Bettws-y-Coed, North Wales.

DISEASE OF LARCH AND PINE SEEDLINGS.

THE accompanying letter, from Mr. Brace, of Salbris, was sent to the Editor with numerous examples of diseased infant Larch and Pine plants which had just emerged (in some instances only half emerged) from the seed-coats:—

"The few Pine seedlings forwarded to the Editor of the *Gardener's Chronicle* of this morning's issue, are attacked by a virulent form of fungus. I would be greatly obliged if you could kindly aid in identifying the fungus, and give me any information as to the cause of its appearance, &c. I attribute it chiefly to the unusually cold and wet season that we have had. It has been felt most severely in the seeds of *P. Laricio*, in which I have lost fully 25 per cent.; but it attacks also *P. sylvestris* and *P. austriaca* as well. At present it seems to be dying out, but I am still in great fear of its breaking out again. Now that a little dry weather has set in I am about to try the effect of flowers of sulphur out of a sulphurator, as the only remedy that I can think of as likely to succeed. A plant that is visibly attacked seldom shows signs of life after the third or fourth day. It does not attack transplanted seedlings. My partner, Mr. David Cannon, forwarded me samples both to Paris and Versailles for identification, but it seems to be hitherto unknown."

Our correspondent's letter speaks for itself, it correctly describes the presence of a virulent fungus which grows in the cotyledons and even in the radicle of the infant plants. The fungus has perfected itself and burst through the cotyledons; in some instances before the latter bodies were free from the seed-coat.

The accompanying illustration (fig. 5, p. 19) shows at A one of the infant plants with the disease spots, natural size. At B the junction of the base of the cotyledons with the radicle is shown, enlarged 10 diameters; here the worst condition of the cotyledons is clearly seen. At C portion of the same part of the cotyledon is shown, enlarged 40 diameters; and at D free spores are shown, enlarged 400 diameters. The action of the fungus is to completely exhaust and drain the cotyledons, and leave them in a condition like tinder. The diseased seedlings of course all die.

The fungus on the Larch seedlings is *Cæoma laricis*; that on the Corsican Pine, *C. pinitorum*; the Silver Fir is attacked by *C. Abietis pectinate*. All three species are closely allied, and the disease spots to the unaided eye look like minute "red-rust" patches.

Mr. Brace's letter is of great importance, as it adds one more instance to the many brought forward by me of parasitic diseases being hereditary in plants, or, in other words, of the germs of the disease being present in the seeds, and so reproducing the disease in the seedling. In bad cases the seedlings die, in mild cases (*i.e.*, where the seeds are slightly diseased) a diseased progeny is the result. The fungus in this instance must have existed in the seeds before they were planted, or the quite perfect fungus could not have thus effectually destroyed them almost at the moment of germination. *Worthington G. Smith, Dunstable.*

PEACH-WALL TREE COVERS AND THEIR MANAGEMENT UN- HEATED.

OWING to the partial failure of the Peach crop on walls of 1879 and previous years, I obtained the consent of my employer to have erected one of the above structures. I consulted Mr. Hope, of 55, Lionel Street, Birmingham, our horticultural builder, who submitted a plan and estimate for the same, which were highly satisfactory, and were accepted. I give the end elevations of the structure to show the ventilation, which I consider so necessary (see fig. 6). The total length is 140 feet, and 5 feet wide; it is constructed of red deal, and glazed with 21-oz. glass; the front wall is arched, so that the trees have plenty of root-room. It is provided with ample ventilation, as all the lights open both top and front, the means of ventilation being of the most approved system of shifting levers and screws. The back wall is wired, and planted with Hale's Early, Royal George, and Walburton Admirable Peaches; Lord Napier, Elruge, and Pimston Orange Nectarines. The whole length of front is planted with May Duke Cherries, trained as cordons, on four wires running the length of the house, I had another of these most useful structures erected in January, 1884, of which I give a section to show the means of ventilation (see fig. 7). This is upright, the same width as the other, and 95 feet in length. This is also well provided for in the way of ventilation by the same means as the other, with this exception, that a portion of the front lights are fixtures. The back wall of this is planted with a bea, Prince of Wales, Walburton Admirable, and Lord Palmerston Peaches, Pimston Orange, Prince of Wales, Humboldt, and Elruge Nectarines. The front of this I use for growing a large quantity of Tomatoes in pots. I have given a full description of both these tree bowers, as I have no choice between them, the one being equally as good as the other for the purpose they are intended for.

Now a few words as to their management. After the pruning, tying-in of the trees, and whatever other work is required to be done, I always keep the ventilations open day and night, so as to keep the trees as backward as possible, and do not close them till the bloom can no longer be kept back. I give the borders a good soaking of water before the trees come into bloom, and afterwards keep them thoroughly dry till the fruit is all set. By doing this a good crop of fruit can always be obtained from these structures. The apparent loss of time in the early part of the season can be made up by early closing after the fruit is all set, and so help them forward in this way. I always find the fruit from these structures of large size, beautiful in colour, and of the highest flavour, and are much appreciated, and they can be either forwarded or retarded according to requirements. The supply with us from our heated Peach-houses and these structures generally continues from the first or second week in May till the end of October. I should say that the kitchen garden here lies very high, therefore exposed, and all crops are very late in consequence. I need not enter into further detail of their after management throughout the season as it is precisely the same as other Peach-houses, but the few remarks I have made I find in practice of the utmost importance till after the fruit is set, and for a permanent structure I can highly recommend either of these kinds of Peach wall tree covers. *Edward Ward, Hewell Gardens, Bromsgrove.*

season, I think that you may like to have some of the results we have arrived at. Having acquired a strip of wood at our cottage garden near here, we, three years ago, dug out the soil for some large beds about 5 feet deep, made a sheltering bank of the natural soil, filled up the holes with good Lily soil, and planted a number of *L. auratum* bulbs. These were successful; therefore the following year we made more similar beds and planted them with *L. auratum*, *L. speciosum*, *L. tigrinum*, *L. elegans*, *L. Krameri*, *L. Batemani*, and *L. longiflorum*. These prospering, we last year made another large bed, and planted it with *L. auratum*. In all these beds the Lilies, with the exception of *L. longiflorum*, look as healthy as if they had had the advantage of Rhododendron shelter. There is no protection overhead, but the surrounding wood was thick enough to protect the plants from the bright sunshine in May which follow the night frosts. At Oakwood, Wisby, two beds—in which *L. auratum* had come up constantly stronger, in one since 1881, the other since 1882—have a good many Lilies damaged. Some *L. cordifolium*, which had fine strong shoots at the

send a few further notes when more of the Lilies have flowered. [We do care.] We planted *L. tenuifolium* in all sorts of soils and situations. It has bloomed on all through with different strength; it will require another year in the ground before the best treatment can be ascertained. I will close this note by saying that a few days back I sent a stem of *L. Krameri* in one of Mr. McIntosh's Rhododendron beds with nine flower buds. It may be remembered that when this Lily was introduced it was considered one-flowered; I ventured to predict that as it strengthened it would have more flowers, but no one ever dreamed of nine. *George F. Wilson.*

Royal Horticultural Society's Certificates.—In the interest of gardening I am always ready to protest when a well-known plant receives a First-class Certificate under a new name. Such is the case with the plant lately certificated as *Doronicum Draytonense*. This plant was described and figured in the *Gardeners' Chronicle* on the authority of one of the staff at Kew, about three years ago, by the name *Doronicum plantagineum* var. *excelsum*. Before and since that time it has been largely distributed under the name of "Harpur Crewe." It is supposed to have appeared as a spontaneous seedling in that gentleman's garden about ten years ago; and in accordance with the rule proposed by some influential members of the Royal Horticultural Society that garden varieties should be called by fancy names, has generally been called in gardens "Harpur Crewe." If, however, it is to have a Latin varietal name, the name given to it at Kew ought to have the preference. *C. Wolley Dod*. [A good figure was given in our pages, September 8, 1883, and a description at p. 230 of the same volume. Under these circumstances, by the action of the law of priority, it should be called *D. plantagineum* var. *excelsum*, and the name *Draytonense* suppressed. *Ed.*]

Protea cynaroides.—This is the most remarkable of all the species for the size of its flowers, which are almost as broad as the crown of a man's hat, though the stem is often not more than a foot high; their color is a pale pink, found on flats and on top of Table Mountain. There are plants at Kew from seed collected by Miss North in 1883. It is stated that Mr. Hubbard grew his plant in a cold north greenhouse. *W. Watson.*

Schizopetalum Walkeri.—A few days ago we came upon a single specimen of this plant in flower growing under a Peach wall (outside) with a southern aspect, and among a lot of young Cabbage plants and weeds. Would you kindly say in the journal whether the plant has become lately more naturalised in this country, or whether it is of rare occurrence. I presume the seed comes over with Wheat from Chili. We have always had a good deal of *Claytonia perfoliata* in this garden for the last fifty years. *S. Walkeri* has never been seen before. "*Liverpool*." [We have never heard of this plant becoming naturalised. *EE.*]

Tulips late in Flowering.—How unusually late the florists' Tulips have been in flowering this season is shown from the fact that Mr. S. Barlow, J.P., writing from Stakehill House, on June 21, writes: "During all my experience of thirty-seven years at this late locality I have never seen a Tulip so late in the season as June 20 before this year, and to-day, June 21, I am sending off several boxes to my friends of good, late, sound Tulips." One of these reached me by parcel post, containing some two dozen fine fresh flowers—bizarres, roses, and byblèmes, with some charming breeders, and they look as if they will keep in water in a cool place for several days to come. *R. D.*

Ferns.—I have this week had the pleasure of examining a very beautiful variety of *Adiantum gracillimum*. It was a seedling in the collection of Mr. E. Moorhouse, gardener to Mr. G. H. Nelson, The Lawn, Warwick. It is even more delicate and graceful than its parent. The ribs are perfectly black, while the frond is a charming light green—so exquisite that no one could fail to be struck by its beauty. In the same greenhouse I noticed a large number of *Adiantum pellucidum*, which has the peculiarity of being scented. It was growing very freely, although I understand it is somewhat scarce. *Lloyd Evans, Warwick.*

Gloxinias.—I am not in the least surprised at the information given concerning these in the *Gardeners' Chronicle*, at p. 798, by Mr. Lloyd Evans. There were many plants of Mr. Alan Bone's "remarkable hundred," which had considerably more blooms than the average number I specified, especially had I considered the flowers which were coming open. During the past week I have inspected the gardens of Sir George Stucley, Bart., at Bideford, and amongst the many beautiful subjects to be found there is an extensive collection of Gloxinias which averaged quite

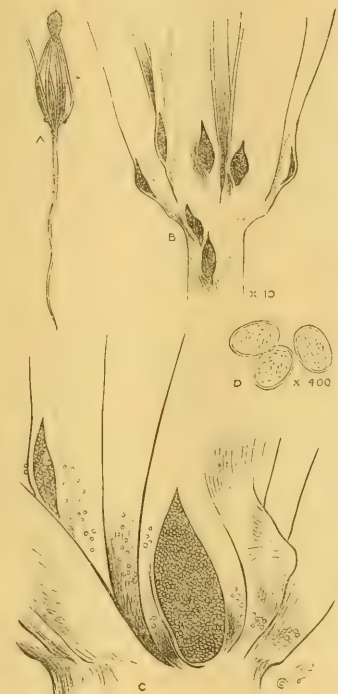


FIG. 5.—DISEASE OF LARCH AND PINE SEEDLING. SEE P. 18.

beginning of May, were killed to the ground, while *L. giganteum*, just opposite them, had the leaves, which were then developed frosted, and looked bad; they have, however, thrown up their flower-spikes, and hardly show where they were damaged. I think it may be taken as a fact from our experience of over a good many years, that *L. cordifolium*, unless planted where evergreens will protect it from sun after spring frosts, requires the protection of Fir boughs or similar shading. I had an instance of the efficacy of light protection in the case of two lots of *Valota purpurea* planted near the water's edge. Over these we placed common wicker covers with bracken interlaced. Most of the bulbs are all right. A wren made her nest in the Fern of one of the coops, and brought up her young. Even some of the North American Lilies, *pardalinum*, &c., have some shoots frosted, though in some beds these Lilies are untouched. In the narrow field of *L. auratum*, where the protecting cut furze fences are not high, thus giving but little protection from weather, most of the Lilies seem to have done better than where they had more, though insufficient shelter. For some years past the winters have not been severe enough to try Lilies fairly, but I think last winter may be taken as above an average one as a test. If you care to have them I hope to

HOME CORRESPONDENCE.

Liliums.—A week ago, after a month's absence in Scotland, I looked over our Lilies. My friend, Mr. M. Intosh, many years ago established the fact, that whatever the season may be, *L. auratum* and a good many other species will bloom year after year if planted among healthy Rhododendrons, the reason, I believe, being that the Rhododendron leaves shelter the young shoots from April and May frosts, and from what is still more dangerous, bright sunshine after them. When gardeners speak to me about difficulties with Lilies, I recommend them to keep to this safe ground, that is, when not many dozen plants are required. But as our experiments have for years past been in the direction of growing Lilies more in masses, and as this has been an unusually trying

fifty flowers per specimen. We have indeed arrived at a high standard of excellence in gardening, and it is gratifying to chronicle such meritorious handwork as this. *W. Napper.*

THE ORCHID CONFERENCE AT LIVERPOOL.

This gathering, excited much interest among those present. Many of the Council were present, including several growers and many versed in the general principles of nomenclature, and engaged in their application. Sir Trevor Lawrence, the President of the Society, occupied the chair, and cleared the ground by defining the limitations of the subject and the objects to be attained. He regretted the unavoidable absence of Prof. Reichenbach on an occasion of this kind. On resuming his seat, the Chairman called upon Mr. Ridley, of the Botanical Department, British Museum, to introduce the subject of the nomenclature of orchids, which he did in the following terms:—

MR. RIDLEY:—I do not think that there can be any doubt but that the state of the nomenclature of Orchids at the present day leaves much to be desired in the way of simplification. The immense size of the order, numbering upwards of 5000 recorded species, the intricacy of the synonymy and the rapidity with which the number of known species has been increasing during the last few years, accounts for this in great measure. It has been almost impossible for our orchidologists, few as they have been, to arrange or systematise to any extent, the species of any of the larger genera in an accessible form, on account of the very constant and rapid accessions to our knowledge of the species. The result of this is that every year the difficulties increase, and seem likely to do so until some botanist shall arise who will devote himself to the humble but important task of sweeping up the scattered works of past generations, and sorting and arranging them in a simple and easily consultable form.

The whole group of Orchids may be roughly divided into non-cultural and cultural species. By the former I mean plants which, though interesting in themselves, are not considered worthy of culture, and which are, therefore, chiefly known from herbarium specimens. These, as a rule, present no difficulty to a systematist, owing to their smaller amount of synonymy and usually more careful descriptions, as well as to the fact that typical specimens are almost always to be found in one or the other of our great herbaria, which is not always the case in the matter of the showier plants; sometimes however a few of them half accidentally find their way now and again into the houses of our cultivators, often at considerable intervals of time, and, alas! are not unfrequently saluted by a new name on each occasion. These give a good deal of trouble, as they are very soon expelled to make room for more showy plants, and are often, especially in the older works, ill described, rarely figured, and not preserved as herbarium specimens. What wonder, then, that errors frequently occur in such cases?

But it is specially with cultural Orchids that we have to deal to-day, and these are burdened with a synonymy that certainly requires lightening. Horticulturists' favourites may be divided into two sections—one in which the species do not vary to any extent under cultivation, so that he who desires novelties must seek for new species; and another group in which one or a few species of a genus are so manipulated and selected, that an endless variety of so-called species is the result. Among the former class, I should include such genera as *Dendrobium* and *Corydalis*. Of these most of the specific names found in garden catalogues really represent more or less distinct species, or at the worst, well-marked varieties. The other section is best represented by the *Cattleyas*. The number of species belonging to this genus is by no means large. Mr. Bentham in the *Genera Plantarum* computes them at about twenty species, and I think he is rather under than under the mark. The names, however, in garden books are simply legion, nearly all of which represent mere forms of *Cattleya labiata*, but which are treated as of equivalent value to genuine species such as *C. citrina*, *C. Forbesii*, &c. Some distinction should be made between these forms and the distinct species, and it could easily be done by giving fancy names to the former, and abolishing their classical names. To show the exceedingly inconvenient results

of naming these forms in Latin a language which is not too well provided with suitable adjectives for plants at the best I may cite the following names from a recent sale catalogue:—*Cattleya Mossie superba*, *C. Mendellii superba*, *C. Triane superba*, *C. Triane rosea superba*, *C. Eldorado superba*; *C. Gaskelliana superba*, all of which are varieties of *C. labiata*, and quite distinct from the well-known species *Cattleya superba*. All cultural forms of this nature then should be treated as *Auriculas*, *Roses* and *Tulips* have been for many years, and designated when requisite by fancy names, in any language but a classical one. The chief species to which this applies are *Cattleya labiata*, *Masdevallia Lindenii*, *Odontoglossum crispum* and *Pescatorei*, *Lycaste Skinneri*, *Cypripedium insigne* and *barbatum*; and there are numerous other species, of which two or three cultural forms have received classical names instead of the more suitable fancy names.

This does not do away with the naming of real varieties, that is with forms of plants which have certain distinguishing characteristics, which remain tolerably constant.

I take as an example of the kind of revision required the names of varieties of *Corydalis cristata* which I find in a recent garden catalogue. They are—*Corydalis cristata*, *C. c.*, *Chatsworth variety*; *C. c. hololeuca*, *C. c. Lemoniana*, and *C. c. maxima*.

Now of these there is only one objectionable one and that is the last, *C. c. maxima*, for on hunting up the original description I find that its simple characteristics are that it is a little bigger than other forms. Now apart from the fact that the size of the flowers is probably due simply to an extra supply of nourishment, and would most likely diminish in the same plant again under unfavourable conditions, the mere size of the flowers is quite insufficient to distinguish one plant from another, unless there is enough difference to be stated in figures. Thus it might be 10 inches across instead of 3. This plant probably was not worthy of a name at all, but if it was it should have been a fancy name.

The remaining names speak for themselves; and *C. cristata hololeuca* is distinct as a colour variety in the absence of the yellow patch on the lip. *C. c. Lemoniana*, again (though the error made by its original namer in imagining that *Lemoniana* meant lemon-coloured may call up a laugh at his expense), is equally unobjectionable.

In naming a new variety, therefore, the namer should think first whether he can specify in a few words the cause of distinctness in the variety—thus, *Corydalis cristata alba*, lip entirely white. If not, and the difference is really so slight that words will not clearly convey it, as in many, I might also say most of the innumerable varieties of *Cattleya labiata*, the name given should be a fancy name. Professor Michael Foster, in a recent article on *Iris cengialis* in the *Gardener's Chronicle*, points out that it is not of importance whether a variety of this value first appears in a garden, or in the native haunt of the typical plant; but where one plant varies so slightly from another as not to deserve a [Latin] varietal name, and yet requires some title, it should bear a fancy name. These slight modifications, in fact, are not strictly varieties at all, but forms, and one can, if requisite, break them up still lower, into sub-forms, so that a species may be divided, if necessary, into sub-species, variety, sub-variety, form and sub-form. As an example, *Cattleya labiata* is a species, *C. labiata Triane* a variety, *C. labiata Triane alba*, a sub-variety, and anything lower would be a form. Now it seems to me that it would be most advantageous to give all forms of the plant, from sub-varieties downwards, fancy names.

It is often suggested to make the names of plants in some measure descriptive, but when put into practice this is frequently found to be unworkable. Still the namer of any plant should do his best to make the name expressive of something connected therewith, as for instance the discoverer, or the place of discovery, or the colour. Quintinye, in his *Instructions pour les Jardins*, dated 1697, suggests, in treating of the names of Pinks, that the fancy names should denote the colours of the flowers. Thus he would call a grey and purple kind, the Grand Provincial, or the Grave Philosopher, or General Peter, the initial letter giving the initials of the colours in the flower. The difficulty of such a plan lies in the fact that namers never will conform to anything of the kind.

Another very important necessity is that of regulating the nomenclature of hybrids. They are usually

treated as species, and receive classical names in no way denoting their origin. In wild hybrids this is in a measure excusable, as it is frequently very difficult to discover, on finding a plant intermediate between two species, whether it is a connecting link or a natural hybrid, but in garden hybrids, the parents of which are known, it is much to be deprecated. Certain names, it is true, denote the garden origin of the plants, such as *Cattleya exoniensis* x, and who would doubt that *Cypripedium Sedeni* x was anything but a cultural hybrid. The usual way in scientific works of denoting a hybrid is by compounding the name, as *Carex axillaris*-*remota*.

This may be shortened by cutting off portions of the two words and making a compacter name, but the only instance I can recall of this method is that of *Philageria*, a name invented by Dr. Masters for a hybrid between the two genera *Lapageria* and *Philella*. This plan it seems to me should be always adopted in the case of hybrids between two genera. In some cases it would certainly be rather difficult to get a neat name compounded out of the two, but such names as *Cattleya* and *Sophro-cattleya* are not worse than many generic names, such as *Cienkowski*, *Warszewiczella* &c., with which we have to deal. So confused is the present nomenclature of these generic hybrids that we have known plants of which the parentage is mainly *Cattleya* called *Lælia*s, as for instance, *Lælia Dominicana* rosea. This is stated to have been raised from *Cattleya exoniensis* itself crossed with *C. Dowiana*; *C. exoniensis* being a hybrid between *C. Mossie* and *Lælia purpurata*; so that there is actually only quarter blood of *Lælia* in the plant, and yet it is called a *Lælia*.

With respect to hybrids between species, the matter is more difficult, for though compounded names are possible in some cases they are not so in others, owing to the length and unwieldiness of some of the specific names. Where practicable they may be used, but in all cases where it is certain that the plant is a hybrid, a (x) should be always put after the name whenever printed. Where the same parents produce different forms, a fancy name could be added to the compounded name to distinguish them.

THE DISCUSSION.

Dr. MASTERS, while assenting in the main to Mr. Ridley's observations, took occasion to protest against the idea which is entertained in some quarters, that there is any difference in principle between the nomenclature of Orchids and that of any other family of plants. He considered that the existing confusion depended in great measure upon people not minding their own business. The principles of botanical nomenclature are well understood and recognised by botanists, and more or less well acted up to. Botanists, like other people, did not always act fully up to their own principles. Moreover, they made many mistakes as other people, but there was this difference between the system followed by botanists and the no-system followed by horticulturists—that botanical mistakes could always be rectified, because the system of publication and registration allowed of easy reference for purposes of future confirmation or correction as might be required, while at present nothing of the kind existed for garden names proper. He cordially acknowledged the right of horticulturists to name their plants as they pleased, subject to the reservation that they should not create confusion by adopting an imitation of the technical language used by botanists. By the unauthorised use of Latin and Greek names, formed on the plan adopted by botanists, and by the want of any authoritative system of publication and registration, growers were in a large measure responsible for the confusion of which they now complained. Dr. Masters pointed out that the Royal Horticultural Society had laid down rules for the guidance of horticulturists, but these rules had been allowed to fall into abeyance, and were more honoured in the breach than in the observance, even by the committees. For nursery garden purposes he advocated the use of fancy names if possible in English, but in any case so constructed as to prevent any possible inference that the plant had been examined and named by competent botanical authority. The Society should refuse to recognise any botanical name till the plant had been identified by some competent authority. In the same manner he thought that the Committees should decline to adopt any fancy name for plants brought under their notice until the committee were satisfied, on the recommendation of experts that the plant was deserving a separate name and that it was really distinct enough from any existing variation to deserve a special application. A register should be kept and published from time to time of all names and if necessary a provisional name given (English), to be replaced ultimately by a permanent name if the provisional name should turn out on examination to be incorrect or inadequate.

Mr. ENOCH HARVEY assented to Dr. Masters' proposals, and urged the Society to institute a committee of some competent persons to form a selection of findings and dried specimens authoritatively named, and which might be consulted for purposes of reference when needed.

[This plan, it may be said, parenthetically, is followed in our herbaria at Kew and the British Museum, while Prof. Reichenbach's unrivalled collection enables him to

supply the requirements of the horticulturists from a purely botanical point of view.]

Mr. SHIRLEY HIBBERD alluded to the commercial side of the question, and humorously pointed out how Mr. Blank, having an Orchid with a spot in one corner of a petal, gave the plant a name, and forthwith sold it without the least further care or thought. He received the price of his plant, and there was an end of the matter. For the rest the speaker advocated the "kicking out of the names of all garden varieties."

Mr. GOLDING criticised some of Mr. Ridley's statements, and differed in opinion as to the degree of value to be placed on certain forms of Orchids which he considered of higher rank than Mr. Ridley seemed to do. [Such questions of differences of appreciation of relative rank are unavoidable.] Mr. Golding also objected to the statement that the form of the pseudobulb could be altered by cultivation, as Mr. Ridley appeared to infer in the case of certain species.

Mr. RIDLEY defended his propositions by adducing several instances, in which he was confirmed by Mr. Harvey and Sir Trevor Lawrence. Mr. Ridley also made an appeal to Orchid growers to furnish him with adequate specimens for determination. The specimens would be preserved for reference in the museum.

Sir TREVOR LAWRENCE expressed his willingness to supply specimens both to Professor Reichenbach and Mr. Ridley, and advised his fellow-orchidists to do the same as opportunity allowed. [Speaking for ourselves, we are pleased to acknowledge gratefully the assistance we receive from growers in these particulars.]

Professor MICHAEL FOSTER agreed with many of the observations of Dr. Masters, and urged the desirability as far as possible of making the name in some way or another descriptive, so that the nature or history of the plant might in some degree be embodied in the name. Names for hybrids, he suggested, should be made to end in a consonant; thus, if Dr. Masters' genus *Phileria* x had been named *Phileria*, its hybrid character (between *Lapageria* and *Philesia*) would have been indicated. Professor Foster also advocated the establishment of a collection of drawings and specimens for reference.

Mr. LYNCH also advocated the formation of such a collection, and the appointment of a horticultural botanist, whose special duty it should be to keep the collection in order, and to take charge of the questions of nomenclature generally. He further suggested that a petition should be forwarded to Professor Reichenbach to draw up a general summary of his life's work!

Sir TREVOR LAWRENCE, in summing up the discussion, alluded to the desirability of botanists affording for the benefit of those not versed in the dead languages an explanation of the meaning of the names they employed.

Thus ended the Conference, which proved a bright and interesting meeting, and in which, from the brief summary we are only able to give, it will be seen that some practical suggestions were thrown out.

Reports of Societies.

ROYAL HORTICULTURAL SOCIETY'S PROVINCIAL SHOW, LIVERPOOL: June 29 to July 5.

We may with safety endorse the general opinion of that part of the horticultural world which has been enabled to attend this meeting of the Royal Horticultural Society at Liverpool, that the meeting has been a thoroughly successful gathering in the horticultural sense—financially it is yet too premature to prophesy. The weather, which after all tells most for or against these out-of-doors diversions of mankind, is now at the moment all-propitious, and so far influenced the attendance as to bring great numbers of interested visitors on the opening day. We must hope for a continuance of fine weather, and then the financial success should likewise be assured. It speaks volumes of the power Victoria in the old Society that it has found sufficient support from the gardeners and their generous employers, and the municipality of Liverpool, to inaugurate what must be called a "great show."

Flowering plants were in abundance, taking into consideration the lateness of the season for the best things. Crotons were shown in better form; our old acquaintances in foliage plants, which meet us at every big gathering, were in excellent health and vigour. Orchids were an especially good feature, and are evidently plants for which the Liverpool amateurs show a great penchant, and which they cultivate in their not over-salubrious Lancashire atmosphere in an excellent manner, that was a surprise to those who are apt to imagine all that is good is the product of the south parts of the island. Herbaceous plants of all kinds were found in great quantities, as were cut flowers, British Ferns, tuberous Begonias, and some Pelargoniums. The south country growers contributed well in Roses, and show and fancy Pelargoniums.

The fruit was of fairly good quality for the season, but was on the whole poorly represented. Pines were abundant, and better than we remember seeing them anywhere during the previous season.

Vegetables, shown in small quantities, were excellent.

Tools, garden machines and appliances, boilers, glass erections of most kinds, summer-houses, and the now innumerable articles in daily use in gardens were to be found in great abundance.

The great seed houses made effective displays, although they rather overshadowed the principal exhibition, by the proximity of their ambitious façades and grandiloquent signboards and trade announcements.

FLORAL DIVISION.

Twelve Stove and Greenhouse Plants, six in flower, distinct (open).—1st, Mr. J. Cypher, Cheltenham. The

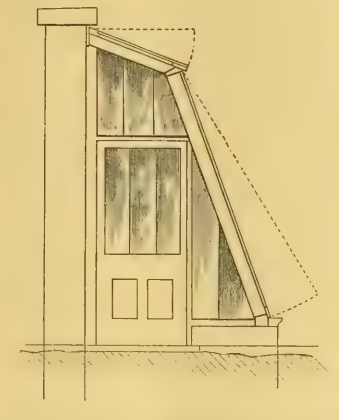


FIG. 6.—END ELEVATION OF PEACH WALL CASE. (SEE p. 19.)

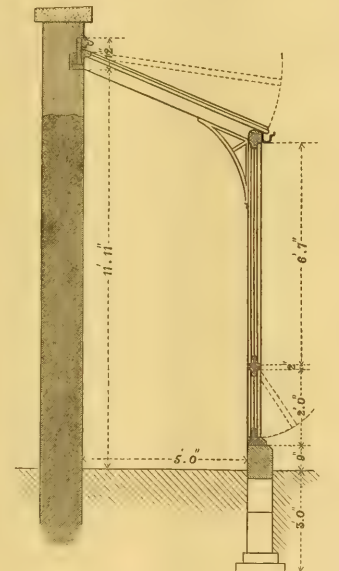


FIG. 7.—SECTION OF PEACH WALL CASE.

flowering section comprised *Anthurium Schzerianum*, a capital specimen, loaded with fine spathes; *Ixora Regina*, a large plant; *Erica tricolor* Wilsoni, well done, and 3 feet in diameter; *Dipladenia amabilis*, also finely flowered; *Allamanda Hendersoni*, literally drooping under its burden of bloom. Foliage plants were—*Croton Queen Victoria*; *C. Prince of Wales*, a fine symmetrical specimen; *Latania borbonica*, a fine plant; *Kentia Cantherburyana*, and *Cycas revoluta*. This group was the largest in the show, 2d, Mr. J. Mould, Pewsey, with plants of *Erica aristella*, *Bougainvillea glabra* in globular form; *Dipladenia amabilis*, *Ixora coccinea* were beautiful plants,

as were also *Gleichenia rupestris* and *Cycas revoluta*; but all were of a much smaller size than the foregoing. 3d, Mr. H. James, Lower Norwood, shows *Pimelea mirabilis*, *Tomaria intermedia*, *Franciscia calycina* major, were well grown, but showing signs of exhaustion.

Nine Stove and Greenhouse Plants, in bloom, distinct (nurserymen).—1st, Mr. J. Cypher, with *Ixora Filigimili*, having enormous trusses of its orange-scarlet flowers thickly set all over it; *Allamanda Hendersoni*, a splendid plant; a large handsome *Anthurium Schzerianum*, *Pimelea decussata*, of 6 feet in diameter, and its variety of *Anthurium Schzerianum* with deep red spathe and spadix. 2d, Mr. H. James, with *Dracophyllum gracile*, *Statice Holfordi*, *Allamanda nobilis*, *Erica Cavendishi*, being well grown examples; 3d, Mr. J. Mould, in whose collection were two *Statices*, *Butcheri* and *profusa*, with an extraordinary amount of flower on them.

Six Stove and Greenhouse Plants, distinct, in bloom (amateurs).—1st, Mr. A. R. Cox, gr. to H. H. Watts, Esq., Elm Hall, Worcester, who had a superb *Ixora coccinea*, 5 feet in diameter, and 1 foot high; 1. *Distichlis* 6 feet high, and full of flower; 1. *Regina*, the best and most vigorous young plant in the show; *Allamanda Hendersoni*, very large flowers, of great substance; and *Clerodendron Balfourii* the whole formed capital examples of cultivation. 2d, Mr. C. Paul, gr. to S. Schloss, Esq., Osborne Villa, Bowdon, whose *Stephanotis floribunda*, *Bougainvillea glabra*, and *Boronia elatior*, were well-finished examples.

Twelve Hard-wooded New Holland Plants, in flower (open).—1st, Mr. J. Cypher, with *Aphelexis* in variety; *Darwinia tulipifera*, *Pimelea decussata*, and *Dracophyllum gracile*, vigorous plants of no great age, and well bloomed.

Nine Fine-foliage Plants, distinct (open).—1st, Mr. J. Cypher, with *Croton Sunset*, a distinct and bright-leaved variety; *Dasyliodon acrotrichum*, a large plant; *Croton Johannis*, fairly well coloured; *Cordylina indivisa*, a very fine example with uncommonly stout foliage; *Latania borbonica*, *Areca Baueri*, and *Kentia Fosteriana*, both large plants, with healthy foliage. This last, in the imposing group, filling the corner of the tent in which it was placed. 2d, Mr. J. Jellicoe, gr. to F. H. Gossage, Camp Hill, Woolton, whose *Pritchardia pacifica*, *Latania borbonica*, and *Dicksonia antarctica* were very good specimens.

Six Fine-foliage Plants, distinct (amateurs).—1st, Mr. A. R. Cox—the *Croton Queen Victoria*, *Latania borbonica*, *Calamus ciliaris*, with foliage to the pot; and *Alseodora macrocarpa* being capital examples.

Nine Palms, distinct (open).—1st, Mr. G. Williams, gr. to S. Baerlein, Esq., Oak Dene, Didsbury, in this lot were *Thrinax elegantissima*, *Phoenixophorum seychelliarum*, *Kentia Belmoreana*, *Pritchardia pacifica*, *Phoenix rupicola*, *Kentia australis*, *K. cantherburyana*, *Cocos Weddelliana*, and *Geonoma Schottiana*, sturdy, healthy plants of considerable size. 2d, Messrs. R. P. Ker, nurserymen, Aigburth, with *Licuala grandis*, *Thrinax elegans*, *Phoenix rupicola*, *Kentia australis*, *Sequoia elegans*—a number of useful furnishing plants.

Nine Exotic Ferns, distinct (open).—1st, Mr. Rhodes, gr. to Mrs. Horsfall, Grassendale Priory, Aigburth, the species and varieties consisting of *Adiantum formosum*, *Gymnogramma chrysophylla*, *Davallia Mooreana*—the best of the variety in the show; *Davallia bullata*, *Alsophilla Moorei*, very finely grown, with large perfect fronds; *Dietyrogramma variegata*, a distinct looking plant with bold fronds; *Microlepia hirta cristata*, *Dicksonia squarrosa*, *Gleichenia spenceana*—all of them well grown examples, in fresh condition. 2d, Mr. A. R. Cox: the *Microlepia hirta cristata*, *Gleichenia dichotoma*, *Goniophlebium subauriculatum*, *Dicksonia antarctica*, were handsome, regularly grown examples.

Six Exotic Ferns, distinct (amateurs).—1st, Mr. C. Paul, with an immense plant of *Gleichenia rupestris*, *G. glaucescens*, as large and good; a *Dicksonia antarctica*, 12 feet in height; *Cybotium regale*, with very large fronds, and wonderfully robust; *Brainea insignis*, a symmetrically grown specimen, the bronzy young growth contrasting well with the old green fronds. 2d, Mr. G. Williams, gr. to Oak Dene, Didsbury: *Davallia divaricata* and *Cibotium Schiedei* being superb examples, the others in the group not being of such merit; 3d, Mr. Thos. Gowen, Bolton, Fern Cottage, Linton Lodge, Mossley Hill: *Adiantum Veitchii*, *Davallia Mooreana*, with pretty lace-like fronds, and *Goniophlebium subauriculatum* and *Gymnogramma argyrophylla* being his best plants.

Fifteen British Ferns, distinct (open).—These were well shown by several gardeners, being plants that find much favour hereabouts. 1st, Mr. Thos. Bolton, Fern Cottage, Warton, Carnforth. The species and kinds shown were *Lactuca Filix-mas*, *L. f. m. var. flexuosa*, *L. dilatata* grandiceps, *L. mas var. ramossissima*, *Polystichum angulare var. Paleyensis*, *P. a. var. venusta*, *P. aculeatum var. cristata gracilis*, *Athyrium Filix-femina plumosum var. Axminster*, *A.*

F. f. p. var. Stansfieldii, *Trichomanes radicans*, and *Scelopendrium var. crispum*. All of these were of unexceptionable good cultivation, fresh and uninjured by travel. 2d, Messrs. C. Rylands & Co., Bold Lane Nurseries, Ormskirk, with an even lot of excellent specimens; 3d, Messrs. W. & J. Birkenhead, Sale, Manchester—nice healthy plants, amongst which we noticed a fine piece of *Osunda regalis* growing with perfect foliage.

Six British Ferns, distinct (open).—1st, Mr. Thos. Foster, gr. to John Bracher, Esq., Green Park, Liverpool, who possesses of *Athyrium Filix-femina*, a crested form; A. f. f. plumosum; A. f. f. Fieldingii, with long attenuate fronds; and *Polystichum angulare proliferum*, were greatly admired. 2d, Mr. G. Barber, 2d, St. Michael's Street, Hurst, who had a fine plant of *Athyrium Filix-femina dissectum*; 3d, Mr. J. Hurst.

Twelve Crotons, distinct (nurserymen).—This was the group in which were the magnificent plants of Messrs. Ker & Co. of the Aigburth Nurseries, the sorts consisting of the following varieties, mostly of Continental origin:—*C. Morfontainensis*, of glowing gold and crimson; *C. mosaicos*, of similar colour, but with a different leaf form; *C. Sinizianus*, a narrow leaved, pendulous habited variety, yellow and green; *C. Bergmanni*, with broad erect foliage of pale gold and green; *C. A. f. f. plumosum*, a very narrow-leaved variety, with erect habit, gold on young exposed foliage at the top of the plant, lower leaves green; and the better known *C. Weissmanni*, *C. Evansianus*—the latter with handsome large foliage of crimson and green; *C. Neumannii*, *C. Countess*, and, lastly, *C. interruptus aureus*, a narrow yellow leaf. Better coloured plants can scarcely have been staged before at any show. 2d, Mr. J. Cypher, with plants of much less dimensions and inferior tints; Baron Frank N. Salleri, and Thompson were the newest and most distinct varieties; 3d, Mr. J. Mould, with nice young stuff under 5 feet in height.

Six Crotons, distinct (amateurs).—1st, Mr. C. F. Finnigan, gr., the Winter Gardens, New Brighton, with large and excellent plants, fairly well coloured, of *C. Queen Victoria*, *C. Baron James de Rothschild*, *C. Evansianus*, *C. Johannis*, *C. Prince of Wales*, and *C. augustifolius*.

Six Dracaenas, distinct (amateurs).—1st, Mr. John Lambert, gr. to Colonel Windfield, Onslow Hall, Shrewsbury: the plants of a medium size, well grown, and high in colour. 2d, Mr. G. Williams, with smaller specimens of greater substance, and furnished with foliage down to the pot; 3d, Mr. A. R. Cox.

Six Adiantums, distinct (amateurs).—1st, Mr. J. Hurst, whose plants consisted of well known kinds of an even size and perfect shape.

Twelve Bromeliads, distinct (open).—1st, Messrs. R. P. Ker & Sons, for a number of well developed species, consisting of *Nidaleum fulgens*, *N. pictum*, *N. Meyerdomii*, *Vriehia hieroglyphica*, *Encholirion Saundersii*, *Æchmea spectabilis*, a strong piece, carrying a large spike of white and blue flowers or calyxes; *Pouretia mexicana*, *Massangea muscica*, *Karatas Legrelli*, *Tillandsia tessellata*. This collection was unique of its kind, in plants that are less grown than their beauty as regards flower and foliage entitles them to be.

Six Caladiums, distinct (open).—1st, Messrs. J. Laing & Co., Standstead Park Nurseries, Forest Hill, London, S.E., the plants being of quite extraordinary proportions as regards size of leaf and bulk, the most striking being *Candium*, a pale-leaved sort; and *Leopold Robert*, with very bright coloration. The others consisted of sorts that have been some years in cultivation. There was in this class only one exhibitor.

Twelve New and Rare Plants sent out during 1885, and 1886 (open).—1st, Messrs. Ker & Sons, for *Adiantum cuneatum deflexum*, with fronds possessing five pinnae, and a habit rather more upright than that of the type; *Davallia fœniculacea*, with lace-like fronds, very graceful; *Gymnogramma gloriosa*; *Croton aigburthensis*; and *Anthurium Veitchii* rose rubro, almost too young a plant to decide on its merits. 2d, Messrs. W. & J. Birkenhead, for *Nephrolepis Sagwellii*, a plant with stiff triangular-shaped fronds of a light green colour; *N. Bausei*; *Adiantum Colliisi*, a Fern of a loose habit, the young fronds with a rosy tinge on them; *A. digitatum*, a variety still taller than the last named, and a habit equally spreading; these *Adiantums* will doubtless improve in appearance when older.

Six pans or pots of Lycopods, distinct (amateurs).—The only prize, a 1st, went to Mr. Thomas Foster, but there was nothing in which calls for comment.

Six Calceas, distinct (amateurs).—1st, Mr. T. Parr, gr. to C. Colton, Esq., Lulworth House, Birkdale, with plants that were perfect hills of handsome leafage, the lesser known kinds being *Gloire de Rougemont*, *Marquis de Nadilaud*, and *Mottisborne*, all of which possessed bright pleasing colours; 2d, Mr. W. Bustard, gr. to J. Lewis, Esq., St. Ann's Road, Liverpool, with a number of flatly trained specimens nicely coloured in colour.

Six Ericas, distinct, in bloom (open).—1st, Mr. J. F. Mould, with excellent plants of *E. ventricosa grandiflora*, *E. tricolor Wilsoni*, *E. ampullacea obolata*, *E. ferruginea*, *E. depressa*, and *E. Parmentieri*, the two last being very handsome, and all were well grown.

Twenty Roses in 8-inch pots (nurserymen).—1st, Mr. C. Turner, Slough, whose well bloomed plants carried from six to twelve blooms, the gems of the group being *La France*, *Duchesse de Valombrosa*, *Madame Lacharme*, *Madame G. Luizet*; the plants were dwarf and well furnished with foliage as well as bloom. 2d, Messrs. Paul & Son, Old Nurseries, Cheshunt, the plants being sturdy examples, but little behind the winning group.

Group of Show, Decorative, and Fancy Pelargoniums, not more than eighteen plants, in 6-inch pots (open).—1st, Mr. C. Turner—lovely plants, full of flower, and remarkable for fine development in such sized pots; 2d, Messrs. C. Rylands & Co., useful plants of furnishing size.

Group of Zonal Pelargoniums, under similar conditions to the foregoing.—1st, Mr. G. Rhodes, gr. of Grassendale Priory, whose plants were neat, and nicely furnished with trusses of bloom; very bright were *Sylvia*, *Beauté du Sarcène*, *Leonidas*, *Le Grand*, *Leinstershire Seedling*, a pink nosegay; new 2d, Messrs. R. Fleming & Son, The Nurseries, Maghull, Liverpool, whose exhibits were fairly well bloomed, considering the restriction as to size of pot.

Nine Show and Fancy Pelargoniums, distinct (open).—1st, Mr. C. Turner, with Gold Mine, a vivid scarlet, with a white centre; *Invincible*, black and scarlet; *Ritualist*, cerise and crimson; *Mrs. Pottle*, Despot, and others equally good, if less striking to the eye. 2d, Messrs. C. Rylands & Co.; 3d, Mr. E. Bridger.

Six Single flowered Zonal Pelargoniums (open).—1st, Mr. E. Bridger, The Gardens, Greenhill, Hayton, with vigorous plants, bearing stout trusses, and plenty of them; a sort shows—*Mrs. McKinlay*—is a pleasing shade of rose. 2d, Mr. W. Bustard, gr. St. Ann's Road, Aigburth, whose plants were of a semi-globular form, and nicely bloomed; 3d, Mr. T. Gown, gr. Linton Lodge.

Twelve flowered Zonal Pelargoniums, distinct (open).—1st, Mr. T. Gown; 2d, Messrs. Fleming & Sons; 3d, Mr. J. B. Dixon, Ashton House, Preston.

Nine Nephentes or Sarrafcenias (open).—1st, Mr. H. James, Lower Norwood, with *N. Courtii*, *N. Mastersiana*, *N. M. nigra*, *N. Rafflesiana*, *N. Hookeri*, with fine reddish foliage; *N. robustum*, *N. Dominiana*, all the plants being fairly well furnished with pitchers. 2d, Mr. C. Paul, with broad masses of *Sarrafcenia purpurea*, crammed with pitchers, and a plant of *S. Fieldii*, a tall green species.

Nine Tree-leaved Pelargoniums in flower (open).—1st, Messrs. Fleming & Sons, with plants in tall pyramid form, consisting of sorts now commonly grown—*Emily Lemoine* (a semi-double scarlet), and *Abel Carrier* (a soft rose), were the best of these; 2d, Mr. R. Ashcroft, Hornsby Lane, West Derby, with small plants; 3d, Mr. H. James.

Group of not less than twenty-five Tuberos Begonias, in bloom (open).—1st, Messrs. J. Laing & Co., with small plants of both single and double flowered kinds; *Mrs. Amy Adecock*, a double, with the lower rows of petals of a bright pink, and the centre ones white, suffused white, is a distinct and pretty flower; all of the plants were well flowered, and many of the flowers of over-large proportions to please some critics.

Nine Tuberos Begonias, distinct (open).—1st, Messrs. J. Laing & Co. This group consisted of strong plants nearly 3 feet in height and proportionately broad, of single flowered varieties; 2d, Mr. J. Hurst, Beechwood.

Six Tuberos Begonias (amateurs).—1st, Mr. J. Hurst, small plants of new varieties; 2d, Mr. J. Jellieco, also newer varieties, but smaller in size; 3d, Mr. W. Bustard, with large handsome plants of the now old-fashioned pendulous *pendulous* varieties.

Nine Gloxinias, distinct (amateurs).—1st, Mr. J. Agnew, gr. to Mrs. Watts, Grassendale Park, Aigburth, with strong plants of erect and pendulous varieties, and possessing capital foliage; 2d, Mr. T. Gown, with smaller plants and fewer bloom.

Six pans of Achimenes, distinct (amateurs).—1st, Mr. J. Hurst, with large pans of well-flowered sorts; 2d, Mr. T. Gown.

Collection of twenty-five varieties of annuals, in pots (open).—1st, Messrs. J. Carter & Co., High Holborn, London—a very interesting collection, including *Rhodanthus*, *Phlox*, *Nasturtiums*, *Chrysanthemums*, *Schizanthus*, *Kaulfussia*, *Candytuft*, &c.

Collection of Pansies or Violas, grown in pots (open).—This competition failed to be much responded to, the best coming from Mr. J. Forbes, Buccleuch Nurseries, Hawick, N.B. The plants were robust and very well flowered, as is only possible at this time of year in the North.

ORCHIDS.

Group of twenty-five Orchids arranged with Palms, Ferns, &c. (open).—1st, Mr. G. Hardy, Esq., Pickering Lodge, Timperley (gr. J. Hill), A very effective group, composed of medium sized plants, the flowers

of which were placed slightly above the surrounding foliage. Palms and Ferns were very nicely worked in amongst them. Among the Orchids were the following, in good condition:—*Dendrobium Dearei*, having five spikes of its pure white flowers; *Cattleya Mossie*, a very large and distinct form; *Lælia purpurata*, *C. gigas Sanderiana*, *Acidies Veitchii*, with three spikes, each having several laterals—the only plant in the show of this rare species; *C. Sanderiana*, a most beautiful variety; *C. Mossie*, with thirty-six flowers; *Odontoglossum vexillarium crispum*, four spikes; *O. cordatum*, ten spikes; *Cattleya Mossie superba*; *C. Mendelii*, with one spike, the sepals and petals being pure white, lip intense rosy-amythyst, very sharply cut away at the throat; *Masdevallia Harryana*, fine in colour and of good size; *Saccolabium prismosum*, a spike 18 inches long; *Vanda Denisoniana*, two spikes of its creamy-white flowers; *Cypripedium Lawrenceanum*, &c. The 2d prize was taken by Mr. J. Cypher, nurseryman, Cheltenham, who had a good group, but since several fine *Crotons* were used amongst the plants, the colour of these detracted somewhat from the otherwise bright effect of the orchids. Many good plants were in this collection, especially *D. infundibulum*, with thirty of its white and orange-scarlet flowers; *C. Mossie*, *Epidendrum vitellinum majus*, one plant with twelve, and another with twenty spikes; *C. Mendelii*, *Cypripedium Sonei levigatum*, having four excellent spikes and good flowers; *C. Lawrenceanum*, *Aerides Fieldingii*, *Odontoglossum vexillarium*, *O. citrosum*, *O. crispum*, and *O. Pescatorei*; *Oncidium Lanceanum*, a capital spike, 2 feet long, with flowers of good substance and colour; *Anguloc. clausum*, &c. 3d prize to Mr. H. James, nurseryman, Lower Norwood, whose plants were mostly small, yet including nice pieces of *Odontoglossum cordatum aureum*, *Cattleya Mossie*, *C. Mendelii*, *Odontoglossum crispum*, *Epidendrum vitellinum majus*, &c.

Twelve Exotic Orchids (amateurs).—In this class some excellent plants were shown, the most noticeable, perhaps, being fine healthy and well flowered plants of *Odontoglossum vexillarium*, capital *Cattleya gigas*, *Mossie*, &c. Here Mr. G. Hardy came again to the fore, with plants in every way worthy of the Cheshire establishment. The plants being placed on a sloping bank with a grass edge, each plant had a fair space about it, and could be seen to advantage. *Cattleya Mossie*, with forty flowers of a capital colour, was very telling; *Dendrobium Wardianum*, an immense plant, with fourteen flowering growths full of flowers, was very creditable; how Mr. Hardy had managed to keep this early spring-flowering *Dendrobium* till the end of June was a matter of surprise. Among the Orchid groups present: *Aerides odoratum*, eighteen spikes; *Cypripedium Sonei*, six spikes; *Cypripedium Lawrenceanum*, thirty flowers; *Cypripedium Parishii*, eleven spikes of its singular purple and green flowers; *C. gigas Sanderiana*, grand in colour and of immense size, three spikes, eleven flowers; *Dendrobium suavisimum*, eight spikes; *Cattleya Mendelii*, twenty flowers; *Odontoglossum vexillarium*, very deep in colour, full of bloom; *Odontoglossum vexillarium*, very fine plant, 3 feet over, sepals and petals all rose, lip large and very light colour. 2d prize was taken by E. Harvey, Esq., Liverpool (Mr. Worth, gr.), with a capital lot, amongst which we noticed *Cattleya Leopoldi*, with bulbs 4 feet long; the plant bore three spikes of bloom only, none of which, however, were fully developed; *Phalaenopsis speciosa*, a very rare and choice species, in the way of P. Ludemanniana, but much brighter in colour, the bloom being of a very bright rose color; *Cattleya Mendelii*, five spikes; *Masdevallia Harryana*, Meadow Bank variety, with fifty flowers; *Odontoglossum citrosum*, three capital spikes; *Lælia purpurata*, one spike; *Cattleya Sanderiana*, *Odontoglossum vexillarium*, ten spikes, deep in colour, but rather small flowers; *Aerides Lindleyanum*, *Epidendrum vitellinum majus*, twelve spikes; *Cattleya Warnerii*, ten good flowers; *Odontoglossum crispum*, five spikes. 3d prize to W. J. Thomas, Esq., who had a good plant of *Anguloc. clausum*, with seven flowers; *Dendrobium Dalhousianum*, nine spikes of its tawny bell flowers; *Cattleya lobata*, a well flowered plant with five good spikes; *Cattleya Mendelii*, a very nice form, having white sepals and petals pure white faintly margined with rose colour, and a good purple labellum; a *Schomburgkia*, with the growth of tubicils, with a spike about 2 feet long with a dozen flowers; the sepals and petals having a pale yellow and a deep purple labellum—a beautiful thing; *Dendrobium Bensoniae*, twelve flowering bulbs; *Aerides Fieldingii*, two capital spikes; *Anguloc. Ruckeri sanguinea*, eight flowers; *Odontoglossum crispum*, three spikes; and *Cattleya gigas Sanderiana*.

In another collection we noticed a good dark form of *Cattleya gigas*, *Saccolabium prismosum*, a grand mass of *Dendrobium tortile roseum*, well bloomed; *Cattleya Mossie*, *Masdevallia Harryana*, eighteen flowers; *Cypripedium Veitchii*, twelve flowers; a grand mass of *Dendrobium filiforme*, having thirty-

six spikes of its very pretty flowers; *C. gigas*, a large plant of *Masdevallia bella*, full of bloom; *Odontoglossum caudatum*, &c.

In the corresponding class for nurserymen Mr. J. Cypher, of Cheltenham, staged a very fine lot, and was successful in securing the premier position. Here we noticed *Dendrobium suavisimum*, with twelve spikes of its bright yellow and purple blossoms; a magnificent plant of *Dendrobium Dorei*, with thirty spikes of flowers; *Anguloa Clowesi*, twelve flowers; *Epidendrum vitellinum majus*, a large mass with fifty spikes; *Odontoglossum vexillarium*, ten spikes, flowers very large; *Aerides Lobbi*, four spikes, each 2 feet in length; *Cattleya Mendeli*, three spikes; a very dark form of *Cattleya Mossie*, *Saccolabium guttatum*, with six spikes, the flowers being rather loosely set; *D. Jamesianum*, with thirty flowers; *Odontoglossum vexillarium*, a nice plant, and *Cypripedium Lawrenceanum*, with twenty flowers. The 21 prize was taken by Mr. H. James, Lower Northwood, with a useful lot. Here we were glad to find capital plants of *Cattleya Mossie*, with fourteen flowers of good size and colour; *Cattleya Mendeli*, with eleven blooms; *Brassia verrucosa major*, with a number of spikes; *Dendrobium suavisimum*, with three spikes; *Aerides virens*, *Dryasium*, *Lælia Schilleriana*, *Odontoglossum crispum*, *Aerides Fiedlingii*, with a spike over 2 feet long, bearing one good lateral; a large well bloomed *Odontoglossum vexillarium* roseum, and *Dendrobium filiforme*, with forty spikes.

Six Exotic Orchids, distinct (amateurs).—Here again Mr. G. Hardy came well to the fore with good specimen plants full of flower, and foliage vigorous and fresh. His plants were *Cattleya Mendeli*, with two spikes; *C. Mossie*, with fifty flowers; *C. Sanderiana*, five spikes; *Odontoglossum vexillarium*, a fine piece 3 feet through, full of bloom; *Dendrobium crassinode* *Barbierianum*, a plant in a basket, with ten flowering bulbs 18 inches to 2 feet long, and full of its bright flowers; and a *Cypripedium barbatum* *nigrum*. 2d prize was awarded to E. Harvey, Esq., who had nice plants of *Cattleya Warneri*, *C. Mendeli*, with fourteen blooms; *Dendrobium Dalhousienae*, with three spikes; *Brassia verrucosa*, Dill's blood var.; *Epidendrum Wallisii*, with pale yellow flowers, spotted with purple, light coloured labellum, spotted also with rosy-purple—not at all an effective plant on an exhibition stage; and *Odontoglossum crispum*, good variety.

Twelve Orchids in flower.—Special prize offered by the Liverpool Horticultural Company (J. Cowan), consisting of a cup, value 25 guineas, and 10 guineas in cash.—The only exhibitor was G. Hardy, Esq., who put up twelve plants of large size, and in tasteful manner; each specimen was *well* and *well* plant, and they were all well bloomed. In the centre a large plant of *Dendrobium Devonianum* was well elevated, its light bulbs arching over in a natural manner; this plant had fourteen flowering bulbs, several being over 4 feet in length—a beautiful plant, pleasing everybody; *Cattleya Mendeli*, with fifteen flowers perfectly fresh; *Cypripedium superbum* (Veitchii), with twenty beautiful flowers; *Odontoglossum vexillarium*, a very good plant with twenty spikes, each having four to six blooms; *Cattleya Warneri*, with five spikes, the flowers being deep in colour, and fine in form; on one spike we noticed four flowers; *C. Mendeli*, eight spikes; *C. gigas Sanderiana*, splendid in colour, and large in size; *Dendrobium Jamesianum*, a superb plant with sixty flowers, a genuine single piece; *Odontoglossum vexillarium*, with thirty spikes; *Cattleya Mossie* *superbum*, with thirty-six spikes; *Cypripedium Stonei*, with three spikes; and a *Brassia Lawrenceana*. Truly one of the best lots ever put on an exhibition stage.

A large plant of *Lælia purpurata* was shown by the Hon. and Rev. T. Boscawen, having grand bulbs and foliage, and producing large flowers of a deep rose, with broad, expanding lip of a deep purple, gradually fading to the edge.

Miscellaneous Plants.—Messrs. F. Sander & Co. staged a good lot of Orchids, about a hundred plants, medium in size, but well bloomed. *Zygopetalum Gautieri*, *Cattleya Mendeli*, and *C. Mossie* in several varieties; good forms of *Odontoglossum crispum*, among them being several deeply spotted forms; *O. facetum*, *Mormodes laxatum eburnum*, *L. purpurata*, *Lælia elegans Schilleriana*, &c.

A good group was put up by the Liverpool Horticultural Company (J. Cowan, manager), in which we noticed *Cypripedium caudatum*, *Oncidium leucolum*, the white *Cattleya Eldorado*, *C. citrina*, *C. Acklandia*, *Vanda Roxburghii*, *Saccolabium premorsum*, *Maxillaria virens*, *Aerides crassifolia*, *Peristeria pendula*, several *Chysis levis*, &c. This group was nicely worked up with Ferns, and edged with *Adiantum Facotii*.

In a group staged by Mr. B. S. Williams, Holloway, amongst many other useful and ornamental foliage and flowering plants were to be seen nice plants of *C. Warneri gigas*, *Cypripedium Veitchii*, *C. Mossie*, *Odontoglossum Coradinii* *superbum*,

Cypripedium ciliolare; *Masdevallia Schlumieri*, Messrs. J. Backhouse & Sons, York, also staged a group, in which were good *Cattleya gigas* in several distinct forms, *C. Warneri*, *C. Harrisoni*, *C. Leopoldi*, good forms of *Odontoglossum crispum*, and the small and pretty *Oncidium conigerum*. Several pans of *Disa grandiflora*, in bud, were in this collection.

Twelve Cut Flowers of Orchids, varieties distinct (cut spikes or flowers, set up with Ferns, &c.), to be shown in glasses.—Mr. J. Cypher was 1st, showing nice spikes of *Epidendrum vitellinum majus*, *Dendrobium inulundulatum*, *Odontoglossum crispum*, *Cypripedium barbatum*, *C. Warneri*, *C. Mossie*, *Odontoglossum vexillarium*, *Dendrobium eburnum*, *Lælia purpurata*, *Anguloa Ruckeri*, *Cattleya Mendeli*, and *Odontoglossum Schillerianum*. The 21 prize fell to A. Heine, Esq., Fallowfield (gr. J. Craggs), who had good flowering bulbs of *Dendrobium nobile*, *Vanda tricolor cinnamomea*, *Odontoglossum cordatum*, *O. Schillerianum*, *Cattleya Mossie* *superbum*, *C. Mendeli*, *C. Lawrenceana* (a dark form), *Dendrobium formosum*, *Odontoglossum crispum*, *Cypripedium barbatum* *gigantum*, *Lælia purpurata* *Nelsii*, a very dark form. H. Gaskell, Esq., was awarded 31 prize, for good flowers and spikes of *Cattleya Sanderiana*, *Calanthe veratrifolia*, *Lælia purpurata*, *Masdevallia Harryana*, *Cattleya maxima*, *Anguloa eburnea*, *Odontoglossum Coradinii*, *Dendrobium Dalhousianum*, *Epidendrum vitellinum majus*, *Odontoglossum crispum*, and *Vanda* *tricolor*.

The Orchids shown were remarkable for their firmness and the general freshness of the individual plants. The *Cattleya gigas* varieties were excellent in colour and large in size. Among exhibitors G. Hardy, Esq. showed remarkably well, taking the leading prize in each class, a feat which speaks well for the excellence of his collection as a whole. It is needless to say, that the part of the tent in which the Orchids were staged was crowded as soon as the exhibition was opened, and continued so during the whole of the day.

Group of Miscellaneous Plants, arranged for effect, occupying a space not exceeding 300 square feet (open).—1st, Messrs. R. P. Ker & Son, who had secured the most striking effects by their method of arrangement, and the use of bright coloured Crotons. The ground was hidden by masses of *Adiantum*, disposed so that the plants barely touched, and amongst these, at intervals sufficiently wide, were placed *Crotons*, *Dracænas*, *Palms*, *Anthuriums* in flower, *Lilium Harrisii*, just a few to aid by the contrast of pure white against dark foliage; other plants, disposed in what may be called the temperate section of the group, consisted of *Pelargoniums*, *Roses*, *Rhododendrons*, *Gloxinias*, &c., likewise mixed up with *Cratogeomys*, &c. Messrs. R. & J. Birkenhead, whose group consisted of exotic and hardy native Ferns arranged too closely together to produce a pleasing effect. The good material was there, but there was far more than was required for the space at disposal.

A group extending to not more than 100 square feet (amateurs).—1st, Mr. G. Williams, Oak Dene, whose arrangement consisted of a mound clothed with *Adiantum*, with a bed of the same on the level, flowering plants, *Palms*, *Crotons*, small *Caladiums*, being distributed over it. The central point of the mound was perched on top of the mound, the pot being hidden in a graceful manner with *Fanum*. 2d, Mr. A. R. Cox, whose group was arranged on the level, being only broken up by the plants employed, which consisted of white Lilies, *Palms*, *Orchids*, *Gloxinias*, *Francoa ramosa*, &c.; 3d, Mr. J. Jellicoe, whose plants were of better quality, but being small, failed to produce a satisfactory arrangement.

Group of Miscellaneous Plants, in or out of flower (amateurs).—2d, Mr. Sander & Co., of London, of Birkenhead; the group was rather too artificially arranged, and was composed of *Crassula coccinea*, *Fuchsias*, *Petunias*, *Ericas*, &c.

Group of fifty Hardy Herbaceous Plants (open).—1st, Messrs. J. Dickinson & Son, Newton Nursery, Chester; this formed a striking feature near the entrance to the great tent, and being composed of strong plants which had been grown for some time in pots, and selected with an eye to effect, compelled admirers to take a new set of them, viz. *Campanula rapunculoides*, *C. Burghalli*, with large bluish-white bells, a distinct-looking species, and growing as seen 4 feet in height; *Aquilegia chrysantha*, *Mimulus cardinalis*, and *M. c. Earl of Radnor*, both tall, robust plants full of flower, the latter variety having crimson flowers; *Galetia candelina*, *Francoa ramosa*, *Lilium speciosum rubrum*, and other common species, very tall and strong; *L. speciosum album* stood 6 feet high, and like the others quite covered with flowers; a tall Composite with yellow flowers was seen in *Erythraea palustris*. Mr. J. Bostock, gr. to Enoch Harvey, Esq., 12, Riversdale Road, Aigburth, took the 2d prize. In this group we noted *Inula glandulosa*, *Cypripedium spectabile*, some very floriferous herbaceous *Petunias*, which appeared to have been growing some years in their pots,

Ceanothus Youngii, with pretty yellow flowers, very fine double *Pyrethrum*, *Acchilla tomentosa*, &c.

Fifty Hardy Alpine or Rock Plants (open).—Here the 1st prize was taken by Messrs. Paul & Son, the Old Nurseries, Cheshunt. There were many good and rare things amongst them, as *Dryas octopetala*, *Erigeron glaucus*, *Phyteuma Channelli*, *Ranunculus pyrenaica*, *Androsace lanuginosa*, *Gentiana sagittalis*, *Campanula trachelium pallida*, *C. rhomboidalis*, *C. tenuifolia alba*, and *C. species*, with lovely blue flowers, that do not come so far north in the open air; and *Saxifraga cochlearia minor*. The plants appeared to be well established in their pots, and therefore well adapted for cultivation, not being merely botanical curiosities.

Group of Hardy Ornamental Foliage Trees and Shrubs (nurserymen).—1st, Messrs. J. Dickinson & Sons, whose exhibit was very rich in varieties of Japan Maples, that are so well adapted for the cool conservatory in the early part of the year, if too tender to be planted out-of-doors in most parts; Oaks, with variegated and golden-coloured foliage; *Corylus Beech*, *Eucalyptus*, &c. 2d, Messrs. W. Barron & Sons, Elvaston Nurseries, Borrowash, who had larger grown Japan Maples, but not in such variety as Messrs. Dickinson. The plants shown by Messrs. Barron were:—*Acer atrosanguineum*, *Cornus mascula* var., *Acer polymorphum atropurpureum*, *A. Negundo* var., *Fagus atropurpurea*, *F. p. pendula*, *Ulmus aurea Rosseusii*, *Quercus Cerris* var., *Prunus Pissardi*, *Ulmus myrtifolia purpurea*, *Asculus aurea* var., *Tilia dissecta*, *Acer Pseudo-platanus* var., *Ulmus campestris elegantissima pendula*, *U. latifolia alba maculata*, *U. montana Damptieri aurea*, *Quercus pedunculata albo-maculata*, *Q. p. atropurpurea*, *Acer polymorphum atropurpureum dissectum*, *A. polymorphum*, *A. p. dissectum*, *A. p. palmatifidum* var., *A. rufo-nervia*, *A. marmorata*. The above were strong plants in tubs, symmetrical and vigorous of growth, as we are accustomed to see from these nurseries:—*Abies Sieboldii*, *Keteleopora pinnosa aurea*, *Keteleopora tetragona aurea*, *Abies glasi* *glauca*, *Thuopsis Standishii*, *Taxus baccata aurea* var., *Abies Pattoniana*, &c.

Miscellaneous.—Messrs. R. Smith & Co., Worcester, staged a very bright and interesting group, consisting of varieties of *Clematis* in pots, well flowered; also small plants of new varieties, some of which had beautiful flowers, but being as yet unnamed, we can only mention them in a general way; *Ericas* and *Roses* in pots, neat, floriferous plants; Japanese Maples, *Peonies*, as cut flowers; a large boxful of blooms of *Dictamnus fragrans*, a very conspicuous for its bright tints. Messrs. W. Cutbush & Son, nurserymen, Highgate, showed a group of plants consisting of Ivies in many varieties, for which the Highgate nurseries are noted, Japanese Maple, *Lilium Harrisii*, *Crassulas*, *Spiræas*, &c., a pretty group of useful plants. New Holland plants, which are largely grown at this nursery, were present in but small numbers. Messrs. F. & J. Birkenhead, Upton Nurseries, Chester, had a circular-shaped group near the entrance in the big tent, consisting of *Dracænas*, *Palms*, *Ferns*, &c., small stuff put together lightly. Mr. Jennings, gr. to Leopold de Rothschild Esq., Ascot, Leighton Buzzard, showed a splendid group of *Carnation Souvenir de la Malmaison*; the flowers were of the largest size, and showed well the degree of excellence obtained by him in their culture. Mr. C. Turner showed also the same variety and the pink flowered; *Carnation Lady Rose Molyneux*, a white, and *Prince of Orange*, a yellow with a wire edge. Messrs. Kelway & Sons, Langport, Somerset, had cut blooms of *Gaillardias*, *Pyrethrum candicum*, &c., a pure white of good form. Messrs. Backhouse & Sons, nurserymen, York, received a Gold Medal for a group of plants consisting of *Cattleyas* of various species, *Odontoglossums* and *Oncidium conigerum*. Their collection of *Trichomanes* and *Hymenophyllum* was rich in rare species, of which we note a few, viz.—*Trichomanes Luschthianum* var. *pulchra*; *T. meifolium*; *Hymenophyllum tamariacum*; *H. multifidum*; *H. hirsutum*, very rare; *H. chilense*, with capsules borne on the upper surface of the fronds. Many fine plants came from the same nursery. We noticed *Athyrium Filix-foemina* *Edwardii*; *Saxifraga Lantacina* *superba*; *Lepidosperum scoparium*, which we saw in flower and it showed in bud far north in the open air; *Silene petraea*, with the habit of the common Thrift, with heads of small white flowers; *Potentilla nitida* var. *atro-rubens*, with silvery trifoliate leaves and bright rosy-pink flowers; *Aster alpinus alba*; *Buxus latifolia aurea*, the foliage pale yellow; *Salix lanata*, with a creeping habit and grey foliage, &c.

Messrs. K. B. Laird & Sons, Edinburgh, showed twenty-four varieties of *Violas*, of great excellence. The Liverpool Horticultural Company (J. Cowan, manager), exhibited a group of *Roses*, *Paquerette*, *Mignonette*, and *My Pet*, small flowered varieties well adapted for pot culture. Other exhibits from this nursery consisted of very fine double and single *Petunias*, of charming variety in form and colour; *Crotons*, *Palms*, &c., the group taking up considerable space in the cut-flower tent.

Messrs. Jas. Dickson & Son received a Bronze Banksian Medal for a group of succulents, consisting of Aloes, Agaves, Yuccas, Euphorbias, Mammillarias, &c.

Messrs. James Veitch & Sons, Royal Exotic Nursery, Chelsea, had a most interesting group of rare plants effectively arranged. Philodendron grandifolius, Anthurium Warocqueanum, A. Veitchianum, all with splendid foliage, and forming the background of the group, against which the smaller plants were well shown up. The Protea cynaroides and Exacum macranthum noticed in the *Gardeners' Chronicle* last week were exhibited in the group, and a collection of insectivorous plants, consisting of Cephalotus and Drosas, small examples, under a bell-glass; *Caracasus angustifolia*, with a scarlet flower-scape and smooth narrow arching foliage; *Aralia Kerchoviana*, *Nephrolepis rufescens triplinatifolia*, *Hydrangea paniculata grandifolia*, two plants, wonderfully well bloomed; several handsome greenhouse Rhododendrons; *Nepenthes Mastersoniana*, with large well coloured pitchers; *Dieffenbachia Jenmannii*, *Dracena norwoodensis*, green foliage, striped and edged with creamy-white and pink; *Hemantibus hirsutus*, with white corymbs of flowers, produced quite freely.

Mr. B. S. Williams, Victoria Nurseries, Upper Holloway, London, had a very charming group, consisting of *Cattleyas* in variety; various *Odontoglossums*, *Houlletia odorata*, *Cypripediums*, *Lycaste Deppii*, *Lælia purpurata*, *Oncidium Papilio*, *Hydrangea paniculata grandifolia*, intermixed with *Adiantums*, *Crotons*, small Palms, *Spirea palmata*, *Metrosideros floribunda*, *Saxifraga*, &c.

Messrs. Sutton & Sons, Reading, displayed a very large quantity of wax models of roots, fruits, and vegetables; sixty sorts of Potatoes of 1885, well preserved; some fine kinds of Cabbage Lettuces of this year's sowing, several Melons and Cucumbers raised at their establishment, together with samples of living grasses and Clovers.

Messrs. Sheel & Son, Lowfield Nurseries, Crawley, Sussex, showed their system of training fruit trees in various ways. A Gold Medal was awarded.

FLORAL COMMITTEE.

At the meeting of the Floral Committee, James O'Brien, Esq., in the chair; Major Lendy, Mr. Shirley Hibberd, Mr. Herbat, and Mr. Dean, &c., present, First-class Certificates were awarded—

To Messrs. James Veitch & Son, for *Pteris tremula foliosa*, a stately new Fern, with effectively crimped foliage; *Philodendron grandifolius*, quite a show plant, with very long bronzy leaf blades; *Nephrolepis rufescens triplinatifolia*, finely and curiously overlapping in the pinna; *Gymnogramma schizophylla gloriosa*, much more robust than the type; *Rhododendron Aurora*, with fine yellow and orange flowers—a greenhouse kind. The award of a Botanical Certificate to *Protea cynaroides*, provisionally given at the last meeting, was confirmed.

To Mr. B. S. Williams, of Holloway, for *Araucaria excelsa Vervaeitiana*, a noble plant of the robusta or glauca type, but with a bright green tint.

To Messrs. R. E. & Son, Aigburth, for *Croton alaburghensis*, a pretty plant, with narrow leaves, almost wholly golden; *Croton Newmanii*, with broad leaves, brilliantly tinted with scarlet, yellow, and bronze; *Gymnogramma picturata gloriosa*, as Messrs. Veitch.

To Messrs. James Dickson & Son, York, for *Hyemophyllum picturatum*, which has curiously recurring pinnae; *Trichomanes meiolium*, something like a *Todea pellucida*; *Polypodium vulgare trichomanoides*, an elegantly divided Fern, almost like a filmy Fern; *Asplenium marium pictum*, which has the pinnae again deeply divided; *Chrysanthemum leucanthemum var. Puy de Dome*, the largest of the hardy white Marguerites.

To Messrs. W. & J. Birkenhead, Sale, for *Nephrodium Sangwellii*, a pretty light green Fern, with narrow toothed pinnae; *Lactaria montana coronans*, one of the neatest of crested Ferns.

To Messrs. Kelway & Son, Langport, for *Gaillardia Ormonde*, a large crimson and yellow kind; *Pyrethrum Lawtonburgh*, a grand pure white, quilled double.

CUT FLOWERS.

Seventy-two Roses, distinct (open).—1st, The Cranston Nursery and Seed Co., Worcester. The stands of these were of the usual fine quality of Roses from this nursery, and amongst those of exceeding merit we noticed *Mad. T. Levet*, *Marquise Castellane*, *Marguerite de St. Amand*, *Dingee Conard*, *Vicomte Vigier*, *Magna Charta*, *Baron Haussmann*, *Captain Christy*, *Lady M. Fitzwilliam*, *Mad. Ducher*, *Earl of Pembroke*, *Charles Lefebvre*, *Eugene Verdier*, *Constantine*, *Tretschkopf*, *Mlle. Marie Contet*. 2d, Mr. G. Campbell, Gay Street, Bath, with flowers but little less fine, *Rosierist Jacob*, *Richard Laxton*, *Ulrich Brunner*, *Alfred Colombe*, and *Merveille de Lyon* being capital examples. 3d, Messrs. Paul & Son, Old Nursery, Cheshunt. Seven lots were staged for this contest.

Forty-eight Roses, distinct (nurserymen).—1st, The Cranston Nursery and Seed Co., Worcester, of Oxford, *Violette Bowyer*, *Nardy Frères*, *Mons. Nomman*, *Julia Touvais*, and *Ferdinand Chaffotte* being some of

the finest, together with the sorts mentioned as being prominent in the previous competition; 2d, Messrs. Paul & Son, Cheshunt; 3d, Mr. J. House.

Twenty-four Roses, distinct (nurserymen).—1st, Mr. Prince, Oxford, the Roses in his boxes bearing the usual evidence of the suitability of his soil of the district for the production of Roses of good substance of petal and leaf and size of flower. Very good were the sorts *Catherine Mermet*, *Princess of Wales*, *La Boule d'Or*, *Jean Ducher*, *Madame Kuster*, *Rubens*, and *Souvenir d'Elise Varden*, *Souvenir d'un Ami*; but so good were the majority of the flowers that it is inadvisable to make a choice. Equal 2d, Messrs. Cooling & Sons, Bath, and the Cranston Nursery and Seed Company.

Twenty-four Tea Roses, distinct (nurserymen).—No 1st was awarded; 2d, Messrs. G. Cooling—a fine lot, but rather small.

Twenty-four Roses, distinct (amateurs).—1st, Mr. G. Campbell, gr. to S. P. Budd, Esq., 8, Clay Street, Bath. In this group were superior blooms of *Niphotos*, *Duchess of Valombrosa*, *Lady Mary Fitzwilliam*, *Countess of Oxford*, *Françoise Michelon*, *Arthur Dickson*, *Rubens*, *Beauty of Waltham*, and *Merveille de Lyon*; 2d, R. E. West, Esq., Reigate, Surrey, the best blooms being found in *Marie Baumann*, *Merveille de Lyon*, *Ulrich Brunner*, and E. Y. Teas.

Twelve Roses, distinct (amateurs).—1st, Mr. E. Claxton, The Rosery, Allerton, who had fine *Innocenta Pirola*, *Anna Olivier*, *Madame Cusin Niphotos*, *Hon. E. Giffard*, and *Souvenir d'un Ami*; 2d, Mr. S. P. Budd—*Violette Bowyer*, *Alfred Colombe*, *Lady M. Fitzwilliam*, and A. K. Williams being some of his best examples.

Twelve Tea Roses, distinct (amateurs).—1st, Mr. E. Claxton, who had beautiful blooms of *Marie Van Houthe*, *Niphotos*, *Princess of Wales*, *Madame Cusin*, and *Anna Olivier*; 2d, Mr. S. P. Budd, the sorts *Devoniensis*, and *Madame Willermoz*, being very fine. 3d, Mr. Marshall Bulley, Chapel Street, Liverpool.

Twelve bunches of Pelargoniums (open).—In this competition the 1st prize was awarded to Mr. C. Turner, and the 2d to Messrs. C. Rylance & Co.

Twelve bunches of Single-flowered Pelargoniums.—The three prizes were awarded to Messrs. Rylance & Co., Mr. Weir, and Messrs. Fleming & Son, in the order of their names.

Twelve bunches of Double-flowered Zonal Pelargoniums.—2d and 3d prizes were awarded to Mr. W. Weir and Messrs. Fleming & Son, in the order named.

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Twelve bunches of Hardy Herbaceous Plants (amateurs).—Mr. G. Eaton, gr. to W. H. Shirley Esq., Allerton House, Allerton, who had the best collection, took the premier prize, and Mr. Bustard, the 2d.

Group of Cut Hardy Flowers (nurserymen).—1st, Messrs. R. B. Laird & Sons, West Coates Nursery, Edinburgh; 2d, Messrs. J. Cocker & Sons, seeds-men, Aberdeen, who had an excellent lot of fresh looking flowers, the *Pyrethrum* being larger than we are accustomed to observe in the market. 3d, Messrs. G. Eaton.

Sixty blooms of Pansies, not more than two of a sort (open).—Here the best prize went to Messrs. J. Cocker & Sons, for a quantity of large flowers, with well-defined colouring, smooth and globular in form.

Twelve varieties of Gloxinia (open).—Mr. Thomas Gowen was the winner here; but the flowers lacked the best marks of the newest strains.

Cut blooms.—Messrs. James Dickson & Sons, received the Silver-gilt Banksian Medal for a large quantity of cut flowers of hardy plants shown in grand style, the *Pæonies*, *Delphiniums*, and *Lilies* being extremely fine.

BOUQUETS, ETC.

Three Stands or Vases for dinner-table decoration (open).—1st, Mr. J. Cypher, with three tall glasses elegantly arranged with small flowers, grasses, &c., that would look pretty by artificial light, and not intercept the view over the table; 2d, Mr. T. Prewett, Swiss Nursery, Hammer-smith.

Bridal Bouquets (open).—Mr. J. Cypher was placed deservedly in the 1st place for these.

Bouquet for the Hand (open).—1st, Mr. E. Carr, Market Hall, Southport—two very artistically-made bouquets, not over-crowded with flowers.

Arranged Sprays for Ladies' wear (open).—In this class we noted a yellow *Carnation*, *Pride of Penshurst*, which, although somewhat wilted with the heat, seemed to afford excellent material for these articles of fashionable use, the colour being also of the patronised tint of yellow.

Skeletonised leaves and flowers were shown in charming variety by Mrs. Margaret Hodgkins and Mr. R. Frisby.

FRUIT.

The productions shown, if very numerous in most

of the classes, were not of very high order of merit. Pines were of fairly good appearance, no overgrown crowns being observed. Grapes were below the usual quality. *Foster's* Seedling being small in bunch, Muscats, in some cases barely ripe; the finest varieties being *Hamburghs* and *Madresfield Court*.

For collections of eight kinds: 1st, Mr. R. Parker, gr. to J. Corbett, Esq., Impney Hall, Droitwich, who had well matured *Black Hamburgh* and *Foster's Seedling* Grapes, small of bunch, an excellent *Queen Pine*, well coloured *British Queen* Strawberries, *Noblesse Peaches*, *Pimontan* Nectarines, neither very large; a good *Blenheim Orange Melon*, and *Brown Turkey Figs*—a good collection of very presentable fruits. 2d, Mr. G. H. Richards, gr. to the Earl of Normanton, Somerley, Ringwood, whose *Black Hamburgh* Grapes were rather loose in bunch, but well coloured; *Trebbiano*, thoroughly ripened; a large *Queen Pine*, excellent *Sir Joseph Paxton* Strawberries, *Hero of Lockinge* Melon, *Lord Napier* Nectarines, and *Alexander Peach*. 3d, Mr. Bannerman, Blithfield, Rugby, who had large well coloured *Royal George Peaches* and *Golden Champion* Grapes, rather under ripe, were the best items.

Collections of six kinds.—In this competition there was some capital fruit shown by Mr. Iggluden, gr. to the Earl of Cork, Marston House, Frome—*Long-leaved* *Perfection* Melon, *Hale's Early Peaches*, *Violet Hâtive* Nectarine, *Brown Turkey Figs*, *Elton Cherries*, and *President Strawberries*; 2d, Mr. Miller, gr. to W. H. Long, Esq., Road Ashton Park, Wilts., whose collection were the best; 3d, Mr. Atton, who had *hybrid Melon*, *Hale's Peach*, and *Elton Cherries* of much excellence; 4th, Mr. Goodacre, gr. to the Earl of Harrington, Elvaston Castle, Derby, whose fruit ran the previously named lot very closely. An extra prize was awarded for fruit in this class.

Grapes, three bunches of each.—Of these there were eight lots shown, and none of the bunches were very large, and many had been too severely thinned. 1st, Mr. T. Lambert, gr. to Lord Harlech, Oswestry; 2d, Mr. L'Anson, gr. to W. Bretelton, Esq., Rushan Hall, Chorley—large bunches small, and somewhat crowded; 3d, Mr. E. Gillman, gr. to the Earl of Shrewsbury, Ingestre Hall, Staffs.—the berries small but jetty black. Mr. Loudon, gr. to T. Barnes, Esq., The Quinta, Chirk, had very excellent fruit, that was, perhaps, inadvertently passed over.

Madresfield Court was shown by Mr. Loudon, and was the only exhibit in this class.

Muscat of Alexandria.—These were the reverse of good, and the winning bunches were small, and not matured. Mr. Middleton, gr. to R. Pilkington, Esq., Rainford Hall, St. Helens, took the 1st prize; Mr. McKellar, gr. to J. Watts, Esq., Abney Hall, Chester, the 2d; Mr. Loudon 3d, with the best-ripened bunches.

Foster's Seedling was shown by six competitors, Mr. G. T. Miles being 1st with well-ripened fruit; 2d, Mr. L'Anson.

Any other variety.—Mr. Loudon took the 1st prize with *Golden Champion*, the bunches being large and green; 2d, Mr. Chuck, gr. to P. Thellusson, Esq., Brodsworth Hall, Doncaster, with small bunches of *Duke of Buccleuch*, also unripe.

Baskets of Grapes.—1st, Mr. L'Anson, with *Black Hamburghs*; 2d, Mr. Tugwood, gr. to J. G. Morris, Esq., Allerton Priory; 3d, Mr. Elsworth, gr. to A. R. Gladstone, Esq., Court Hey—the fruit very much robbed of its bloom.

Pine-apples, two fruits.—Mr. G. T. Miles, took 1st prize for *Queens*; Mr. Parker, 2d, with the same kind; and Mr. Morris, gr. to A. P. Vivian, Esq., Gleafon, South Wales, with fine examples scarcely inferior to the second prize.

Single Pine-apple.—Here Mr. Miles was 1st, and in the any variety class, Mrs. Horsfall, Aigburth, was 1st with the only fruit shown, a small *Black Jamaica*.

Peaches, two dishes of six fruits each.—1st, Mr. Divers, 2d, Mr. Goodacre, 3d, Mr. J. Stoney, gr. to Sir Thomas Earl, Bart., Allerton Towers.

Single dish of Peaches.—Mr. Wallis, gr. to the Earl of Derby, took the 1st prize; Mr. Stoney, 2d.

Nectarines, two dishes.—Mr. Jamieson, gr. to Earl Crawford and Balcarres, Haugh Hall, 1st; and Mr. Bannerman, Wigan, was 2d; Mr. Gilman, 3d.

Single dish of Nectarines.—1st, Mr. Jamieson; 2d, Mr. Gilman; 3d, Mr. J. Douglas, gr. to F. Willbourne, Esq., Great Gearies, Ilford. Varieties of *Peaches* shown were—*Early Albert*, *Stirling*, *Royal George*, *Grosse Mignonne*, *Galande*, and *Violet Hâtive*; and of *Nectarines*—*Lord Napier*, *Pine-apple*, *Violet Hâtive* and *Downton*.

Strawberries, three dishes.—These fruits were large and well coloured, especially *Marguerite*, *President*, *Sir J. Paxton*. Mr. Garraway, Bath, was winner of the 1st prize with the above sorts; Mr. Iggluden, 2d, with fruit rather smaller.

For a single dish of Strawberries, Mr. W. Wildsmid took the 1st prize with a very fine dish of *President*; and Mr. G. Garraway 2nd, with *Sir J. Paxton*.

Cherries, two dishes.—These fruits were not seen in

great quantity, but were very well ripened. Mr. Hare, Esq., gr. to H. H. C. Nevill, Grantham, was 1st, with Eton and Black Circassian; Mr. Miles was 2d. In the single dishes the same exhibitors took the prizes in similar order, and Mr. G. H. Richards took the prize.

Figs.—Mr. Wallis 1st, for a dish of Brown Turkey, well ripened and large; Mr. Jamieson 2d, with Lee's Prolific; and Mr. Miles 3d, with Negro Largo, so that the three best varieties of Figs were represented in the winning dishes.

Melons.—Of these there were fifteen couples; Mr. Bailey, Frome, Somerset, 1st, for Longleaf Perfection, a sort like Easton Castle in appearance; 2d, Mr. Gilman, with a sort unnamed.

In Messrs. Suttons' competition Mr. Goodacre was the winner of the 1st prize, with Hero of Lockinge; Mr. N. E. Owen was 2d, and Mr. Iguldun 3d, with the same; Mr. Lockie, gr., Oakley Court, Windsor; Mr. Lyon, gr., Rockferry; and Mr. G. Park, gr. to Col. Parington, Wigan, taking the prizes in the order of their names for Melon Blenheim Orange.

Apples.—An excellent condition came from Messrs. Chish & Sons, Crawley, Sussex; twenty sorts were shown, French Crab, Gloria Mundi, and Norfolk Beeching being the soundest fruit.

Messrs. Thomas Rivers & Sons had a very vigorous and clean lot of fruit trees in pots bearing heavy crops, many of them in a ripening condition. Especially noticeable were the Cherries, Oranges, Lemons, Nectarines, and Peaches. Small pyramids in pots were also shown with several fruits on each. They were awarded a medal.

VEGETABLES.

We did not think these were so good as they might have been, many of the samples shown being small; and the entries were by no means so numerous as the encouragement offered warranted us in expecting.

Collection of eight kinds, distinct.—1st, Mr. C. T. Miles, gr. Wycombe Abbey; in this the Veitch's Early Cauliflowers, White Elephant Onions, Canadian Wonder Beans, Pride of the Market Peas, were good, especially the first named. 2d, Mr. Richards, Somersley, this contained good things, the weak points being the Cauliflowers and Potatoes. Mr. A. Miller and Mr. G. Garraway, were placed equal 3d, so that four out of the five collections shown received prizes.

Potatoes, three varieties.—1st, Mr. F. Miller, gr. to J. Friend, Esq., Margate, Kent; 2d, Mr. G. T. Miles; 3d, Mr. Richards. The sorts shown were First and Best, Pride of the Market, Royal Ashleaf, Snowdrop, Porter's Excelsior, and Sutton's Ringleader.

Single dish of Potatoes.—Mr. Goodacre was 1st, with a capital one of Ashleaf Kidney; 2d, Mr. Miles; 3d, Mr. Oldfield, gr., Chirk Castle, Ruabon. Beauty of Hebron and Snowdrop being shown by the last named competitor.

Peas, three varieties, fifty pods of each.—The Peas were not well filled, for which the ungainly weather experienced till quite recently is responsible. In this class Mr. H. W. Ward, gr. to Earl Radnor, Longford Castle, was 1st; Mr. Iguldun 2d, Mr. Miles 3d.

Peas, single dish.—Mr. Miles was 1st, Mr. H. Richards 2d, and Mr. Downham 3d. The sorts shown were—Telephone, William I., Telegraph, and Pride of the Market.

Twelve Onions.—Of these, three dishes were shown, Mr. Miles being 1st, with White Elephant; Mr. Richards 2d, and Mr. J. Garland, Exeter, 3d.

Cabbages, three heads.—These were not over large, but seemed to be of good quality; 1st, Mr. T. Wilkins; 3d, Mr. J. Garland.

Cauliflowers, three heads.—The examples of these were neither very good nor numerous. The prizes fell to Mr. Wilkins, Mr. J. Barnett, The Deepdene, Dorking; and to Mr. W. Iguldun.

Tomatoes, twelve fruits.—The display of these favourites was a good one, and added much to the interest of this tent; 1st, Mr. Elsworth, with Trophy; 2d, Mr. Bridge, with the same kind; 3d, Mr. Long, Rockferry, with Dedham Favourite—a fine lot, apparently misplaced.

Cucumbers one brace.—Many of these in great variety were shown by Mr. Owen, with All the Year Round; Mr. Oldfield 2d, and Mr. Leigh 3d, both with Telegraph.

MESSRS. SUTTON AND SONS' PRIZES.

These gentlemen offer liberal prizes for the best collections of twelve kinds of vegetables, and the competition for these was very spirited.

Mr. Miles took the 1st prize, with a superior lot of Cauliflowers, Kidney Beans, Tomatoes, Marrows, Peas, Turnips, &c.; Mr. J. Garland was 2d, Mr. Miller 3d, Mr. Iguldun 4th, Mr. Lambert 5th, and Mr. Wickens, Blandford 6th. Mr. Richards, Somersley, got disqualified by reason of his showing two dishes of Potatoes, but really deserved a prize for the excellence of his productions.

IMPLEMENT EXHIBITION.

Modes of heating a small conservatory from 10—20 feet long. The Silver Medal of the Society was

awarded to Messrs. R. Halliday & Co., Middleton, Manchester; and the Bronze Medal to Messrs. Messenger & Co., Loughborough.

First-class Certificates were given in this competition to Mr. Sam Deards, Harlow; and to Mr. J. W. Mason, St. Albans, for a mode of heating with gas, modes of fixing hot-water piping, valves, &c.

The Silver Medal was granted to Messrs. Foster & Pearson, Bæston, Notts, for a collection of valves, new pipe joints, &c.; and a Bronze Medal to Messrs. Messenger for piping and valves, flanges, &c.; plant-house, orinery, or orchard-house.

Messrs. Foster & Pearson secured the Silver Medal for a plant-house; a Silver Medal was awarded to Messrs. J. L. Johnson & Co., Darlington, for a forcing-house; and to Messrs. R. Halliday & Co., Middleton, Manchester, for span and lean-to-houses; Messrs. A. Peel & Sons, Wood Green, London, received the Bronze Medal for a plant-house (portable); the same award was made to Messrs. Winch & Sons, Ipswich.

A Bronze Medal was awarded to Messrs. Lowe & Sons, Chester Road, Manchester, for greenhouses, vineries, &c.; and they were Commended for a portable house with boiler and house complete.

Messrs. Stewart & Jack received a Bronze Medal and were Commended for a cheap small house (portable).

Movable Pits and Frames.—Mr. John Webster, Prince Alfred Road, Watteville, obtained a Silver Medal for an improved garden frame; Messrs. Foster & Pearson a similar award for a movable plant-house; and Messrs. J. Crespin & Sons, 58, Milk Street, Bristol, a Bronze Medal for a portable frame, and for a propagating case.

Improvements in Glazing.—There were many systems shown of these *desiderata*, Messrs. J. Crespin & Sons being awarded the Bronze Medal for Hunt's Patent Automatic Ventilator; Mr. S. Deards, the Silver Medal for the patent "Victoria" dry glazing.

Hand Mowers.—The Silver Medal was awarded to Messrs. Chaddorn & Coldwell, Manufacturing Company, 223, Upper Thames Street, London, E.C. (Mr. Thos. Clarke, manager), for Excelsior Hand-power Mower. The machine is provided with a seat for the driver, and shafts or traces can be attached.

The New Model, a hand machine, has exceedingly light draught, cut grass of any height, and does not rib, besides having other advantage for garden use. Messrs. Barford & Perkins received the Silver Medal for the Godiva Mower, for evenness of work.

Garden Cutlery.—A Bronze Medal was awarded to Messrs. Glassy & Co., 54, Victoria Street, Liverpool, for implements used in the garden.

Garden Pottery.—Mr. John Matthews received the Silver Medal for his deservedly much appreciated pots, vases, &c., and also Mr. J. Crute, 14, Knight-rider Street, London, E.C., for concave-bottomed pottery, rustic work in clay window boxes, vases, &c.

The Bronze Medal was awarded to Messrs. Glassy & Co., for garden tools; and turf lifting machinery, by Mr. F. T. Drummond, Colon Hall, Bridgnorth, was commended. Messrs. Leedham & Heaton, Leeds, obtained a Bronze Medal for tools; and Dr. H. Sweete, Worcester was Commended for a patent handy bedding and potting barrow.

Wirework.—A Bronze Medal was awarded to Messrs. W. H. Peske & Sons, for training wires; and a Silver Medal to Mr. J. Braham, 104, Dale Street, Liverpool, for a varied lot of wirework. A Bronze Medal was awarded to Messrs. Brookes & Co., 4, Cateaton Street, Manchester, for wire roseary, arches, &c.

Garden Seats, Chairs.—Silver Medals to Mr. H. Caesar, and a Bronze Medal to Messrs. Wrench & Sons.

A Silver Medal was awarded to Messrs. J. Davis & Co., 6, Kennington Park Road, London, for meteorological exhibits of a varied kind.

Garden Engines.—Messrs. Barford & Perkins received a Bronze Medal for patent water ballast garden rollers.

Decorations for Conservatories.—Messrs. Halliday & Co., a Bronze Medal for flooring tiles.

Garden Tinting, Shading.—Mr. J. Unite, 291, Edgeware Road, London, obtained a Silver Medal for these articles, of which a large assortment was observed. Commended were Messrs. W. Richardson & Co., Darlington, for their Parisian green-house blinds, made of wood and zinc only. Mr. J. Pinches, 27, Oxendon Street, London, was Commended for a series of useful garden labels of metal.

Other objects not included in the above classes were Teak-wood tubs and Orchid baskets by Mr. P. B. Harkin, 22, Dutton Street, Liverpool, who was Commended. Mr. E. Sydney, who showed parcel pot flower and fruit boxes, was also Commended; Mr. G. Frieland, for a new insecticide; Messrs. W. Richardson & Co., for glazed wall protectors; Mr. G. Bloxham, gr., Brickhill Manor, Bletchley, for a fumigator of simple construction, which has the property of sending forth the smoke in a cool state; Messrs. Bennett Bros., Liverpool, obtained a Bronze Medal for sundry wirework, garden seats, &c.; and Messrs. Blake & Mackenzie, School Lane,

Liverpool, were Commended for postal flower and plant boxes and general horticultural printing and seedsmen's stationery.

"GARDENERS' CHRONICLE" PRIZES.

After the luncheon on Wednesday, the Fellows repaired to the Conference tent, when the President, Sir Trevor Lawrence, proceeded to announce the awards of the prizes to young gardeners offered by the conductors of this journal. Sir Trevor prefaced his remarks by a statement of the objects of the prizes and the way in which they had been adjudicated. As these matters have been often alluded to in previous numbers, we need not occupy space with their repetition. Sir Trevor expressed his entire concurrence with the objects of the donors, and called up Mr. Harry Bunyard of Chiswick, to receive the second prize, the other laureates not being present. Mr. Bunyard's appearance was made the signal for a burst of applause, the greatest interest being felt in the fact that the second prize had been awarded to a Chiswick gardener for a very good and very well illustrated paper. Three cheers were called for for Mr. Bunyard, three more for Chiswick, followed on the proposition of Mr. Shibley Hibberd of the *Gardeners' Magazine*, by a cheer for the *Gardeners' Chronicle*.

The President then called on Professor Pynaert, of the Ghent School of Horticulture, to make some observations.

M. PYNÆRT, speaking in French, acknowledged the cordial welcome he and the foreign visitors had received, expressed his satisfaction at being invited to take part in such a *file d'intelligence*, applauded, in terms our modesty forbids us from reproducing, the spirit of progress and enterprise manifested on all occasions by the *Gardeners' Chronicle*, and especially on this occasion; and then proceeded to give some details as to the two schools of horticulture in Belgium—that of Ghent, where the cultivation of stove plants and the principles of horticultural science are attended to, and that of Vilvorde, where, concurrently with instruction in horticultural science, pomology was specially studied.

[Visitors to the Health Exhibition at Kensington will not soon forget the magnificent model of the establishment at Vilvorde, and the details illustrative of the scheme of instruction followed at the two Belgian schools.]

Prof. Pynaert incidentally alluded to the value of such schools by pointing to a plan of a landscape garden exhibited on the present occasion by Mr. A. G. Jackman of Woking, a former pupil of the Ghent school. This plan, we may add, secured a prize on this occasion, and will shortly be illustrated in these columns.

On July 3, of Paris, in an interesting speech delivered in fluent English, said that he had made special study of the means of horticultural education in various countries, and stated that, although we had no schools as on the Continent, nowhere were plants better cultivated than in this country. He alluded to the vast importance of a knowledge of economic entomology, and described the system followed in the United States, where each State had its entomologist, the whole system in relation to a central department in Washington presided over by Professor Riley. He pointed out the enormous advantages thus conferred on practical horticulturists and agriculturists. M. Joly then alluded, in terms of warmest admiration to the multitude of well organised and well equipped schools of horticulture and agriculture in Germany, and attributed the great strides Germany was making in all departments, scientific, practical, and commercial, to the general distribution over the whole country of schools of science of such excellence. If other countries were not to be abridged in these matters they must put themselves on a level with the far more advanced systems of scientific education followed in Germany.

Dr. MASTERS asked to be allowed to express his satisfaction at the result of the examinations, and to tender his thanks to the President for awarding the prizes, and to the Fellows present for their sympathy with the objects of the meeting, making special allusion to his sense of the sympathy and encouragement accorded to him by the presence of his fellow journalists. Dr. Masters further alluded to the vital necessity for gardeners to make themselves acquainted with the working of the machinery they were called on to direct and control, and alluded to the backward state of knowledge, physiological matters among many gardeners, and to the obtaining prevalence among them of fallacies and errors as to root-structure and action, fallacies which had been exploded long ago. He alluded in particular to the wonderful organisation and properties of the tips of the roots as made known by Darwin, and echoed his words as to the existence in that situation of a controlling force and sensibility to impressions comparable in a degree only to the brain of animals. He warmly urged the necessity for further knowledge of physiology as a guide

to cultivators, in the absence of which they would be utterly unable to adapt themselves to the new conditions and new circumstances of the times, and would, as M. Joly said, be left behind in the race by nations more advanced in the pursuit of knowledge and its application to practical purposes.

Dr. MASTERS then proposed a vote of thanks to the exhibitors and judges, pointing out the debt of gratitude due to them for their ample fulfilment of what was a vital condition of success on such occasions.

Mr. HARRY VEITCH, in responding, pointed out that he was only one among many, and alluded in graceful terms to the Liverpool exhibitors and those from elsewhere.

Mr. BURRIDGE also acknowledged the compliment, and stated how their labours had been encouraged by the excellence of the exhibits, and facilitated by the efforts of the staff.

Professor MICHAEL FOSTER proposed a special vote of thanks to the horticulturists and exhibitors of Liverpool, and alluded to their strenuous and eminently successful efforts to promote the success of the show.

Mr. HARVEY, in responding, spoke of the pleasure his townsmen felt in receiving the Royal Horticultural Society, but expressed some regret that a larger number of exhibitors from the South had not put in an appearance to confirm the verdict which he and others who visited the southern shows had reported to their fellow townsmen. Mr. Harvey gave an interesting summary of the history of the Liverpool Botanic Gardens, and of the progress of horticulture and botany in Liverpool, alluding to the Roscoes, the Teyerns, and others who had made Liverpool famous in the annals of horticulture. He alluded to the fact, that owing to its position many plants of great interest and value had been first introduced to Liverpool by Liverpool men, including Cattleya Mossii, named after a lady belonging to a family well known in Liverpool.

Dr. HOGG proposed a cordial vote of thanks to Sir T. Lawrence for presiding on this occasion, and for his presence at Liverpool when urgent private affairs might have served as an adequate excuse for his absence.

Sir TREVOR LAWRENCE, in replying, alluded to the debt the public owe to the gardeners for the improvement of flowers, fruits, and vegetables, due to their exertion, and claimed for the old Society no inconsiderable share in the promotion of the present condition of horticulture in this country. He concluded by gracefully expressing the thanks of the Society to Mr. Barron, Mr. Dick, and the staff generally, and also to Mr. Richardson, Mr. Ker, and others, without whose energetic and well-directed labours, the success they had achieved could not have been compassed.

THE DINNER.

The dinner offered by the Council to the Mayor of Liverpool was held on Wednesday evening at Wood's Pavilion, in the Liverpool International Exhibition. The Hon. and Rev. J. T. Boscawen presided, and among those present were Sir David Radcliffe (Mayor of Liverpool), Major Mason, Messrs. P. H. Rathbone, Holbrook, Gaskell, Prange, Houghton, Lee, Pilkington, Lee Bapty, Barrow, Richardson, Dr. Hogg, and others. The dinner being over the Chairman read a letter of apology from the President of the Society, in which Sir Trevor Lawrence expressed his regret that, owing to an important election engagement, he was unable to be present that night. Letters apologising for non-attendance were also read from the Duke of Westminster, Lord Sefton, Sir Thomas Edwards Moss, Lord Derby, and Lord Lathom. The loyal and patriotic toasts having been honoured, Mr. Wm. Haughton, the Treasurer of the Society, gave "The Health of the Mayor of Liverpool," which was received with loud applause. In acknowledging the compliment, the Mayor proposed the health of the Chairman, which was well received. The toast having been acknowledged in a suitable manner, Mr. Lee, the Secretary to the Society, gave the health of the foreign visitors, which was responded to by MM. J. Von Volxem and Pynaert Von Geert. The "Visitors' Health" was next given, and responded to by Mr. Prange, after which the proceedings terminated.

DENDROBIUM CRYSTALLINUM, Rehb. f.—A remarkably fine individual is in the hands of Mr. H. J. Ross, Castagnolo à Lastra, near Florence. The sepals and petals have fine purple spots. There is no large spot at the apex of the lateral sepals. The lip is shorter and rounder, but of the usual colour. The question is whether it will keep constant, and whether more individuals of the same kind will reappear. In such a case a name would be desirable. I have not seen the characteristic anther, but there is no doubt of the plant being rightly referred to *Dendrobium crystallinum*. *H. G. Rehb. f.*

YORK GALA: June 23, 24, and 25.

THIS show was the best the Society has had for some years, with the exception of the class for cut Roses, which flowers have been so retarded in their blooming by the unprecedented continuance of cold sunless weather, that few of the growers, even in the southern parts of the kingdom were capable of putting in an appearance. Orchids were shown in beautiful condition, and in much greater numbers than they have been on any previous occasion at York. This was owing to the exertions of the Secretary, Mr. Wilson. The number of people that may be seen crowding round the groups of Orchids at any exhibition is evidence of the interest that is taken in them by those even, who understand little about them. Noting this, Mr. Wilson got up a subscription amongst a few friends for special prizes. The amount raised (£25) was offered independent of the prizes in the usual classes for these plants. So well satisfied were the committee with the response made by the exhibitors, that the Sheriff of York proposed that the amount offered in special prizes for Orchids be doubled each year, and £30 of the money was subscribed on the spot.

Stove and greenhouse plants, including flowering and fine-foliated kinds, were present in excellent condition. Pelargoniums, as usual at York, were shown in beautiful order, reminding us of the way these plants were brought out at the metropolitan exhibitions in times past.

STOVE AND GREENHOUSE PLANTS.

In the open class of sixteen, ten in bloom and six fine-foliated, Mr. Letts, gr. to the Earl of Zetland, Aske Hall, Richmond, Yorks, took 1st, with a fresh, well-flowered group, his best blooming examples being *Phenocoma prolifera*, large and full of flowers; a grand specimen of *Erica depressa*, *E. tricolor* Wilsoni, *Isora Williamsii*, finely leaved, and a couple of specimens of *Anthurium Scherzerianum*, the most noteworthy of the foliage specimens were *Encephalartos villosus*, *Kentia Fosteriana*, *Croton Queen Victoria*, and *C. Weissmanni*. Mr. Cypher, Cheltenham, who was a good 2d, had, amongst others, *Isora* regina, *Isora* Wilsoni, *E. tricolor* Wilsoni, *E. affinis*, and *Darwinia tulipifera*; 3d, Mr. Berry, gr. to Alderman Dove, York.

Six stove and greenhouse plants in bloom (amateurs).—1st, Mr. Letts, whose most noteworthy specimens here were *Isora Fraseri*, *I. Williamsii*, and *Isoraphyllum albida*; 2d, Mr. Johnston, gr. to J. B. Hogg, Esq., Darlington, who, with others, had nice plants of *Aphelexis macrantha rosea*, *Anthurium Scherzerianum*, and *Phenocoma prolifera*.

Three stove and greenhouse plants (amateurs).—1st, Mr. Adams, Newcastle, *Erica tricolor* Wilsoni and *Anthurium Scherzerianum* being the best; 2d, Mr. James Sanley, gr. to W. N. Champion, Esq., Halifax.

Three Heaths.—1st, Mr. Cypher, staging medium-sized plants of *Erica tricolor* Wilsoni, *E. ampullacea obtata*, and *E. ventricosa grandiflora*; 2d, Mr. Johnston.

FINE-FOLIAGE PLANTS

were well shown by Mr. McIntyre, gr. to Mrs. Gurney-Pease, Darlington, and Mr. Cypher, who, in a close run, took 1st and 2d in the open class for six in the order of their name; Mr. Noble, gr. to T. Fry, Esq., Darlington, who, with others, had the best. Three fine-foliage plants.—1st, Mr. Letts, who had a couple of *Kentias* and a fine specimen of *Cordylina indivisa*; 2d, Mr. Rollinson, gr. to W. Bateman, Esq., Harrogate.

Four Crotons.—1st, Mr. Letts, with large well furnished examples; 2d, Mr. McIntyre.

Four Dracenas.—1st, Mr. Noble, who had well grown plants; 2d, Mr. Johnston.

FERNS.

In the open class for six varieties of *Gleichenia* Mendeli, *G. repens*, *Davallia Mooreana*, *D. filijensis*, *Dicksonia antarctica*, and *Adiantum Farleyense*; 2d, Mr. McIntyre, who, in a good half-dozen had beautiful examples of *Adiantum siccum*, *A. Williamsii* and *Davallia bulbata*.

Three Ferns.—1st, Mr. Noble, with good plants of *Goniophlebium subauriculatum*, *Davallia Mooreana*, and *Gleichenia Mendeli*; 2d, Mr. McIntyre.

Single Tree Fern.—1st, Mr. Nash, gr. to Captain Starkey, York, with a fine specimen of *Dicksonia antarctica*; 2d, Mr. R. Simpson, Selby.

Hardy Ferns, as usual, at York were beautifully shown, Mr. W. R. Robinson, York, being a long way ahead in the class for ten, having with others very large and fresh examples of *Adiantum pedatum*, *Athyrium plumosum*, *Polypodium phegopteris*, *Trichomanes radicans*, and *Osmunda regalis cristata*; 2d, Mr. W. H. Rodwell, York.

Six hardy Ferns.—Here also Mr. W. R. Robinson was 1st, with large fresh plants; 2d, Mr. W. H. Rodwell.

ORCHIDS.

With twelve, in the open class, Mr. Hill, gr. to J. Hardy, Esq., Timperley, Manchester, took a decided lead, showing a fine dozen containing splendid plants of *Odontoglossum vexillarium*, both the dark and the light coloured varieties, each 2½ feet in diameter, masses of flowers; good specimens of dark and light forms of *Cattleya Mossii*, *C. Mendeli*, *Laelia purpurata*, *Cypripedium Stoeckii*, *C. barbatum*, and *Dendrobium bifurcatum oculatum*; 2d, Mr. Cypher, who had a good collection, the best of which were *Saccolabium guttatum*, with unusually fine spikes; *Dendrobium Dearei*,

large and finely bloomed; *Epipendrum vitellinum*, a good variety of *Cattleya Mendeli*, *Cypripedium levi-gatum*, and a good specimen of *Odontoglossum vexillarium*; 3d, Mr. Mitchell, gr. to Dr. Ainsworth, Manchester.

Eight Orchids (open).—Here again Mr. Hill had 1st honours, staging in this class also a grand lot of plants, the most noteworthy of which were a large profusely flowered example of *Cattleya Mossii*, *C. Mendeli*, beautifully bloomed; *Cypripedium Lawrenceanum*, *C. Parishii*, *Masdevallia Harryana*, and *Vanda suavis*. 2d, Mr. Cypher, whose group contained *Anguloa Clossii*, *Dendrobium suavisimum*, and an immense specimen of *Epipendrum vitellinum*; 3d, Mr. Mitchell.

Four Orchids (amateurs).—1st, Mr. James Sanley, with well-flowered plants of *Dendrobium devonianum*, *D. densiflorum*, *Cypripedium barbatum*, and *Odontoglossum crispum*; 2d, Mr. John Sunley, South Milford; 3d, Mr. Rollinson.

Single Orchid.—1st, Mr. Letts, with a large and finely bloomed specimen of *Aerides odoratum purpuratum* bearing some thirty spikes; 2d, Mr. Nash, who had a well flowered plant of *Saccolabium guttatum*.

PELARGONIUMS

were not quite so numerous as usual here, but were shown in fine condition.

With twelve show varieties Mr. Eastwood, gr. to Mrs. Tetley, Leeds, was well in front with specimens from 3 to 4 feet in diameter and densely flowered, the most noteworthy being *Ailanthus*, *Persea*, *Hamamelis*, *Trichostema*, *St. Mand.*, *Queen Bess*, and *Kingston Beauty*; 2d, Mr. McIntosh, gr. to J. T. Hingston, whose plants were well flowered but smaller; 3d, Mr. Veary, gr. to Miss Stewart.

Six show varieties.—1st, Mr. Eastwood—here likewise staging large finely bloomed examples.

Three show varieties.—With these also Mr. Eastwood scored 1st honours with plants of a similar description to those he had in the larger classes.

Twelve zonals.—These were quite equal to the larger flowered sorts in size and condition, Mr. Eastwood being a good 1st, staging large plants covered with well developed flowers; 2d, Messrs. Pybus & Son, Ripon, who also staged a fine dozen; 3d, Mr. Macintosh.

Six zonals.—1st, Mr. Eastwood; 2d, Mr. Veary.

The 1st prizes in the class for three and for three fancy Pelargoniums were taken by Mr. Eastwood.

Six variegated varieties.—1st, Messrs. Pybus & Son.

Six striped Pelargoniums.—1st, Mr. J. Bellerby.

FUCHSIAS

were well represented, there being some half-dozen exhibitors in the class for Mr. J. Bellerby taking 1st honours with nicely flowered plants, not too stiffly trained; 2d, Mr. Macintosh.

Three Fuchsias.—1st, Miss Wharton; 2d, Mr. J. Bellerby.

GROUPS OF MISCELLANEOUS PLANTS ARRANGED FOR EFFECT.

These were a leading feature of the show. In the class for groups occupying a space of 250 feet, Mr. McIntyre took the lead with a well arranged exhibit, the flowering, and also the fine-leaved plants employed being alike suitable; 2d, Mr. R. Simpson, Selby, who likewise had a meritorious group; 3d, Mr. Johnston.

In the class for groups occupying 150 feet Mr. McIntyre was also well in front again, staging a very effective arrangement; 2d, Mr. Noble, who likewise showed well; 3d, Mr. Macintosh.

POT ROSES

were nicely shown, mostly in the shape of medium sized plants. With six distinct varieties (open) Messrs. Pybus & Son, Ripon, were 1st, having a pretty half-dozen; 2d, Messrs. Jackson & Co., Bedale. Nine Roses, in 8-inch pots (open).—1st, Messrs. Jackson & Co.; 2d, Messrs. Pybus & Son. Fifteen Roses, in 8-inch pots (open).—1st, Messrs. Pybus & Son; 2d, Messrs. Jackson & Co.

Six Roses (amateurs).—1st, Mr. Eastwood, who had well-flowered plants; 2d, Mr. Veary.

Three Roses.—1st, Mr. Veary.

Six Tea Roses.—1st, Messrs. Pybus & Son; 2d, Mr. Veary.

CUT FLOWERS.

There was a thin show of cut Roses. With forty-eight (open), Mr. May, Hope Nurseries, Bedale, took 1st, Mr. Eastwood being 2d.

Twenty-six (open).—1st, Mr. May; 2d, Mr. House, Peterborough.

Twenty-four (open).—1st, Mr. May; 2d, Mr. Eastwood.

Twelve white and yellow Roses.—1st, Mr. Eastwood.

Twelve Tea varieties.—1st, Mr. Dawe, Newent, Gloucestershire.

Eighteen Roses (amateurs).—1st, Mr. Eastwood.

Twelve (amateurs).—1st, Mr. Veary.

Basket of Roses.—1st, Mr. House.

Two bridal bouquets.—1st, Mr. Cypher; 2d, Mr. McIntyre.

Two ball bouquets.—1st, Mr. Cypher; 2d, Mr. McIntyre.

Twelve bunches of stove and greenhouse flowers.—1st, Mr. Letts; 2d, Mr. McIntosh, gr. to Sir J. Pease, Guisborough.

Twelve bunches hardy herbaceous flowers.—1st, Mr. J. Holmes.

FRUIT.

With eight dishes Mr. G. T. Miles, gr. to Lord Carrington, Wycombe Abbey, took 1st, staging Madresfield Court Grapes, small, but well finished; Buckland

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JUNE 30, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 3rd Edition.	WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Difference from Mean of 48° Fahr.	Highest.	Lowest.	Range.	Mean for Day.			
June	In.	In.	°	°				In.	
24	30.81	+0.02	70	46	5 1/2	59	0.45	50	W. 0.00
25	30.85	+0.03	75	50	9 1/2	62.4	0.34	65	W. S.W. 0.00
26	30.88	+0.07	75	52	9 1/2	64	0.28	61	S.S.W. 0.00
27	31.01	+0.18	71	53	4 1/2	62.0	0.40	55	S.W. 0.00
28	30.93	+0.21	75	53	9 1/2	64	0.38	58	E. 0.00
29	30.65	+0.26	78	52	5 1/2	65.5	0.42	49	E. 0.00
30	30.10	+0.28	72	55	10	63.6	0.40	66	E. 0.00
Mean	30.97	+0.15	74	53	7 1/2	62.6	0.41	60	variable 0.00

June 24.—Very fine day.

— 25.—Very fine day.

— 26.—Fine morning; very fine afternoon.

— 27.—Very fine morning; overcast in afternoon.

— 28.—Very fine day.

— 29.—Very fine day.

— 30.—Very fine day.

LONDON: *Atmospheric Pressure.*—During the week ending June 26, the reading of the barometer at the level of the sea increased from 29.82 inches at the beginning of the week, to 30.08 inches by 1 P.M. on the 21st, decreased to 29.77 inches by 1 P.M. on the 23rd, increased to 30.04 inches by 9 A.M. on the 24th, decreased to 29.99 inches by 5 P.M. on the same day, increased to 30.04 inches by 9 A.M. on the 25th, and decreased to 30.02 inches by 5 P.M. on the 25th, increased to 30.09 inches by 9 A.M. on the 26th, and was 30.05 inches by the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.99 inches, being 0.01 inch lower than last week, and the same as the average of the week.

Temperature.—The highest temperature in the shade in the week was 76°.5 on the 26th; on the 21st the highest temperature was 57°.0. The mean of the seven high day temperatures was 67°.2.

The lowest temperature was 45°.2, on the 21st; on the 23rd, the lowest temperature was 53°.0. The mean of the seven low night temperatures was 49°.8.

The greatest range of temperature in one day was 24°.5, on the 26th; on the 22nd the smallest, was 10°.9. The mean of the seven daily ranges was 17°.4.

The mean temperatures were on the 20th, 55°.3; on the 21st, 50°.3; on the 22nd, 56°.1; on the 23rd, 60°.1; on the 24th, 58°.9; on the 25th, 61°.4; and on the 26th, 64°.0; of these the first five were below their averages by 4°.6, 9°.8, 4°.3, 0°.6 and 2°.0 respectively, and the last two were above by 0°.3 and 2°.8.

The mean temperature of the week was 58°.0, being 4°.6 higher than last week, and 2°.6 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun, was 133°.5, on the 24th. The mean of the seven readings was 121°.9.

The lowest reading of a minimum thermometer placed on the grass was 37°.7, on the 24th. The mean of the seven readings was 43°.1.

Rain.—Rain fell on the 22nd to the amount of 0.04 inch.

ENGLAND: *Temperature.*—During the week ending June 26, the highest temperatures were 78°.0 at Cambridge, 76°.5 at Blackheath, 73°.8 at Plymouth; the highest at Sunderland, 63°.0, at Liverpool, 64°.8, at Newcastle, 65°.0. The general mean was 69°.7.

The lowest temperatures were 41°. at Wolverhampton, 42°.4 at Cambridge, 43°. at Bristol; the lowest at Preston was 50°, at Liverpool, 48°.7, at Newcastle, 48°. The general mean was 45°.5.

The greatest ranges were 35°.6 at Cambridge,

31°.3 at Blackheath, 27°.8 at Wolverhampton; the least ranges were 16°.1 at Liverpool, 17°. at Newcastle, and 18°. at Sunderland. The general mean was 24°.2.

The mean of the seven high day temperatures was highest at Cambridge, 69°, at Plymouth and Brighton 68°.2; and was lowest at Sunderland 60°.7, at Liverpool 60°.8, and at Newcastle 61°.3. The general mean was 64°.4.

The mean of the seven low night temperatures was highest at Plymouth, 52°.5, at Preston 51°.7, at Liverpool 51°.1; and was lowest at Wolverhampton, 46°.8, at Hull 47°, and at Cambridge 47°.4. The general mean was 49°.5.

The mean daily range was greatest at Cambridge 21°.6, at Brighton 18°.1, at Blackheath 17°.4; and was least at Liverpool 9°.7, at Newcastle 12°.1, at Bradford 12°.7. The general mean was 14°.9.

The mean temperature was highest at Plymouth 58°.6, at Blackheath 58°.0, at Brighton 57°.4; and was lowest at Sunderland 52°.5, at Hull 52°.7, at Wolverhampton 53°.1. The general mean was 55°.2.

Rain.—The largest falls were 0.15 inch at Preston, 0.14 inch at Brighton, 0.08 inch at Cambridge and Liverpool; the smallest falls were 0.01 inch at Hull and Bradford. No rain fell at Truro, Plymouth, Bristol, Sheffield, or Leeds. The general mean fall was 0.04 inch.

SCOTLAND: *Temperature.*—During the week ending June 26, the highest temperature was 79°, at Perth; at Leith the highest was 67°.9. The general mean was 73°.4.

The lowest temperature in the week was 41°.5, at Aberdeen; at Paisley the lowest temperature was 47°. The general mean was 44°.9.

The mean temperature was highest at Perth, 56°.5, and lowest at Greenock, 53°.9. The general mean was 55°.3.

Rain.—The largest fall was 0.35 inch at Greenock, and the smallest fall was 0.01 inch at Leith. No rain fell at Glasgow, Dundee or Perth. The general mean fall was 0.07 inch.

JAMES GLAISHER. F.R.S.

Enquiries.

"He that questioneth much shall learn much."—BACON.

DOUBLE SWEET BRIER.—Can any reader state where this can be procured? It is said to be known in the neighbourhood of Southampton.

Answers to Correspondents.

* OUR TELEGRAPHIC ADDRESS.—Our correspondents are requested to bear in mind that our Registered Telegraphic Address is "GARDENERS' CHRONICLE, LONDON." Telegrams (but not letters) thus addressed will reach the Editor or the Publisher without other address being needed.

ADIANTUM CAPILLUS-VENERIS: *Old Reader.* Whether this can be shown as a hardy British Fern is one of the debatable points connected with the exhibition of Ferns, and would be decided by the particular views of the judges. We should say it is not admissible, because not truly hardy, though it may survive in a very favourable sheltered situation. We have had it killed in an unheated greenhouse, which would appear to be a favourable position rather than otherwise, and yet it has succumbed, the plants being, of course, frozen. Unless an exceptionally large specimen, it is scarcely bold enough to group with other British Ferns.

COVERING UP BEECH TREES AND KILLING ANTS *G. Hillier.* It would hardly do to cover up the trunks of the trees with the earth, but you can build a wall of bricks round the tree (allowing a little space between the wall and the tree), so as to keep the pressure of the earth off the trunk, and to allow air. Ants send me best destroyed by diluted carbolic acid, gas-tar, guano-water, and paraffin being poured into their nests.

INSECTS: *W. M.* The objects found inside an acorn, at Cannes, in January, are quite new to us. They are the cocoons or cases inclosing a parasitic Hymenopterous larva with horny toothed mandibles. Please send more particulars. Were all found in one acorn?—*J. K.* Your Pear tree has been infested, under the bark, with the larvae of a small moth (Tortrix Wobanana, *Gardener's Chronicle*, September 6, 1884; or, *Cepophora*, *Gardener's Chronicle*, 1884, p. 404.) The pupa skins are left in the burrows, the moths having escaped. The extravasated sap has exuded from the wounds made by the insects.—*Chelsea.* We have only found a very few individuals of a thrip on the leaves sent—no mites. Try repeated fumigation with ether

Sweetwater, nice bunches, nicely coloured; a Queen Pine; Grosse Mignonne Peaches, very fine; Lord Napier Nectarines; good Black Circassian Cherries; a good dish of Negro Large Figs; and a Longleaf Perfection Melon; 2d, Mr. Melndoe whose best dishes were Bellegrape Peaches, Lord Napier Nectarines, Brown Turkey Figs, and Black Hamburg Grapes; Mr. Dawes, gr. to the Hon. Mrs. Meynell-Ingram, Temple-Newsome, Leeds, was a good dish.

Six dishes.—1st, Mr. Dawes: in his collection was a good Queen Pine, Madresfield Court and Foster's Seedling Grapes, both in good condition; finely coloured Belle Beauce Peaches, and a Longleaf Perfection Melon; 2d, Mr. Melndoe, with amongst others, Black Hamburg Grapes, Best of All Melons, and a nice dish of Brown Turkey Figs.

Four dishes.—1st, Mr. Clayton, gr. to J. Fielden, Esq., Grimston Park, with a few Peaches, Violette Hative Nectarines, both well coloured; Black Hamburg Grapes, and a fine Melon; 2d, Mr. Wallis, gr. to Sir H. M. Thompson.

Single Pine.—1st, Mr. Clayton, who had a good Queen; 2d, Mr. Miles, with the same variety. Peaches were well shown, Mr. Melndoe and Mr. Waddis, gr. to Lord Middleton, being 1st and 2d in the order of their names.

Pease, with a good dish of Pine-apple; 2d, Mr. Miles, showing Lord Napier, in fine condition.

Three bunches of Black Hamburg Grapes.—1st, Mr. Hickson, Tadcaster, who had well coloured berries, a fine dish of the berries; 2d, Mr. Wallis; 3d, Mr. Alsop, gr. to Lord Hotham.

Three bunches Muscats.—1st, Mr. Dawes.

Three bunches of white Grapes, any variety.—1st, Mr. Alsop, with Buckland Sweetwater, good bunches, in beautiful condition; 2d, Mr. Chuck, gr. to P. Thelluson, Esq., Doncaster, with White Tokay; 3d, Mr. Miles.

Strawberries were well shown, Mr. Waddis taking 1st, with a fine dish of James Veitch; 2d, Mr. Chuck, with British Queen.

Cherries.—1st, Mr. Hare, gr. to R. H. C. Neville, Esq., with Black Tartarian, a beautiful dish; 2d, Mr. Miles.

Figs.—1st, Mr. Melndoe, with good Brown Turkey; 2d, Mr. Miles, with Negro Largo.

White-fleshed Melon.—1st, Mr. Blakey, gr. to the Rev. Canon Newton, Driffeld, with a good fruit of Exquisite; 2d, Mr. McIntyre.

Green-fleshed Melon.—1st, Mr. Dawes; 2d, Mr. Hare.

Scarlet-fleshed Melon.—1st, Mr. Chuck; 2d, Mr. Miles.

Mr. B. S. Williams, Victoria Nursery, Upper Holloway, exhibited a very fine group of Orchids, stove and greenhouse flowering and fine-leaved plants.

Fancy Pansies were beautifully shown by Messrs. Harkness & Son, Bedale, who staged over half a hundred varieties—large flowers, prettily marked, and in exceptionally good condition.

Pansies and Violas were also well shown by Messrs. Knight, Middleborough; Pansies by Mr. W. Knight, Middleborough.

Messrs. J. Laing & Co., Forest Hill, had, as usual, a fine stand of Begonias, double and single varieties.

THE SCOTTISH PANSY.

This Society held its forty-second annual show in the Oldfellows' Hall, Forrest Road, Edinburgh, on the 18th inst. The severity and prolonged continuance of the bygone winter, and the harsh winds and low temperature of the spring had rendered Pansy culture extremely precarious and difficult this season. Hopes of a good show and of flowers of first-class quality being brought together, were therefore not very high till the entries began to come in, when it became clear to the committee that the muster would at least be a good one. The quality of the individual blooms was also fairly good. A lack of smoothness and cleanness of colouring marked many samples of fancies, while in respect of size and substance there was a noticeable falling off in the blooms of show varieties, which in the circumstances alluded to was not to be expected. Yet there were many fine flowers, and the show, though somewhat below the average in extent, was considered a very good one on the whole. The competition by ladies for honours in table decorations exclusively composed of Pansies, Violas, and Ferns, and other light greenery, was keenly contested, considering the limited materials prescribed, the table on which these exhibits were displayed, formed a very attractive feature of the show.

The leading prizetakers amongst nurserymen were Messrs. Dickson & Co. of Edinburgh, who excelled in show varieties of Pansies and in bedding Violas; Messrs. Laird & Sons, who carried off the 1st prize for the best fancy Pansy with a fine exhibit of Princess Beatrice; Mr. Sutherland, Lenzie, who led in fancy Pansies generally; and Mr. Forbes, Hawick, who exhibited the twelve best seedling Pansies. X.

It is stated that Mr. E. J. Beale, of James Carter & Co., has been selected as a candidate on Gladstonian principles for South St. Pancras, in opposition to Sir Julian Goldsmid.

note syringing.—A. D. W. A very damaged specimen of an aphid-feeding two winged fly (*Syrphus-syrtipipiens*, Linn.) *J. O. W.*

MOWING MACHINE: G. P. R. We cannot recommend makers, but any respectable ironmonger would inform you on the point.

NAMES OF PLANTS: W. M. *Epidendrum selligerum*.—*W. M. P.* & Co. Probably Jean Ducher.—*J. Udale* *Rhus toxicodendron*.—*C. E. F.* *Helianthemum vulgare* var. *ovatum*; *H. vulgare* var. *syracum*; *Sempervivum hispidulum*; *Veronica prostrata*; *Primula farinosa*, and *Saxifraga geum*.—*M. S.* *Cotoneaster bacillaris*.—*J. H.* *Jasione montana*; *2. Anthyllus vulneraria*.—*H. Shaw*. *Zephyranthes carinata*, native of Mexico.—*H. C. L.* *Festuca bromoides*; *2. Poa nemoralis*; *3. Arrhenatherum avenaceum*; *4. Aira flexuosa*; *5. Festuca duruscula*; *6. Bromus sterilis*.—*J. W.* *1.* and *2.* two forms of *Centaurea montana*; *3. Vicia onobrychioides*.—*Cambridge*. *1. Phleum Bohmeri*; *2. 3.* and *4.* *Festuca duruscula*; *5. Poa pratensis* var. *angustifolia*.—*S. F. & Co.* *A. Pancratium*, or *Hymenocallis*—specimen insufficient. —*W. C. Boura*. *1.* *Ecremocarpon scaber*.—*G. C.* *Cratogeomys granulata*.—*H. M.* *1.* *Olearia nitida*; *2. Fraxinus excelsior*, with litteral leaves. —*J. H. Ross*. *Oncidium prætextum*.—*H.* *Cypripedium superbiens* (Veitch); *Dendrobium Canbidgeanum*.—*T. D.* *Sarcopodium Dearei*.—*Old Reader*. *1.* *Polystichum aculeatum* var. *lobatum*; *2.* *Scolopendrium vulgare digitatum*; *3.* *Lastrea dilatata*; *4.* *Polystichum angulare*; *5.* *Athyrium Filix-terreina rheticum*; *6.* *Lastrea Filix-nas paleacea*.

*. All communications intended for publication should be addressed to the "Editor." Such communications should be written on one side only of the paper and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DIED, at Stanstead Park, Forest Hill, S.E., JAMES LAING, aged sixty-five, late of Tarbat, Ross-shire, and brother of John Laing, nurseryman, Forest Hill.

Markets.

COVENT GARDEN, July 1.

TRADE falling off considerably, and prices still lower. Outdoor fruit reaching us in good supply. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Cherries, 1/2-sieve	6 0-10	Melons, each	1 0-3 6
Figs, per dozen	2 6-10	Peaches, per dozen	2 0-10
Grapes, per lb.	1 6-30	Pine-apples, Eng. lb.	2 0-10
Kent Cobs, per lb.	40 0-0	St. Michael, each	2 6-80
Lemons, per case	18 0-10	Strawberries, per lb.	0 6-10

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, per doz.	4 0-0	Mint, green, bunch	3 0-0
Asparagus, Eng., 100	20 0-0	Mushrooms, punnet	1 6-2 6
Do French, bundle	2 6-0	Mustard and Cress, doz.	4 0-0
Bacon, Kidney, lb.	1 0-0	Onions, per bushel	3 0-0
Beet, red, per dozen	10 0-0	Parsley, dozen bunch	3 0-0
Carrots, per bunch	0 6-0	Potatoes, per cwt	4 0-0
Cauliflowers, per doz.	3 0-0	Spinach, per bushel	3 0-0
Celery, per bundle	1 6-0	Sprig asparagus, per	1 0-0
Coleworts, doz. bunch	8 0-0	Do bundle	1 0-0
Cucumbers, each	0 6-0	Tomatoes, per lb.	1 6-0
Endive, per dozen	1 0-0	Veget. Mar., each	0 6-0
Herbs, per bunch	0 4-0	Veget. Mar., each	0 6-0
Leeks, per bunch	1 0-0		
Lettuce, per dozen	1 0-0		

POTATOES.—Best Kidneys, 8s.; Rounds, 6s. per cwt.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	9 0-10	Ferns, in var., dozen	4 0-10
Bedding Plants, vari-		Foliage Plants, vari-	
ous, per dozen	1 0-0	ous, each	2 0-10
Begonias, per dozen	6 0-10	Fuchsias, dozen	4 0-10
Bouvardias, doz	12 0-10	Hydrangeas, doz.	9 0-10
Calceolarias, per doz.	5 0-0	Lobelias, per dozen	3 0-0
Cypripes, per dozen	4 0-10	Marguerite Daisy,	
Dracena terminalis,		per dozen	8 0-10
per dozen	30 0-0	Mignonette, per doz.	4 0-0
—viridis, per doz.	12 0-10	Nyctag. per dozen	4 0-0
Ericas, various, per		Nasturtiums, dozen	3 0-0
dozen	12 0-10	Palm in var., each	2 6-10
Eunymus, in var.,		Pelargoniums, doz.	6 0-10
per dozen	6 0-10	—scarlet, per doz.	3 0-0
Evergreens, in var.,		Petunias, dozen	4 0-0
per dozen	6 0-10	Rhodanthos, dozen	6 0-0
Ficus elastica each	1 6-0	Spirea, per dozen	6 0-10

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum lilies, 12 blms.	6 0-0	Paeonies, 12 blooms.	1 0-0
Bouvardias, per bun.	0 6-0	Pelargoniums, per 12	
Campanulas, 12 bun.	4 0-0	trusses	0 9-0
Carnations, 12 blms.	1 0-0	—scarlet, 12 trusses	4 0-10
Cornflowers, 12 bun.	1 6-0	Pinks, var., 12 bun.	2 0-0
Daisies, common, 12		Primulas, doz. lb.	2 0-0
bunches	2 0-0	—	0 6-10
Delphiniums, 12 bun.	3 0-0	Pyrethrums, 12 bun.	2 0-0
Eucharis, per dozen	4 0-0	Ranunculus, 12 blms.	2 0-0
Forget-me-Not, 12 bun.	2 0-0	Swedens, 12 bun.	4 0-10
—Myosotis, 12 bun.	2 0-0	Roses, Ten, per doz.	0 9-0
Gardenias, 12 blooms	2 0-0	—red, per dozen	2 0-0
Iris, various, 12 bl.	1 6-0	—outdoor, 12 bun.	3 0-0
Lupageria, red, 12 bl	1 0-0	—Moss, 12 bun.	2 0-0
Lilium longiflorum,		Spiraes, 12 bunches	6 0-0
12 blooms	4 0-0	Stephanotis, 12 spp.	1 6-0
Marguerites, 12 bun.	3 0-0	Sweet Sultan, 12 bun.	4 0-0
Mignonette, 12 bun.	3 0-0	Tropaeolums, 12 bun.	1 0-0
Pansies, 12 bunches	1 0-0	Tuberose, 12 blms.	4 0-10

SEEDS.

LONDON: June 30.—Messrs. John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C., report that there were but few buyers on the seed market to-day, and nothing of interest or importance occurred. Owing to the dry weather, there is, for the moment, no sowing demand whatever. Prices, in the absence of business, are consequently without alteration. The demand for Hemp and Canary seed continues in narrow compass; white Millet maintains last week's currencies. Orders still come to hand for blue boiling Peas. Haricot Beans are in better favour. Feeding Linseed keeps quiet.

CORN.

MARK LANE: June 29.—English white Wheats about upheld their value, but red descriptions showed 6d. reduction. Foreign Wheats were adversely affected by the liberal imports of Wheat and flour, as well as by the weather, and sales of only retail extent could be effected even at earlier rates. Flour was quoted 6d. lower on the week, but there has been very little done, and the barley crops it does not appear that hopes are much brightened, and from abroad last week imports into London were nil. Prices consequently steady, but with a very dragging trade. Beans, from like causes, tended against buyers. Peas, with a slow sale, were unchanged. Oats, common sorts, were easier; good corn showed little, if any change.

June 30.—The effect of the forcing weather is to increase the flatness in the markets for Wheat and flour, and to diminish the supplies of home-grown. Where business has been done in either Wheat or flour on the spot since Monday it has been at easier rates. Barley arrives in very limited quantity from any source, and prices are steady, but the trade is very slow. Beans, from scarcity, are firm, and tend against buyers. Peas and Lentils, unchanged. Oats remain at about late rates.

Average prices of corn for the week ending June 26:—Wheat, 31s. 1d.; Barley, 24s. 11d.; Oats, 20s. 10d. For the corresponding period last year:—Wheat, 34s. 8d.; Barley, 28s. 3d.; Oats, 22s. 4d.

FRUITS AND VEGETABLES.

COLUMBIA (East London): June 30.—Good supplies of fruit and vegetables, and St. Malo and Cherbourg new Potatoes are arriving in large quantities. Trade good. Quotations:—Gooseberries, 3s. to 4s. 6d. per sieve; Peas, 2s. 6d. to 3s. do.; do. in sacks, 4s. 6d. to 6s. per sack; Cabbages, 4s. to 8s. per tally; Radishes, 3s. to 4s. do.; Lettuce, 6d. to 10d. per score; bunch Rhubarb, 1s. 6d. to 2s. per dozen bunches; do. Greens, 3s. to 4s. do.; do. spring Onions, 6s. to 8s. do.; do. Parsley, 2s. to 3s. do.; do. Mint, 1s. 6d. to 2s. do.

STRAFORD: June 29.—Good supplies of all kinds of produce, and with good demand of buyers a fair trade was transacted at the undermentioned prices:—Cucumbers, English, 2s. to 4s. per tier; Cherries, 1s. to 1s. 6d. do; Carrots, household, 3s. to 4s. do.; dozen bunches; Mangels, 22s. to 25s. per ton; green Peas, 3s. to 3s. 6d. per bushel; do. 7s. to 8s. 6d. per bag; Onions, 3s. to 4s. 6d. per dozen bunches; Parsley, 1s. 6d. to 2s. 10s.; Cucumbers, English, 2s. to 4s. per tier; Cherries, 1s. to 1s. 6d. do; Carrots, household, 3s. to 4s. do.; dozen bunches; Mangels, 22s. to 25s. per ton; green Peas, 3s. to 3s. 6d. per bushel; do. 7s. to 8s. 6d. per bag; Onions, 3s. to 4s. 6d. per dozen bunches; Parsley, 1s. 6d. to 2s. 10s.; Cucumbers, English, 2s. to 4s. per tier; Cherries, 1s. to 1s. 6d. do; Carrots, household, 3s. to 4s. do.; dozen bunches; Mangels, 22s. to 25s. per ton; green Peas, 3s. to 3s. 6d. per bushel; do. 7s. to 8s. 6d. per bag; Onions, 3s. to 4s. 6d. per dozen bunches; Parsley, 1s. 6d. to 2s. 10s.; 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THE GARDENERS' CHRONICLE

(Established 1841)

CONTAINS ARTICLES ON ALL DEPARTMENTS OF

GARDENING, PRACTICAL AND SCIENTIFIC,

REPORTS of EXHIBITIONS, REVIEWS of BOOKS, and NOTICES of all HORTICULTURAL MATTERS of CURRENT INTEREST,

HOME, COLONIAL, and FOREIGN CORRESPONDENCE.

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BULBOUS PLANTS.
CHEMISTRY of PLANTS.
CONIFERS.
DISEASES of PLANTS.
EVERGREENS.
EXHIBITIONS.—FERNS.
FLORISTS' FLOWERS.

FLOWER GARDENS.
FORCING.—FORESTRY.
FRUIT CULTURE.
GREENHOUSE PLANTS.
HERBACEOUS PLANTS.
IMPLEMENTS.—INSECTS.
KITCHEN GARDENING.
LANDSCAPE GARDENING.
LAWNS.—LILIES.
MACHINES.
MANURES.—Analyses of.

MARKET GARDENING.
NEPENTHES.—ORCHIDS.
PALMS.—PLANTING.
PLEASURE GROUNDS.
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SHRUBS and SHRUBBERIES.
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SUCCULENT PLANTS.

TOWN GARDENING.
TRAINING.
TRAVEL.—Notes of.
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VEGETABLE PHYSIOLOGY.
VINES.—WALKS.—WALLS.
WEATHER.—WEEDS.
WINDOW GARDENING.
WOODS, &c., &c., &c.

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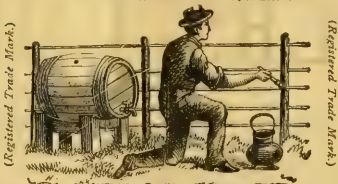
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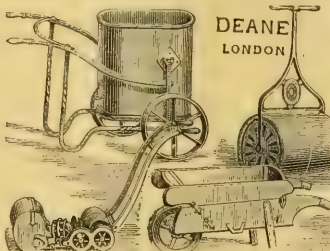
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GARDENER (HEAD WORKING); age 27, married, no family.—**LEA GUYLSTON**, can highly recommend his Gardener. Well up in all branches and the routine of a Gentleman's Establishment.—**H. D.**, The Grove Gardens, Epiphore Road, Hastings.

GARDENER (HEAD WORKING).—Age 28; fourteen years' good practical experience in Fruit, Flowers, and Vegetables, including Orchids. Good character and references.—**H. RICHARDSON**, Park Cottages, Hursley, near Reading.

GARDENER (HEAD WORKING); age 28.—**H. GILBERT**, late Foreman to the Hon. Lord Digby, is open to engage with any Lady or Gentleman in want of a practical man as above. Highly recommended.—**Gardens**, Southwick Park, Fareham, Hants.

GARDENER (HEAD WORKING), age 28, married when suited.—£s given for assistance to obtain situation as above; experienced in all branches. Well recommended. Churchman, many years' character.—**JOHN TAYLOR**, 80, Cleveland Road, Surbiton, Surrey.

GARDENER (HEAD WORKING), or good SINGLER HANDED.—Age 30; fourteen years' experience. Good references.—**J. A.**, 27, Fermoyle Road, Harrow Road, London, W.

GARDENER (HEAD WORKING), or good SINGLER HANDED.—Age 35, married, two children. Twenty years' experience in the Cultivation of all kinds of Flowers, Fruit, and Vegetables. Thoroughly practical in every branch of the profession. Excellent character from present and previous employer.—**M. A. B.**, Great Stannore, Middlesex.

GARDENER (HEAD), or FOREMAN in good establishment.—Age 36; eight and a half years in present situation. Leaving through place changing hands. Highly recommended.—Address, staling salary, &c.—**GARDENER**, Chelsworth Hall, Ipswich, Suffolk.

GARDENER.—Unmarried, competent in Vines, Peaches, Melons, Cucumbers, Stove and Greenhouse Plants, and thorough Cropping of Kitchen Gardens.—**JOHN BREEN**, Bromborough, Birkenhead, Cheshire.

GARDENER (SINGLE-HANDED), or other wise.—Single; satisfactory reason for leaving. Good character. Total abstainer.—**W. TOMS**, Prospect Cottages, Snell's Park, Edmonton.

GARDENER (SINGLE-HANDED).—Young, single; satisfactory reason for leaving. Nine years' experience in Glass, Flowers, specialities Roses and Herbaceous, also Kitchen Gardening. Good character and recommendations.—**J. KEMP**, Great Watley, Brentwood, Essex.

GARDENER (SINGLE-HANDED), or where help is given.—Age 30; thoroughly understands Stove and Greenhouse, &c. Kitchen Gardening. Eight years' good character from late place.—**J. H.**, Devonshire Road Nursery, Greenwich, S.E.

GARDENER (SINGLE-HANDED), or where help is given.—Age 26, married, two children; six years' in present situation. Well up in all branches, both Indoors and Out. Well recommended.—**M. C.**, Rowland Gardens, Crawley, Sussex.

GARDENER (SINGLE OR SINGLE-HANDED).—Age 24, single; nine years' experience in all branches. Strictly steady and persevering. Good reference.—**W. H. S.**, 16, New Street, Covent Garden, W.C.

GARDENER (SECOND).—Age 23, single; seven and a half years' experience. Good references.—**W. GRIFFITHS**, 11, Faulkner Street, Bishop's Fields, Clerkenwell, London, N.E.

GARDENER (SECOND), or JOURNEYMAN in House.—Age 26; good references.—**H. HARRFIELD**, Wainford, Bi-pho, Waltham.

GARDENER (UNDER, or good SINGLE-HANDED).—Good character.—**A. GAVLER**, Belgrave Lodge, Belgrave Road, St. John's Wood, N.W.

GARDENER (UNDER), where three or four are kept. Well recommended.—**W. K.**, Clarke's Library, Dorking.

GARDENER (UNDER); age 20.—**A LADY** wishes to recommend a good persevering man as above; desirous of a change.—**A. S.**, Bereleigh House, Eastneon, Peterfield, Hants.

GARDENER (UNDER), or FIRST JOURNEYMAN.—Age 21; seven years' experience. Good reference.—**W. P.**, 6, Lion Terrace, Beamin Road, Putney, S.W.

MANAGER, FOREMAN PROPAGATOR.—All-round man under glass, wishes to meet with a permanency.—**O. J.**, Mabel Villa, Newry Road, St. Margaret's, Twickenham, S.W.

FOREMAN, in a Market Nursery.—Age 24; thoroughly experienced in Growing Stove and Greenhouse Plants, also Cut Flower and General Nursery Work. Highest testimonials.—**ALPHA**, 7, Byron Street, West Brighton.

FOREMAN.—**EDWARD BENNETT**, The Vineyard, Potters Bar, N., wishes to recommend his Peckham Foreman, Levi Knight, to those who require a trustworthy man well up in Fruit and Flowers.

FOREMAN, age 25.—**Mr. S. ACER**, Eastwick Park Gardens, Leatherhead, can confidently recommend Geo. Fletcher as above, having been with him five years. Abstainer.

FOREMAN, in the Houses, or otherwise, in a good establishment.—Age 28; ten years' practical experience, two years as Foreman in last situation.—**R. CAMP**, Shute Lodge, Axminster.

To Nurserymen.

FOREMAN, Outdoor.—Age 36; twenty years' experience in Roses, Conifers, Fruit, Forest, and other Stock, Management of Men, &c. Eight years in last place.—**H. J. HARRIS**, *The Gardeners' Chronicle Office*, 41, Wellington Street, Strand, W.C.

FOREMAN, in the Houses.—Age 26; has a thorough knowledge of Fruit and Plant cultivation, also House and Table Decoration. Twelve years' experience in first-class places.—Please state full particulars as to extent of glass and wages, &c.—**J. HARRIS**, The Gardens, Hammerwood, East Grinstead, Sussex.

FOREMAN or SALESMAN.—Age 25, married; well up in Propagating, Growing, Fencing, and Decoration; active and industrious. Good references.—**C. G.**, 13, Claremont Road, Birkdale, Southport.

FOREMAN, or PROPAGATOR (GENERAL), or GROWER, thoroughly experienced. Highest references. Good Salesman.—**J. W.**, 16, Old Humphry's Avenue, All Saint's Street, Hastings.

NURSERY FOREMAN, or to take charge of small Nursery.—Eighteen years' practical experience. Wreaths, Crosets, Bouquets, Cut Flower and Plant Trade, also Grapes, Cucumbers, &c. Good references.—**FLORIST**, High Street, Milton, Stoke-on-Trent.

GENERAL PROPAGATOR, Indoor and Out.—Age 40; seven years' references.—**E. L.**, Protheroe & Morris, American Nursery, Leytonstone, Essex.

JOURNEYMAN, in the Houses, in a good establishment.—Age 25; good character. Bothy preferred.—**W. CHANNON**, 8, Rutland Road, Perry Hall, Catford, London, S.E.

To Head Gardeners.

JOURNEYMAN, in the houses, in a good establishment.—Age 24; two years in present place. Leaving of own accord.—**A. H.**, 71, East Street, Newton Abbot, Devon.

JOURNEYMAN (SECOND); age 20.—**G. HICKMOTT**, Hunsleys, Tunbridge Wells, can highly recommend E. Powell to any one requiring a strong good working young man.

IMPROVER, in the Houses.—Age 19; good character. B. preferred.—**G. BEECHER**, The Gardens, Burrell, Walton-on-Thames, Surrey.

TO NURSERYMEN.—Wanted, by a Young man, age 22, a situation in a Propagating House or Outdoors. Can as well assist in Office-work, and speaks French and German; also knows the Correspondence of both Languages. Five years' practical experience. Good character.—**S.**, Barrowshaw, Derby.

TO NURSERYMEN.—Well up in general Indoor Work, Potting, Tying, Watering, &c., with a considerable knowledge of Propagating. Good scholar. Age 9. Three years' character.—**F. W.**, Norton Road, Southborough, Tunbridge Wells, Kent.

To Nurserymen and Florists.

SALESMAN, FOREMAN, or TRAVELLER.—Age 30; fifteen years' experience in various branches of the profession.—**H. H.**, *Gardeners' Chronicle Office*, 41, Wellington Street, Strand, W.C.

SALESMAN, or KNIFESMAN.—Thoroughly competent in General Nursery Business; 20+ references.—**WM. JONES**, Bowling Green, Fowick, Worcester.

Seedsmen.

MANAGING SHOPMAN.—Twenty-five years' experience in Agricultural, Vegetable, Flower Seed, Flower Roots, Plants, Implements, Manures, &c. Good knowledge of buying.—**VITE**, 151, Houndsditch, London, E.

SHOPMAN, or FLORIST'S SALESMAN.—Age 22; active and obliging, used to sharp trade. Good experience in Seeds, Cut Flowers, Bulbs, Potatoes, and good references.—**X. Y. Z.**, Floral Depot, Finkle Street, Kendal.

Seed Business.

SHOPMAN.—Age 21; has had nearly five years' experience in an old-established leading Provincial Firm. Conversant with Seed and Bulb Business, and a fair knowledge of Plants.—Reference.—**J. H. M.**, The Lodge, Prince's Park, Liverpool.

CLERK, LEDGER, CORRESPONDENT, or GENERAL.—Age 30; thorough Accountant and good Penman. Moderate salary.—**N. CLARIDGE**, Swanley Junction, Kent.

CLERK, in the Nursery or Seed Trade.—Thoroughly experienced in both branches; good Book-keeper and Correspondent.—**H. J.**, *Gardeners' Chronicle Office*, 41, Wellington Street, Strand, W.C.

NURSERY CLERK.—Five years' experience in first-class house. Seeks fresh engagement. Excellent testimonials.—**WOOD**, 10, Lower Bedford Place, Terrell Street, Bristol.

JUNIOR CLERK.—Four a half years in Wholesale Seed Merchant's as Assistant Book-keeper and Invoice Clerk. Highest references.—**W. K.**, 7, Willington Road, Clapham, S.W.

ESTATE CARPENTER, and turn his hand to other work.—Married.—**R. FRANKS**, 4, Caledonia Road, West Coast, Carlshall, Surrey.

TO FLORISTS.—A young Lady (age 18) wishes for a situation; experienced in all its branches. Good references given.—**E. TAYLOR**, 10, Saunders Terrace, Kensal Green, W.

HOLLOWAY'S OINTMENT AND PILLS.

Those who have given these remedies a fair trial freely admit that they inherently possess every property suitable for healing and Removing Eruptions, Ulcerations, Piles, Abscesses, Sores, Bad Legs, Gout, Rheumatism, and all Disorders of the Glandular System. When carefully rubbed in the Ointment relaxes the Swollen Muscles, diminishes Inflammation, assuages pain, and even alleviates dangerous Maladies which may have lasted for months, or even years. Holloway's excellent preparations are effective singly, resistless in combination, and have been recommended by grateful patients to be resorted to as alternatives when all other means of regaining health have failed. Their action is temperate, not violent or reducing.

GREAT LAWN MOWER CONTEST OF THE SEASON.

Royal Horticultural Society's Provincial Show at Liverpool, June 29 to July 5, 1886,

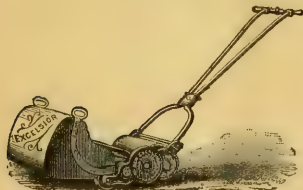
AFTER EXHAUSTIVE COMPETITION,

"PATENT EXCELSIOR,"

AWARDED

*First and only Prize, a Silver Medal, for Horse-power Lawn Mower;
also First and Highest Prize, Silver Medal, for Hand Mowers.*

EIGHTEEN different Patterns of Lawn Mowers, made by the Leading Manufacturers of both England and America were on exhibition.



CHADBORN & COLDWELL MANUFACTURING COMPANY,
223, UPPER THAMES STREET, LONDON, E.C. *T. CLARKE, Manager.*
THE LARGEST MAKERS OF LAWN MOWERS IN THE WORLD.

AT LAST!

PATENT

AT LAST!

SOLUBLE PARAFFIN.

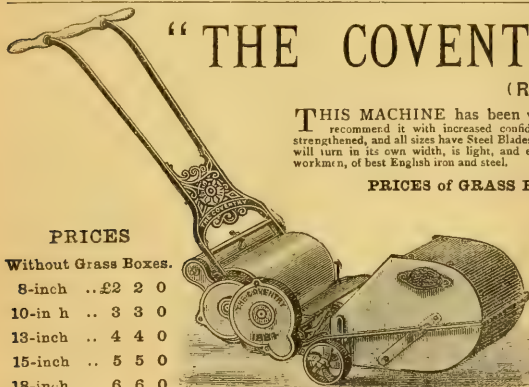
PARAFFIN OIL INSTANTLY SOLUBLE IN COLD WATER.

Gardeners will at once recognise the great importance of this announcement. The chief drawback to the use of this well-known and Cheap Insecticide is at last removed.

Pints, 1s.; Quarts, 1s. 8d.; Gallons, 3s. 6d.

R. M. PHILLIPPS & CO., DARTFORD, KENT.

THE SOLUBLE PETROLEUM COMPANY, CONISBORO', ROTHERHAM.



"THE COVENTRY" LAWN MOWER

(REGISTERED).

THIS MACHINE has been very considerably improved since last season, and the Manufacturers can recommend it with increased confidence. The Roller is now made the full width of the Machine. The Knives have been strengthened, and all sizes have Steel Blades. The Gearing has been improved, and the arrangement for regulating has been simplified. It will turn in its own width, is light, and easily worked, will cut wet or dry grass of any length. It is made in Coventry by skilled English workmen, of best English iron and steel.

PRICES of GRASS BOXES (each):—8-inch, 8s; 10-inch, 8s. 6d.; 13-inch, 9s.; 15-inch, 9s. 6d.; 18-inch, 10s. 6d.

WOOD ROLLERS (for attaching to Machine when Cutting Verges):—8-inch, 2s. 6d.; 10-inch, 2s. 9d.; 13-inch, 3s.; 15-inch, 3s. 6d.; 18-inch, 4s.

PRICES

Without Grass Boxes.

8-inch	.. £2 2 0
10-in h	.. 3 3 0
13-inch	.. 4 4 0
15-inch	.. 5 5 0
18-in h	.. 6 6 0

MANUFACTURED BY

NETTLEFOLD & SONS,

54, HIGH HOLBORN, LONDON, W.C.

GARDENERS' CHRONICLE FORM OF SUBSCRIPTION

FROM



To

W. RICHARDS,

41, WELLINGTON STREET, STRAND,
LONDON, W.C.

1886.

Please send me "THE GARDENERS' CHRONICLE" for _____ Months
commencing _____, for which I enclose P.O.O. _____.

 Please Note that all Copies Sent Direct from this Office must be paid for in advance. 

THE UNITED KINGDOM:—12 Months, £1 3s. 10d.; 6 Months, 11s. 11d.; 3 Months, 6s.; Post-free.

FOREIGN SUBSCRIPTIONS (excepting India and China):—Including Postage, £1 6s. for Twelve Months. India and China, £1 8s. 2d.

P.O.O. to be made payable at No. 42, DRURY LANE, London, to W. RICHARDS.

Cheques should be crossed "DRUMMOND."

G. C.
July 3, 1886.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, July 3, 1886. Agent for Manchester.—JOHN HAYWOOD.

SALES BY AUCTION.

Thursday Next.—(Sale No. 7187.)

SPECIAL SALE OF ORCHIDS IN FLOWER.

MR. J. C. STEVENS will sell by AUCTION at his Great Room, 38, King Street, Covent Garden, W.C., on THURSDAY, July 15 (instead of Wednesday as previously announced), at half past 12 o'clock precisely, a fine COLLECTION OF ORCHIDS, in flower and bud, including Cattleya Sandieriana, C. Eldorado splendens, Odontoglossum vexillarium, O. Alexandra and Hybrids, Masdevallia racemosa Crossi, Cypripedium superbiens Veitchii, &c. Also a fine lot of *Odontidium Jonsenianum* from Messrs. F. Horman & Co., an importation of orchids direct from Brazil, &c.

On view morning of Sale, and Catalogues had.

Tuesday Next.

ODONTOGLOSSUM ALEXANDRE, guaranteed unfowered.

CATTLEYA SANDIERIANA.

Also special Trade Lots Odonoglossum ALEXANDRE.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Shuttleworth, Carder & Co., to sell by AUCTION, at their Central Sale Rooms, 67 and 68, Chapside, E.C., on TUESDAY NEXT July 13, at half-past 12 o'clock precisely, CATTLEYA SANDIERIANA, two plants just received, splendid masses and fine condition, having good dormant eyes.

ODONTOGLOSSUM ALEXANDRE, 120 established plants, all guaranteed unfowered, of the very best type; and including many fine specimens of the same.

ODONTOGLOSSUM ALEXANDRE (imported), including many lots specially made up for the Trade, O. VEXILLARIUM, White CATTLEYA MOSLEY, and C. SPECIOSA, SISSIMA, established White, ELIA ANCEPS, MASDEVALLIA RACEMOSA CROWLI, M. HARRYANA, M. TROCHILUS, M. SHUTTLEWORTH, ONCIDIUM, CYPRIPEDEUM, &c., also another property amounting to 50 lots of imported ONCIDIUM JONSENIANUM.

On view morning of Sale, and Catalogues had.

Friday Next.

CATTLEYA GASKELLIANA in flower, grand variety, specimen with over 100 buds in flower.

MORMODES, new variety, in flower.

CATTLEYA LEOPOLDI, splendid variety.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE, at the Central Sale Rooms, 67 and 68, Chapside, E.C., on FRIDAY NEXT, July 16.

On view morning of Sale, and Catalogues had.

Friday Next.

VANDA SANDIERIANA.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to sell by AUCTION, at their Central Sale Rooms, 67 and 68, Chapside, E.C., on FRIDAY NEXT, July 16, at half-past 12 o'clock precisely, a fine importation of Vanda Sandieriana in splendid order, also *Acriodes roseum*, *Angraecum Leonii*, &c., and a fine lot of *Odontoglossum Alexandrine* in flower, superb varieties.

On view morning of Sale, and Catalogues had.

Furze Down Park, Tooting Common, S.W. Eight minutes' walk from Tooting Junction Station. IMPORTANT CLEARANCE SALE OF CHOICE STOVE and GREENHOUSE PLANTS, Valuable ORCHIDS, &c., by order of Charles Seely, Esq., who is leaving the neighbourhood.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to sell by AUCTION, on the Premises, at about 12 o'clock, on WEDNESDAY, at 12 o'clock precisely, the whole of the VALUABLE COLLECTION OF STOVE and GREENHOUSE PLANTS, including many fine specimens of the following: *Eucharis*, *Imantophyllus*, *Crotons*, *Dracenas*; several beautiful Palms and Tree Ferns; smaller Palms and Ferns in quantities; fine specimens of *Aspidistra* and *Adiantum*; the latter being several large white varieties useful for cutting; a fine assortment of Established Orchids, comprising eight *Dendrobiums* for cut flower; a fine lot of *Odontoglossum*, *Milnias*; many fine examples of *Greenhouse Rhododendrons*, *Garden Seats*, *Foss*, &c.

On view the day prior to the Sale. Catalogues may be had of the Head Gardener, Mr. E. Laing, on the Premises; and of the Auctioneers, 67 and 68, Chapside, London, E.C.

Orchids in Flower.

MESSRS. PROTHEROE AND MORRIS beg to announce their next SPECIAL SALE OF ORCHIDS IN FLOWER will take place on TUESDAY, July 27, for which they will be glad to receive notice of entries in due course.

Chertsey.

In the village of Thorpe, about 30 miles from London, in a healthy and picturesque neighbourhood, twenty-five minutes' walk from Epsom, is a highly desirable situation.

IMPORTANT TO GENTLEMEN AND OTHERS seeking a compact FREEHOLD ESTATE, with advantages for combining business with pleasure. For Sale, with possession.

MESSRS. PROTHEROE AND MORRIS are instructed by the owner and occupier, who is leaving the neighbourhood, to sell by AUCTION, at the Mart, Tottenhousen Way, City, E.C., on THURSDAY, July 9, at 2 o'clock precisely, the valuable FREEHOLD ESTATE, known as the West End Fruit Garden, Thorpe, near Chertsey, embracing a total area of about 2 acres of excellent Land, well stocked with Fruit Trees and Bushes in bearing condition, and Market Garden Produce. There is a modern brick-built Residence, containing seven Bedrooms, Dressing-rooms, fitted Bath-rooms, three Reception-rooms, two Kitchens, and domestic rooms, numerous Glass Erection and Sheds, brick-built Cottage and Stabling; the fruit garden is bounded on one side by a concrete wall, 6 1/2 feet high. The property has a frontage of 200 feet to the road from Staines and Windsor to Chertsey, a portion of which can be easily utilised for building, without detriment to the remainder of the land. The estate also possesses a great prospective building value, and a portion contains a valuable bed of the best gravel to a good depth.

May be viewed. Particulars and conditions of Sale may be had on the Premises, at the Mart, E.C.; of W. Sharp, Esq., Solicitor, 9, Walbrook, E.C.; and of the Auctioneers and Surveyors, 67 and 68, Chapside, E.C.

Bothwell Castle Collection of Heaths.

Very Important Public Sale of the RARE and CHOICE COLLECTION of Heaths in Bothwell Castle, Bothwell, N.B., cultivated by the late Mr. Andrew Turnbull for the Right Honourable the Earl of Home.

MESSRS. MORRISON, DICK, AND McCULLOCH are instructed by the Right Honourable the Earl of Home to sell by AUCTION, at the Houses Nos. 7 and 8, Bothwell Castle, Bothwell, N.B., on THURSDAY, July 29, at 12 o'clock Noon, the COLLECTION of RARE and CHOICE HEATHS, well known as the most important and unique in the United Kingdom, and containing many Varieties confined to this collection.

The *Book of the Garden* says:—"The cultivator can scarcely err in possessing himself of the different varieties originated by such as Mr. Turnbull of Bothwell Castle, who has, we believe, raised more excellent varieties than any other man of his day."

The whole will be on View in the Houses on Monday, Tuesday, and Wednesday, July 26, 27, and 28, from 10 A.M. to 4 P.M., and on Forenoon of the 29th. To prevent overcrowding, admission by Catalogue only (price Sixpence, returnable to all purchasers), on application at our office, 98, Sauchiehall Street, Glasgow; or forwarded by post on receipt of Sixpence in Stamp.

MORRISON, DICK, AND McCULLOCH, Auctioneers.

Gardiff.

SALE OF FLORIST'S and MARKET GARDENER'S BUSINESS.

MR. W. COURTENAY CLARKE is instructed to OFFER for SALE by TENDER, as a going concern, subject to conditions, the BUSINESS of Mr. William Thomas, 6, Crockerbown, Cardiff, and Whitchurch, Seedsmen, Florist, and Market Gardener. The shop is situated in the heart of the town, and is a most desirable and every accommodation for the carrying on of an extensive business. In the rear are large and well-constructed Houses, fitted with every appliance and stock of choice selection of Plants. A Lease of the Premises may be obtained at a rental of £150 a year, tenant paying rates and taxes. The Garden and Ground at Whitchurch (near Cardiff) have been under careful cultivation for a long period, and are well supplied with Fruit, Shrubs, Flowers, and Ornamental Trees. The rent of the Gardens at Whitchurch is £44 per annum. The Sale presents a capital opportunity to any Florist and Gardener desirous of obtaining an old-established business on favourable terms. Separate Tenders must be delivered to the Broker for the business, which is offered in the following Lots: Lot 1.—Stock of Fruit, Shrubs, Flower, and Seed. Lot 2.—Stock of Fruit, Shrubs, and Flower. Lot 3.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 4.—Stock of Fruit, Shrubs, and Flower. Lot 5.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 6.—Stock of Fruit, Shrubs, and Flower. Lot 7.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 8.—Stock of Fruit, Shrubs, and Flower. Lot 9.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 10.—Stock of Fruit, Shrubs, and Flower. Lot 11.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 12.—Stock of Fruit, Shrubs, and Flower. Lot 13.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 14.—Stock of Fruit, Shrubs, and Flower. Lot 15.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 16.—Stock of Fruit, Shrubs, and Flower. Lot 17.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 18.—Stock of Fruit, Shrubs, and Flower. Lot 19.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 20.—Stock of Fruit, Shrubs, and Flower. Lot 21.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 22.—Stock of Fruit, Shrubs, and Flower. Lot 23.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 24.—Stock of Fruit, Shrubs, and Flower. Lot 25.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 26.—Stock of Fruit, Shrubs, and Flower. Lot 27.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 28.—Stock of Fruit, Shrubs, and Flower. Lot 29.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 30.—Stock of Fruit, Shrubs, and Flower. Lot 31.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 32.—Stock of Fruit, Shrubs, and Flower. Lot 33.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 34.—Stock of Fruit, Shrubs, and Flower. Lot 35.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 36.—Stock of Fruit, Shrubs, and Flower. Lot 37.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 38.—Stock of Fruit, Shrubs, and Flower. Lot 39.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 40.—Stock of Fruit, Shrubs, and Flower. Lot 41.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 42.—Stock of Fruit, Shrubs, and Flower. Lot 43.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 44.—Stock of Fruit, Shrubs, and Flower. Lot 45.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 46.—Stock of Fruit, Shrubs, and Flower. Lot 47.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 48.—Stock of Fruit, Shrubs, and Flower. Lot 49.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 50.—Stock of Fruit, Shrubs, and Flower. Lot 51.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 52.—Stock of Fruit, Shrubs, and Flower. Lot 53.—Book Debts, amounting, as per Schedule, to £240 ad. Lot 54.—Stock of Fruit, Shrubs, and Flower. Lot 55.—Book Debts, amounting, as per Schedule, to £240 ad. 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Per Cent.	Per Cent.
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20.0 Phosphates 9.0	
15.0 Potash 15.0	
10.0 Magnesia 10.0	

Or, in other words, a ton of **COD FISH and POTASH**
 is composed, approximately, of—
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 3 cwt. Sulphate of Potash.
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 1 cwt. of Moisture, and ingredients not of
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THE

Gardeners' Chronicle.

SATURDAY, JULY 10, 1886.

GLYNDE PLACE.

IN consequence of the preference for foreign travel many interesting spots in our own country remain unexplored, or they are only seen in glimpses from the railway. Many persons probably, after leaving Lewes en route for Eastbourne, have taken a rapid glance from the train at Glynde, and have sometimes perhaps mistaken the church, whose architecture seems in the distance more domestic than ecclesiastical, for Glynde Place. The house of the late Speaker of the House of Commons, now bearing the family title of Viscount Hampden, lies a stone's-throw beyond the church, and is entirely concealed from view.

The village of Glynde is a place of great attraction from more than one point of view, for it is not only a delightful Southdown village, dry and clean and built upon a slope, with good cottages and gardens for working men, and several curious old houses—a village of prosperous and smiling aspect—but its history is remarkable. The rural population of England is only 10,500,000 in a total population of 26,000,000, so that 15,500,000 are born beneath a canopy of smoke instead of that of heaven. If you visit Glynde on a sunny day you will find a pure and glittering atmosphere charged with ozone, while at night this cradle of strong men and healthy women is overarched by the starry sky, without intervening fogs and smoke clouds. There is no need to discuss whether the men are better for being born in a garden country place, or a guttered town enveloped in the fumes of factories and smoke of belching chimneys. Trade, it seems, will have its streets and its crowded populations stewing in their own juice, amongst whom a third generation is never reached, the stock becoming effete. But garden spots like Glynde will have to be increased for the sake of restoring the balance of health and vigour to a country which is already startled at the predicament it stands in.

The land question, I have often thought, involves the extension of gardens. We may not get small farms since their economy may be doubtful: we shall not get peasant proprietors, because commerce in England pays better interest than land; but we must have more well-paid labourers, and more gardens, and to gardens must be added, in pastoral districts, cow plots. As regards these various details, the history of Glynde is most instructive. Here for a period of forty years John Ellman, a famous worthy of the Southdowns in his day, accomplished what every good landlord must desire—the happiness of those who dwell and labour on his property. Mr. Ellman was the agent for two of the three Lords Hampden who preceded the present highly respected peer, now the Lord-Lieutenant of Sussex, in the ownership of Glynde Place. As these former owners were absentees, their agents held the office of premier on the estate he managed, and I propose to notice briefly his system of government as the founder of a model village of the best type moral beauty being chiefly aimed at, and as a

creator of many gardens as well as substantial cottages. Mr. Ellman became famous to the agricultural world as the improver of Southdown sheep, the premier breed, and the most useful by far for its widespread influence in refining the mutton of other breeds of sheep. It is no small merit to have raised the price and value of innumerable flocks, to have sold at 300 guineas a pair, and to have multiplied the choicest legs of mutton and improved the cutlets of the people. The son of a small farmer, he became the personal friend of Arthur Young, and of all the famous agriculturists of his time. Francis, Duke of Bedford, would drive over to Glynde when visiting the Sussex racecourses and watering-places, and spend several days farming with his friend Ellman. The Earl of Egremont, the greatest man in Sussex, a munificent and excellent man in spite of foibles, was his close ally, as well as the Duke of Richmond, another agriculturist of note, one of the founders of the famous Goodwood flock. The Earl of Chichester of 1822 was a philanthropist like the late respected Earl and Lord-Lieutenant, and an interesting letter of his to Ellman refers his success in rendering Glynde one of the happiest and best regulated villages.

Want of space prevents my giving the details of Mr. Ellman's plan; but I may say that the epitaph on his tomb in the churchyard bears testimony, in simple language, to his fame as a breeder, and to the devotion of his life to the happiness of the people. He had been raised to the position of a county magistrate in times when such an honour was rarely conferred on a farmer, and having educated himself, he supported a school in the village and a winter evening school in his own kitchen for the purpose of instructing his poorer neighbours. His method may be generally described in his own pithy language. He preached what he practised, when he said:—

"Keep your young unmarried labourers in your own house. Let them feel the comforts of a good home, and they will be shy of risking these by improvident marriages. Let your wives and daughters personally superintend the female servants, and the latter will acquire tastes and habits adverse to hasty marriages and indifferent partners. When young farming men marry and settle in a cottage, let them have grass land for a cow and pig, and as little enough to grow Potatoes and vegetables for their family, and above all, pay them according to their skill. Teach them to respect themselves, and they will respect their employer and protect his property. Give them the means of brewing good beer at home, and they will seek no public-house. Remove temptation by allowing as few beer-shops and pot-houses as is compatible with the convenience of travellers. Try moral measures before you coerce by penal laws."

Some of Mr. Ellman's methods may sound old-fashioned, but they are not the less excellent, and the substitutes for them, in these changed times, have yet to be found. If it be true that farm labourers have depreciated, that can only have arisen from the circumstances of their daily lives having altered for the worse. Ellman recommended attaching the labourer to the land—the reverse has been accomplished, and hence the labourers' unions, having strikes as their object, and hence the agitators whom farmers dread without having the least notion how to circumvent them, for farmers do not read—they are not inventive, and not one in 10,000 of them ever studied Mr. Ellman's plans, or heard of him as the founder of a model village.

So far as the altered conditions permit Lord Hampden is proceeding on the same lines as Ellman by means of good gardens and cottages. He is an excellent landlord and a spirited farmer. Butter, barley, and mutton are among the best products of Glynde, and it must suffice to say here that Lord Hampden has founded a herd of fifty Jersey cows, the best of butter-makers, and is building at his own cost and risk a butter factory for himself and tenants or other

neighbours. He has introduced steam cultivation on his farm—the same that Ellman held—and is producing barley and mutton beyond all precedent; and this leads to an increased wage-fund and more cottages, which, in point of fact, have been already built, with good gardens or allotments. The dinner of a flourishing friendly society, at which Lord Hampden presides, was held the day after my visit in a tent in a meadow. I can only mention further on this subject Lord Hampden's annual pastorals, which he delivers at the Glynde harvest-home, and which the country has learned to anticipate with interest.

It is time to speak of horticultural matters. Mr. Colgate, Lord Hampden's agent, had taken me to look at a silver cup won by a member of his family at Petworth in the last century, the first silver cup probably ever awarded at a livestock show, and I had seen the large room where Mr. Ellman dined on state occasions, when in passing through his first-rate farm-house garden, he pointed to a common Acacia tree 30 feet high perhaps, and of ten years' growth. Its history is curious. The bees having swarmed Mr. Colgate placed their hive on an old stump of an Acacia which had been deprived of its roots, and had lain three years in the timber yard. Judging from the appearance of the stump the tree was aged and of good size, and this makes it the more remarkable that on fixing the stump in the earth for the purpose of supporting it firmly a dormant bud should have presently produced a shoot which has since grown into a tree, as I have just stated.

Glynde Place is a large quadrangular house, improved in the last century from the older mansion of the Morleys by Dr. Trevor, Bishop of Durham. It is situated not far from the base of Mount Caburn, one of Gilbert White's "mountains" of Sussex, and a spot dear to archaeologists for its British or Roman earthworks at the crown, and at the top of the village, whose lower level rests on the railway, and on a reach of the River Ouse, which is here augmented by the Glydebourne. The rear of the house abuts on the high road; its principal fronts look upon a pleasant lawn and shrubbery on the north, and across the terrace on the east, where the landscape includes a park of 100 acres, planted with stately trees (the land being rich), and a beautifully wooded country beyond. It is a long view, extending mile after mile as far as the hills of Heathfield and the Forest Ridge, over a cultured part of Sussex, every inch of which the late Speaker is probably familiar with, loving his own few miles at home a little better perhaps than he can do, the more distant world which belongs to other people. Home must be sweet, and honours and rewards, worn with much meekness, cannot be unwelcome, when they follow a life of labour for the public good.

Glynde was first granted to a family named De Glynde, whose heiress married Sir Richard Walleyes early in the fourteenth century. The male line of this knightly house became extinct, and Joane, the daughter of the last Sir John, conveyed the estate about the end of the fifteenth century to Nicholas Morley. There are numerous brasses of the Morleys, as of their successors the Trevors, in the chancel of the church. They held the estate for seven descents, when the last owner of their name, a widow, married John Trevor. Trevor after Trevor followed from 1653, the first of the possessors of Glynde bearing the name being the eldest son of Sir John Trevor, Secretary of State to Charles II., and the husband of Ruth, the daughter of John Hampden, the patriot. One of this family was created Viscount Hampden, a title which became extinct in 1824, and remained so till recently. The Brands acquired the estate by marriage with the

Trevors, and Lord Hampden's brother, the twenty-second Baron Dacre—to whose title he is heir presumptive—bears the family name of Trevor, having changed it from Brand in compliance with the will of the last Lord Hampden. H. E.

New Garden Plants.

ALBUCA (EUALBUCA) CORYMBOSA,
Baker, n. sp.*

LIKE Tritonia Wilsoni, this was discovered by Mr. A. Wilson, in the neighbourhood of Port Elizabeth, and was flowered at home by his brother, Mr. John Wilson, of Greenside Gardens, St. Andrews. It belongs to the subgenus of *Albuca*, in which the three outer stamens are without anthers. It comes nearest to *A. juncifolia*, Baker, in *Gardeners' Chronicle*, 1876, p. 534; *Botanical Magazine*, t. 6395, but it has the erect flowers and corymbose inflorescence of *A. caudata* and *A. fastigiata*.

Description:—Bulb globose, above an inch in diameter; neck short; outer tunicis splitting into fibres at the top. Leaves, 6–8, sub-terete, glabrous, above a foot long when fully developed, $\frac{1}{2}$ inch broad at the base, convex on both surfaces, tapering gradually to the apex. Peduncle terete, $\frac{1}{2}$ foot long. Flowers, 5–6, inodorous, arranged in a lax corymb; pedicels erect, 2–4 inches long; bracts ovate or ovate-lanceolate. Perianth an inch long, yellow, banded with green; inner segments cucullate and permanently connivent, so that the flower is cleistogamous and self-fertilised. Outer stamens without anthers. Style prismatic, as long as the oblong ovary. *J. G. Baker.*

TRITONIA (MONTBRETIA) WILSONI (Baker), n. sp.†

This was sent to me through the *Gardeners' Chronicle* from Mr. John Wilson, of Greenside Gardens, St. Andrews, N.B. It was collected by his brother, Mr. Alexander Wilson, in the neighbourhood of Port Elizabeth. The bulbs of the eastern province of Cape Colony are often different species from those of the western regions. This comes nearest to the well-known *Tritonia lineata*, Ker, in the flower, but the leaves present an entirely different type of character. Mr. Wilson has kindly sent me a complete specimen and two sketches made from the living plant.

Description:—Corm globose, $\frac{1}{2}$ inch diameter; outer coat thin, brown, reticulated. Stem slender, terete, 2 feet long below the spikes. Leaves 5–6, narrow linear, under a line broad, nearly quadrangular in section, the three lower sub-basal, 1– $\frac{1}{2}$ foot long, the others distant, superposed. Spikes simple or forked, lax, 4–7-flowered. Spathe-valves lanceolate, unequal, $\frac{1}{2}$ – $\frac{3}{4}$ inch long. Perianth white, flushed with purple; tube funnel-shaped, $\frac{1}{2}$ inch long; segments obovate-cuspidate, twice as long as the tube, the arcuate upper one the longest. Stamens reaching half-way up the limb; anthers linear-oblong, purple. Style-arms oblong-cuspidate, entire, overtopping the anthers. *J. G. Baker.*

SAGENIA MAMMILLOSA, T. Moore, *Illustr. Hort.*, ser. 4, vol. vii., t. 598.

Closely allied to *S. decurrens*, but with all the segments of the frond undivided, and the sori, which cover the surface, inserted in very deep cavities, so as to form a series of pointed test-like protuberances over the upper surface. Hab.: Molucca Isles.

This distinct-looking and handsome Fern has been recently introduced from one of the Molucca Isles by the Compagnie Continentale d'Horticulture, and is figured in the publication (*Illustration Horticole*) which emanates from their establishment. It bears considerable resemblance to *Sagenia decurrens*, especially in the winged rachis and stipes; but as far as

* *Albuca (Eualbuca) corymbosa*, Baker, n. sp.—Bulbo globoso, collo brevis, tunicis apice fibrosis; foliis, 6–8, sub-teretibus glabris utrinque convexis; pedunculo tereti foliis breviori; floribus, 5–6, inodoris in corymbum laxum dispositis, pedicellis elongatis erectis; bracteis ovatis vix ovato-lanceolatis; perianthio luteo-viridi; staminibus exterioribus castratis; stylo prismatico ovario equilongo.

† *Tritonia (Montbretia) Wilsoni* (Baker), n. sp.—Cormo globoso tunicis brunneis reticulatis; caule gracili tereti bipedali; foliis 5–6 anguste linearibus firmis pubescentibus quadrangularibus, 3 subbasalibus reliquis superpositis longe segregatis; spicis laxifloris simplicibus vel furcatis, spathe valvis lanceolatis integris inaequalibus; floribus albis pallidius; perianthio tubo infundibulato bracteis breviori, segmentis obovatis cuspidatis tubo duplo longioribus; genitalibus inclusis.

we can ascertain, the lower pair of segments (pinnae) are not forked as they are in that plant, and the mamilllose surface is quite peculiar.

The plant has a stout caudex, apparently erect, and, like the erect moderately stout short stipes, is furnished with greyish scales. The early fronds are simple, lanceolate, narrow pointed, the succeeding ones bear one pair of segments, which would be pinnae if they were not united by the broad leafy wing of the rachis. In the largest fronds we have seen, and which were fully fertile, there are six pairs of these side lobes, the entire frond being about 2 feet high, of a firm, stoutish membranous texture, and a dark green colour. The costa is prominent on the under-surface, and from it branch out the numerous conspicuous pinnate veins, which are slightly bent in parallel curves, and united by anastomosing veinlets, which ultimately form small four-sided areoles, including a sorus attached to the end of a free veinlet. The sori are copious, and form transverse lines parallel to and on each side the pinnate primary veins, extending from the costa to the margin; these sori being very prominent on the upper surface form a regular close-set series of pointed nipple-like elevations, which give a peculiar roughened or rasp-like appearance to the surface as seen in the fresh unpressed fronds; on the under-surface the sori, which are sunk in deep pits, are covered by the reniform indusia. In some few Assam fronds of *S. decurrens* which we have seen, there is an indication of a similar set of protuberances, but they are not so much elevated nor acutely pointed, but give the frond more of a bulate than a mamilllose appearance.

As a garden plant it will form a bold and highly characteristic species, quite desirable in a collection which goes beyond the elegancies of Maidenhairs and such-like subjects. It requires the temperature of a hothouse, but is a very free grower, and a good specimen would be a telling object either in the Fern-house or the exhibition tent. The figure above quoted gives a very good idea of its general appearance, except that, being much reduced to suit the size of the page, the representation is not equal to the reality. *T. Moore.*

MORMODES LUXATUM (Lindley) PURPURATUM,
nov. var., *Rehb. f.*

Last year the variety called punctatum appeared in July. Now Sir Trevor Lawrence, Bart., M.P., P.R.H.S., has most kindly favoured me with a specimen of a new variety. Its flowers are light mauve-purple. The sepals and petals bear on their inner side lines of numerous dark small spots of the same colour. The side laciniae of the lip are much darker than the central part. It is one of Mr. F. Sander's importations. *H. G. Rehb. f.*

THE GENUS ODONTO- GLOSSUM.

(Continued from p. 757, vol. xcv.)

THE coronarium section is a small one, but distinct in habit of growth and flower from all the other Odontoglossums. The four which comprise the section may perhaps be considered as varieties of the same thing, differing in stature according to the localities from whence they are collected. They have all the same running habit, the old form of *O. coronarium* being the largest, and having the pseudobulbs divided by the greatest length of rhizome. All have flattish-oval, dark green pseudobulbs, more or less stained with brown, and leathery leaves. They thrive best in the coolest and shadiest part of the Odontoglossum house, and should be placed in long baskets, which by the presence of the peat and sphagnum offers facilities for the newly running growths to root. When re-basketed the leading growths should be kept as far back as possible to allow of their having rooting room before them, and if the plants have occupied all this, and it is not desirable to shift them, a raft with sphagnum moss should be fixed to the basket (like the bowsprit of a ship), in order to afford accommodation for the growths beyond the basket. *O. coronarium* and its varieties require a free supply of water all the year round, but more particularly when growing.

ODONTOGLOSSUM CORONARIUM was found by Schlim (who describes it as growing on the ground), many years ago, near La Baja, in the province of Pamplona, at the height of 7000 feet. Out of the many small importations of it but few survived, and those

quickly disappeared, until of late years—the plants being collected at the proper time, and the journey being quicker made—better specimens have arrived, which most of our Orchid growers succeed well with, but many of them still fail to get their plants to flower. Good growth being put on the plants, however, the flowers are sure to follow regularly enough after the plants get acclimatised with us, or, rather, used to their altered conditions under cultivation. The flower-spikes are often 1½ foot high, bearing a score of wax-like flowers, with bright chestnut-brown sepals and petals, and a yellow lip blotched with crimson.

O. MINIATUM.—This may be regarded as a more compact and freer flowering *O. coronarium*; the flowers are borne in the same way, each 2 inches across, bright chestnut-brown, edged with yellow; lip yellow, the base and column being marked with red. *Pera*: 6000 feet.

O. BREVIFOLIUM is the dwarfest of the section. Hartweg found it high up on the Cordillera of Peru, near Loxa. The leaves are always short and blunt, and often broad as long. Flower similar to those of *O. miniatum*.

O. CHIRIQUENSE, Prof. H. G. Reichenbach, in *Bot. Zeitung*, October 1, 1852; Lindley, in *Folia Orchidacea*, Odontoglossum, 62.—“Flowers as large as *Oncidium crispum*, Reich. Leaves in twos, large and green. Sepals brown. Petals and lip golden. Warszewicz, on the Cordillera of Chiriqui, at the height of 9000 feet, on decayed trunks.”

This is no doubt the Chiriqui form of *O. coronarium*, and little was known of it until Messrs. F. Sander & Co. exhibited it at the meeting of the Royal Horticultural Society, June 22, this year. It resembles a light form of *O. coronarium*, and certainly calls to mind the *Oncidium crispum*, with which Professor Reichenbach compares it, although the flowers are much thicker in texture. Messrs. Sander's plant had, however, a light brown blotch on the lip and brown marbling on the petals, which may also have been on the typical plant, but which disappeared in the drying of the flowers, or there may be varieties with petals and lip wholly yellow. It has the running habit of the typical *O. coronarium*, and requires the same mode of culture.

The plant is interesting as being one of the few we have record of as growing on decayed trees. Some more recent traveller might tell us whether the habit is constant, &c.

O. LEVE.—Found in Guatemala by Skinner and Hartweg, and described by Lindley in *Bot. Rev.*, 1844. It flowered in the gardens of the Royal Horticultural Society in 1842. Flowers on stout ascending spikes, sepals and petals yellowish, barred with brown, lip pandurate, white, rose at the base. This is a very variable species running from the smaller figured form into the higher variety named *O. Reichenheimii*, but which should more properly be called *O. leve Reichenheimii*. This seems to be the strongest and handsomest form of *O. leve*, some of the varieties being very beautiful; the sepals and petals, which have a glossy appearance, are yellowish, broadly barred with chocolate-brown, the lip varying in different specimens from white tinged with rose to pink blotched with violet. A very handsome variety of the largest and darkest kind recently bloomed with J. Neville Wyatt, Esq., at Cheltenham, bearing very handsome fragrant flowers. *O. LAURATUM*, a pretty form, flowered first by Mr. F. W. Moore of Glasnevin, and afterwards named from specimen of Major Lendy of Sunbury House, Sunbury-on-Thames. It has a very narrow lip, a little dilated at the apex and acute at the top.

O. HASTILABIMUM.—This is a very pretty strong growing cool Orchid, first flowered at Syon House in 1846 on a plant received from Pamplona, alt. 2500 feet. Flowers nearly 3 inches in diameter, sepals and petals pale green, even barred with purplish-brown, lip broadly hastate, white, purple at the base.

O. CARINIFERUM.—This, which is figured in *Bot. Mag.*, 4919, is *O. hastilabium fuscum*, is amply distinct from *O. hastilabium*. The flowers are borne on loosely branching panicles, sepals and petals greenish stained with brown on the inner side, lip three-lobed, white, changing to yellowish in the front; portion, rose at the base. *Vergarus*: 9000 feet. These four are strictly speaking cool-house plants, but do not require so much water when the pseudobulbs are mature as the *O. crispum* section. *James O'Brien.*

HERBACEOUS PLANTS IN THE FLOWER GARDEN.

ALTHOUGH the collection of hardy plants at Hale Farm Nurseries, Tottenham, is “familiar as household words” amongst hardy plant growers, a few notes on some of the more striking kinds in blossom early in June, may possibly be of use to those who find some difficulty in keeping up a good supply between spring and summer. The slightly diminished quantity of herbaceous flowers between the two seasons is hardly noticed in gardens where flowering shrubs are well grown; for in May and early in June, these shrubs being usually at their best, may well fill a garden with beauty. In hardy-plant culture one hint may well be taken from the old half-hardy “bedding” system—the excellent effect often attainable by planting a mass of one flower. Some plants, it is true, are more effective when seen as single specimens; but in many cases a group large or small, is far preferable to a single plant of each kind. This is well illustrated at Mr. Ware's in the masses of many hardy plants which one generally sees dotted about separately. For instance, *Dodecatheon splendens*—of which hundreds of plants are grown together—forms a sheet of bright purple; and though the great quantity of this and of many other flowers grown in this nursery, may not be available in ordinary gardens, much of the effect may be obtained by smaller groups. Whether grown singly or in groups, *Dodecatheon splendens*, and the white form of *D. meadia*, should find a place in every rockery. The latter should be planted where it can be looked at closely, as both in colour and form it is singularly pretty. The large pale blue *Camassia Fraseri* looks far better as a group than when planted singly; and *C. Leichtlini* (a darker blue than the typical *C. esculenta*) is a good plant. It is entirely different in habit and colour from the plant grown under the same name in the Edinburgh Botanic Garden. Another beautiful blue flower, especially adapted for grouping, is *Ixiolepis tartaricum*. St. Bruno's Lily, *Anthericum liliatum*, is perhaps equally beautiful, whether planted in separate bunches or in large groups; at Hale Farm it is grown in profusion, as is also the earlier “Wood Lily,” *Trillium grandiflorum*, an excellent subject for grouping in shady spots. The same may be said of *Primula japonica* and various other *Primulas*, which lose much of their effect when planted separately. *P. luteola*, though not one of the prettiest of *Primulas*, is of value from its late-flowering habit; it comes in well for May or June with *P. japonica*, and if grown in groups its yellow colour is effective. The small form of *Thalictrum minor*, var. *adiantifolium*, is much better as a foliage plant than the type. For garden purposes the two kinds are quite distinct.

The value of *Paeonies*, both single and double, as cut flowers, has been well shown in Mr. Ware's stand of hardy flowers in the conservatory at the Colonial Exhibition; and also that of the single *Pyrethrums*, which are as useful for garden as for cut flower decoration. Arranged lightly with Ox-eye Daisies and golden *Doronicums* these bright red and pink flowers are peculiarly effective. Amongst the best are *Sherlock*, *Hamlet*, and a new deep crimson kind; Mrs. Bateman Brown.

Onosma taurica flowers profusely planted on rockwork without any protection from damp, or other special treatment; but in parts of the country where the winter climate is less dry than in the neighbourhood of London the protection of a piece of glass, not close enough to exclude the air, would probably be of use. Nothing is better than a part of a broken clock, as an unbroken cap-glass prevents sufficient circulation of air for plants requiring this very slight amount of protection, and the pieces of curved glass often fit on between stones in rockwork as no cap-glass can do. Probably at no time of year would a visit to the Hale Farm Nurseries be of greater interest than when the Lilies and later Irises are in blossom. Large beds of *L. monadelphum* (*Colchicum*) and other choice Lilies must be a beautiful sight. But of all summer flowers none can surpass in beauty some of the Irises, and yet in how many gardens but few kinds are grown, and those by no means always the best. They will probably make their way as the *Nacissus* has done, and the sooner the better, for a garden without a good selection of Irises has a pleasure lost. *I. pallida racemosa* and

I. pallida Celeste are hardly inferior in beauty, though smaller in size, to the exquisite *I. pallida dalmatica*; and they flower somewhat earlier—at the same time as some of the earlier forms of the “variegata” and so called “germanica” sections. Amongst the latter early forms of *Iris* the pure white *I. albicans*, and a blue and white form, Madame Chereau, are of great beauty; *I. Gracchus*, *Victorine*, *Darius*, *Penelope*, *Queen of May*, and *Bridesmaid* are also beautiful, and no collection should be without the rather dwarf *Iris cengialis*, a lovely blue kind, flowering two or three times in the season—a rare advantage amongst *Iris*es, for though the *Iris* season may be made to last through a great part of the year, it must be by a careful selection of species, each of rather short duration. A little rock shrub as distinct as it is pretty, is *Helianthemum rosmarinifolium*, with small white flowers (a miniature “rock Rose”) and dark green foliage, well described by its specific name; and if *Tamarisk* would always flower as freely as it does here it should be in every collection of shrubs. Its feathery foliage is always pretty, reminding one of some *Dacrydium*-like Conifer; but when covered with equally feathery wreaths of pale pink flowers it is still more effective. The bright yellow *Genista*-like flowers of *Thermopsis fabacea* var. *montana*, and the curious orange-buff colour of *Orobis aurantiacus* make them good additions to the hardy flower garden, as do the brilliant colours, yellow, white, and orange of the Iceland Poppies (*Papaver nudicaule*), and the many shades of *Ixias*, including the crimson *I. crateroides*.

Amongst June blue flowers, *Linum narbonne*, *Triteileia laxa*, *Pentstemon glaber* (with a shade of pink through it); and amongst pink flowers, *Lychnis viscaria*-pl. splendens, and *Lychnis (Agrostema) Flo-jovis*, are worth growing; and *Phlox ovata*, a dwarf, but not a trailing kind, is beautiful when grown in a mass. *Armeria cephalotes rubra*, and the pretty coral-red-flowered *Heuchera sanguinea* are grown here, and there is a large stock of *Androsace sarmen-tosa*, also a stock of the silver-leaved *A. lauginaea*. Even where the climate is too damp for the successful culture of Swiss *Androsaces* on rockwork, these two Indian kinds may be induced to grow well by the slight protection of a piece of glass to keep off rain, but not to exclude the air. Amongst these small rock plants the beautiful *Cyclotrotha pulchella*, with its small yellow *Colochortus*-like flowers, is worthy of trial; and amongst bog plants there is a pretty kind of *Pinguicula*, called here *P. longifolia*, the blue flowers of which have a large white eye.

Gloxinia tuberosa (not yet in blossom) is of interest as a hardy plant belonging to a family almost all of which require stove or greenhouse treatment; and of still greater botanical interest are *Primula imperialis* and *Iris Robisoniana*, outlying species of two great genera, both of which are absent from Australia, and both species being probably the nearest of any in their habits to the Australian continent. *P. imperialis* has been found on one of the mountains in Java, though I think it has been introduced into this country from India; it is yellow, flowering in whorls like *P. japonica*, but as yet the plant does not seem to have attained its full size in cultivation. *Iris*, or rather *Drifts*, *Robinsoniana* comes from Lord Howe's Island; it is one of the very few *Iris*es from the southern hemisphere. It has been grown for many years at Kew, but has never flowered. It would be interesting to try this *Iris* in various positions under glass and in the open air in the milder parts of the country, so as, if possible, to induce it to blossom. Mr. Ware has a stock of it, and also of the New Zealand *Raunculus Lyalli*, “Shepherds' Lily,” which will probably succeed best when treated as a bog plant, but one whose hardiness has not yet been proved; another good new plant is *Primula*. Rusby, from California, which appears to be perfectly hardy. C. M. Owen.

PLANT PORTRAITS.

ACONITUM DISSECTUM, *Gartenflora*, April, fig. 16.
ALOCASIA AUGUSTIANA, *Illustration Horticole*, t. 593.—A species with spotted petioles, and broad, cordate, ovate-acute leaves.

ANGRECEM CITRATUM, *Illustration Horticole*, t. 592.

BEAUFORTIA SPLENDENS, *Illustration Horticole*, t. 594.

CALLIOPSIS DRUMMONDII and *C. ATKINSONI*, *Garden*, May 29.

CATASETUM LEHMANNI, Regel, *Gartenflora*, t. 1223, figs. A—G.—A new species with globose flowers, green segments, and a pink bag-shaped lip. Colombia.

C. TABULARE (Lindley) VAR. *SERRULATA*, Rchb. f., *Gartenflora*, t. 1223, H—1.

CYRTOCERAS REFLEXUM, *Revue de l'Horticulture Belge*, May, 1886.—A stove climber, requiring the same treatment as its near ally, *Hoya*.

IRIS DOUGLASIANA, *Gartenflora*, May, t. 1222.—A Californian species of the beardless section, with pale lilac flower—segments, striped with deeper purple, and flushed with yellow at the base.

LELIA HARPOPHYLLA, *Revue de l'Horticulture Belge*, May, 1886.

LILIUM PARDALINUM, *Garden*, June 5.

SALVIA HIANIS, Royle, *Gartenflora*, April, t. 1221.

STREPTOCARPUS, varieties of, *Garden*, May 22.

JESMOND DENE PARK.

ONE of the most charming wooded resorts in spring and summer about a township is the park given by Sir William Armstrong to the people of Newcastle, and bearing the name of Jesmond Dene. It is an oblong piece of ground, extending nearly a mile in length if you follow the winding walks sloping on both sides to a stream, not very pellicid certainly, and the amphitheatre-like form on both sides rising in undulating fashion, the acclivity on one side being particularly steep, especially for a flat country, and covered with large deciduous trees. The trees give a dignity to the groundwork, and form, when covered with leaves, an agreeable shade which screens the sun in its meridian glory, whilst the leaves fan the atmosphere, bringing pleasing sensations to the numerous promenaders. It was delightful to see on the fine Sunday afternoon that the writer visited this park the large number of well-dressed, well-behaved people taking advantage of the promenade, and admiring Nature in some of her most pleasing forms, without resorting to that species of Vandalism which townspeople are sometimes credited with. There was abundance of bloom of a kind, but it apparently was conserved the same, as each visitor took a delight in seeing it there for the benefit of his or her fellow-beings. This is as it ought to be. Unfortunately for the admirer of Nature, the trees and plants here, as in almost every other public park, are unnamed. This, if not a mistake, at least something remaining to be done. Most people like to know the names of trees they come in contact with, and sometimes inquire into their birth and parentage; and if it be applicable in the one case it is equally so in the other. In this age of progressive intelligence, when the Press has become so powerful an engine in promoting its growth and fostering a desire for increased information, the people who wander about public parks might easily acquire both the botanical and English name of most of the trees and plants that come before the eye if they were prominently labelled; and once acquired, it would create an additional zest and interest in reading about them in the various prints.

In this park the Plane forms a very conspicuous tree, although it is seldom met with doing well in the North; all along the glade it is met with in good sized examples. The Lime, the Horse Chestnut, the wild Cherry, the Beech, the Oak, the Ash, the Elder and the Thorn are equally at home; and whether we regard the columnar form of some of the species, or the wide-spreading branches of others, in regard to the variety of leaf form and the various tints, from a pale green to the young bronzy tints of the expanding Sycamore, they present a beautiful feature in the landscape here. Most of those trees seem to have been planted about the beginning of the century, and are in no way injured by hostile smoke or other influences, the distance from the sites of factories being sufficient to insure their healthy growth.

The plants of lesser stature are conspicuous, more however, from their numbers than from their variety. In time, doubtless, this will be rectified; however, delightful to see “London Pride” by the 100,000 spikes growing in luxuriant wildness as a carpet plant under the shade of the trees, still a little less of it would be desirable. No doubt there are lots of Saxifages and Stonecrops, and Periwinkles and Arabis and Sea Pinks and Primroses in many species and varieties, and in May or June they look charm-

ing with *Rhododendron ponticum*, *Azaleas*, *Whin*, and *Heather*, springing up in a semi-natural-like state amongst them, but the eye longs for variety of both form and feature, and a little more in the way of both alpine and the larger herbaceous plants would be seen to great advantage in this beautiful natural dell. There is a bit of rocky shelving about the bridge at the “Old Mill,” which is very enjoyable, where *Sedums* and *Saxifages* and *Periwinkles* hang over, and among them spring Ferns of sorts, but not enough of them, an occasional *Rhododendron* and *Berberis* with the rigid *Cotoneaster* covering the boulders like a cap studded with multitudinous white flowers. This is one of the best looking rock plants to do duty on its own account in the whole of the Dene. When the entrance and exit lodges and gates have been put down and a little more variety has been introduced, this park will not only be appreciated by the Newcastle folks, but will be worthy of a visit from all those interested in parks and park scenery. J. Anderson.

TUBEROSES.

THE Colonies just now are in the ascendant, and we Britons are about as proud and self-conscious as any old hen and her chicks—and we have reason to be. In these days demonstration is everything. It does not do to read of the battle of Waterloo, that may have been true or not, but we did not see it. Captain Cook may have discovered that part of Australia known as Botany Bay, but we were not there to see him do it. Nevertheless the exhibits at South Kensington furnish proof sufficient even for an examiner, and so we trust the illustration we now give of *Tuberosa* growing in Natal (fig. 8), may afford satisfactory evidence, even to those who have not been there, that there is such a colony as Natal, and that the *Tuberosa* is grown there pretty extensively, furnishing employment to Europeans and to natives, and thus contributing not only to the luxuries of the “classes” at home, but supplying also a potent factor in the spread of civilisation among the masses, black as well as white.

Messrs. Edwards & Bell, of Pietermaritzburg—to whom we are indebted for the photograph whence our illustration was taken—tell us that they have under cultivation more than 12 acres of the “double South African *Tuberosa*,” and which is grown chiefly for the London and the Paris markets. *Polyanthes tuberosa* was first mentioned by L'Escluse (Clusius) in 1594, and was probably originally introduced from Mexico. The name of *Polyanthes* is derived from *polius*, white, and *anthos*, flower, and must not be confounded with *Polyanthus*—from *polius*, many, and *anthos*, flower—a term applied to umbellate *Primroses*.

NOTES ON SOME CHINESE ECONOMIC PLANTS.

RECENT contributions to the Kew Herbarium from various persons, and investigations in connection with the forthcoming *Index Floræ Sinensis*, have brought to light some interesting facts worthy of putting on record. Firstly, there is a small collection of dried specimens of economic plants from the western province of Szechuen, made and presented by F. S. A. Bourne, Esq., H. M. Consular Agent at Chungking or Chungching, the capital of the province in question. Mr. Bourne sends transliterations of the Chinese names and notes on the uses of the plants, which are given below in his own words.

BRASSICACEOUS PLANTS.

The specimens are not in all cases complete enough for absolute specific identification, which is almost impossible in the absence of ripe or nearly ripe fruit; but, together with their names and notes, collated with other sources of information, they are sufficient to show that they belong to two species, to which most of the various names given to Chinese Brassicaceae herbs are reducible. They are:—1. *Brassica campestris*, *Linnæus*, syn. *B. chinensis*, *Linnæus*; *Sinapis pkinensis*, *Loureiro*, and probably also *B. oleracea*, *Lour.*; 2. *Brassica juncea*, *Hooker fil.* and *Thomson*, syn. *Sinapis juncea*, *Linn.*; 3. *B. chinensis*, *Linn.*; and *S. brassicata*, *Linn.* There is a third cultivated species, *B. cernua*, *Thunberg*, but Mr. Bourne sends nothing that is referable to this. *Brassica violacea*, *Linn.*, recorded from China, is an obscure

plant, of which no authentic specimen exists. Dr. F. P. Smith (*Contributions towards the Materia Medica and Natural History of China*, p. 197) states that both the white and black Mustards (*Brassica* and *B. nigra*) are cultivated in China, and that the latter is indigenous, but his botany is often faulty. There are no Chinese specimens of either in the Kew Herbarium, and Bretschneider in his various works nowhere, that I can find, mentions Mustard. In fact, the Chinese names cited by Smith for the white and black Mustard respectively are given by Bretschneider (*Early Researches*, p. 137) to *Sinapis chinensis* and *S. brassicata*, varieties of *Brassica juncea*.

1. *Kao ts'ai* (*Brassica juncea*?).—Seeds pressed for oil, of which immense quantities are used for light and cooking. Plant not eaten.

VARIOUS VEGETABLES.

6. *Tung hao ts'ai* (*Chrysanthemum segetum*).—Eaten when small.

7. *Tsi't'ai* (*Spinacea oleracea*).—Spinach cultivated.

8. *Wo shing ts'ai* (*Lactuca scariola* var. ?).—A kind of Lettuce.

9. *Tung han ts'ai* (*Malva verticillata*).—Eaten when small in soup.

10. *Yen ts'ai* (*Coriandrum sativum*, ?).—Eaten as salad when young; good for a cold.

11. *T'ien ts'ai* (*Beta vulgaris*).—Stalks and leaves eaten boiled.

12. *Ch'in ts'ai* (*Apium graveolens*).—Celery; stalks and leaves eaten fried.

13. *Ch'iao mxi* (*Fagopyrum esculentum*).—Buck-

remarkable strength and beauty. It seems to prefer rock. I have noticed in several cases that a loose shale or sandstone dipping at such an angle that the roots can push their way between the layers of strata, supports the finest trees. Such success excites the wonder, and often the worship of the villagers. When there is a bigger harvest than usual, the big tree gets the credit. There is one 13 miles to the south of Chungking, growing directly upon loose sandstone dipping at an angle of 85°, the branches of which have a radius of 16 yards. The largest branch has a circumference of 61 inches 4 feet from the trunk, whence it extends 18 yards at a height of only 8 feet above the ground. There are many larger trees. The peculiarity of this one is that the branches shoot out horizontally from the top of gigantic gnarled roots, so



FIG. 8.—TUBEROSE GROWING IN NATAL. (SEE P. 40.)

2. *Pai ts'ai* (*Brassica campestris*).—When young plant eaten as Cabbage; cultivated also for its seeds, from which oil is pressed and used as above.

3. *Hung yu ts'ai* (*Brassica campestris* var.).—Cultivated for its seeds, from which an inferior oil is pressed, and used as above.

4. *Yu ts'ai* (*Brassica campestris* var.).—Cultivated for its seeds, from which a fragrant oil is pressed better than above qualities.

5. *Ch'ing ts'ai* (*Brassica juncea* var. ?).—This is peculiar to the province where it is cultivated in immense quantities, dried in the sun, pickled, and eaten with Rice. The French bishop here tells me that it is a cross between Cabbage and Mustard seeds sent. The seeds are sown here in October, with a maximum temperature of 78° Fahr., and a minimum temperature of 64° in the twenty-four hours. The plant is pulled in March.

wheat; two crops a year, in spring and autumn; cheaper than Wheat.

14. *La ts'ai* (*Brassica juncea* ?).—Young leaves eaten; flavour of Rhubarb.

15. *Han ts'ai* (*Amaranthus gangeticus*).—Eaten as salad.

16. *Weng ts'ai* (*Ipomoea aquatica*).—Grows in moist ground; leaf and stalk eaten fried in oil.

17. *Tsching ming ts'ai* (*Anaphalis contorta*).—Eaten when tender (in April), boiled.

NOTABLE TREES.

Huang ku'o shu (*Ficus infectoria*).—This is the tree about which travellers in Szechuen speak so often and not without reason. It is generally called Banyan, but it is surely not the true Banyan. Natives say that it grows nowhere but in this province. It is a tree of thin growth, but, where it finds a suitable habitat, of

that there is scarcely any trunk. Another specimen close to Chungking is 76 feet high, and has a radius of about 20 yards. The wood is soft, and of little value. It is an evergreen.

Ch'ing kang (*Quercus dentata* ?).—Charcoal made from the wood of this tree is used for smelting ore. The mountain silk worm is fed on its leaves.

Kou shu (*Wickstroemia chamædaphne* ?).—The bark of this plant affords an excellent paper-making fibre. The leaves are made into incense.

San fiao chin (*Litsea* sp.).—This specimen was taken from an evergreen tree about 20 feet high, of rounded appearance, bearing, the people said, white flowers. This is the only specimen I have seen.

DYE PLANTS.

In a small parcel of Chinese plants from Corea, chiefly such as are used in dyeing, lately sent to Kew

Harry Veitch has collected the sum of £300, out of which there are annual subscriptions from about thirty gardeners. Our good friend, G. A. Dickson, Esq., Mayor of Chester, has come up specially to attend this festival, and has brought from his locality the sum of £100. Mr. Tait (Dickson, Brown & Tait), of Manchester, has sent up the sum of £25; Mr. C. Fisher, of Sheffield, has sent up the sum of £68; Mr. Williams, of Holloway, has brought the sum of £55; these amounts make up a grand total of £1430, and I have reason to think there is more to follow. Gentlemen, on behalf of the recipients of your bounty, I beg to thank you, and I am sure that none of you will sleep any the worse-to-night for the valuable aid you have rendered to the Institution. Now, what can I say as regards myself? Nothing but an often-told tale. Gentlemen, I thank you very much for the honour you have again conferred upon me, and I trust that in the few years I may have yet to live to retain the good opinion which I have good reason to know you entertain for me. Again, I beg respectfully to thank you.

H. J. ADAMS gave the "Horticultural and Botanical Societies of England."

Sir TREVOR LAWRENCE responded. He ventured to suggest that they should get the President of the Royal Horticultural Society to occupy the chair at one of the annual dinners, and if they could get the Duke of Westminster to take the chair, he thought it would be greatly to the advantage of the Institution. With regard to the Royal Horticultural Society, he admitted there was one thing it might have done and which it had not done. It might have interested itself a little more in the education of young gardeners. He should like to tell them that of the prizes which were given by the *Gardeners' Chronicle* for an essay on scientific points in connection with practical horticulture, the second prize was gained by a young man on the staff of the Horticultural Society at Chiswick. When he heard how large a measure of support was given to institutions and schools for the education of young gardeners abroad he thought to himself that we had a great deal to learn from foreign countries. We were a little disposed in this country to think that we were the centre of the universe, and that the whole of the foreign countries circulated around us as we do round the sun, but the longer we lived the less reason we found to consider this to be true. Certainly with regard to this matter of the education of young gardeners we were very far behind other countries. It was only lately that we had become keenly alive to the necessity of having a more practical system of technical education, and if technical education were necessary in anything certainly it was necessary in gardening.

Mr. SURLEY HUNTER proposed "The Nursery and Seed Trades—The Parents of the Institution." He said that that Institution was so deeply indebted to the seed trade and to the nursery trade that the toast was certainly appropriate on that occasion. It might be that they had thought of the capabilities of the seed trade to continue its generous support to the Institution during the depression of trade; for those trades connected with gardening had suffered perhaps as much as any. Seeing, however, how few had been the failures in those trades, and how generous they continued in their support of the Institution, it did seem that the state of the nursery and seed trades was fairly sound. One reason for it was, that members of those trades did not very much depress one another. They had learned that unity is strength. Customers were always increasing in number, and the earth continued to produce her fruits, therefore one might reasonably suppose that the seed and nursery trades would continue to prosper in the future.

The MAYOR OF CHESTER briefly acknowledged the compliment.

The CURATOR proposed "The Stewards and Committee of Management," which was responded to by Mr. Williams, and the proceedings terminated.

Orchid Notes and Gleanings.

BRASSAVOLA DIGBYANA.

THE earlier cultivators of this noble species grew it on a block suspended near the glass, where it proved of exceedingly slow growth. It may possess this character under any condition, but its bold and telling appearance should insure its introduction to every collection. A fine mass of it flowers annually in the garden of Sir George Macleay at Drained Court, where it is grown in a large well drained pot in a mixture of lumpy fibrous peat and sphagnum. Its fragrance, especially at night, pervades the whole house in which it is grown. The sepals and petals may be described as a pale green white, of great endurance, and fading with age; they measure at least 5 to 6 inches across the tips, but are altogether eclipsed by the great lacerated white labellum. The fineness and extraordinary length of the fringes constitutes the most conspicuous feature of the labellum, which also possesses near the base a curiously elevated process, doubtless concerned in, or lending material assistance in bringing about fertilisation. This process is well shown in the *Botanical Magazine*, t. 4474. The pseudobulbs and the oblong, solitary, rigid terminal leaf presents the appearance of a Cattleya or

Lælia, to the latter of which the *Genera Plantarum*, however, considers it should belong. The sepals and petals are nearly of the same width, while the labellum is abruptly dilated and hooded, depriving it of the tubular appearance of the labellum of a Lælia. A stronger character, however, is derived from the enormously elongated beak of the ovary. The beak and ovary measure at flowering time 7 inches in length; the former curves over the end of the large spathe, bringing the flower into a horizontal position. The peduncle and pedicel only measure about an inch, therefore, the distinct pseudobulbs and terminal flat leaf are the strongest characters that militate against its retention in the genus *Brassavola*. J. F.

ONCIDIUM TETRACOPIS, Rehb. f.

All the flowers I had seen from Messrs. W. Bull, Farmer Hall, and Lemon, had brown wings to the column. Mr. A. Wilson, Westbrook, Sheffield, sends me the same species with yellow wings, adorned with a few purple lines and streaks. A most welcome sketch of the whole plant gives evidence that the pseudobulbs stand close together, so that our plant may be easier of management than those species with straggling stems and distant pseudobulbs. H. G. Rehb. f.

HOYA IMPERIALIS.

OF all the cultivated species of *Hoya* the present is deservedly entitled to the high-sounding title it receives. The fragrant flowers are between 2 and 3 inches in diameter, of great substance and rigidity. They are produced on the young wood in extra-axillary umbels of nine to fourteen flowers each. Occasionally they are terminal or subterminal on the young wood, but more frequently on the space between two leaves, with the peduncle becoming separate from the branch at a point on a level with the petioles of two opposite leaves, or nearly so. The umbel is large, although the flowers composing it are few comparatively with that of many other species owing to the great size of the individual flowers. The staminal corona is large, prominent, and white, contrary to the general rule in most of the more generally cultivated species, where it forms the most conspicuous and attractive object of the flower. The corolla is described in the *Botanical Magazine*, t. 4397, as deep rose without, and pale rose within, fading to white, but this description neither agrees with the coloured plate nor with that of the living plant itself. Externally it may be described as a pale dusky yellow, and deep brownish-red internally, fading to a yellowish-white before it drops away. When seen in prime condition the corolla is of great substance, and shines with a waxy lustre. The oblanolate or oblong, leathery, opposite leaves are of great size. There is a plant in the unique and most interesting collection at Pendell Court, where it is trained under a rafters close to the glass in the tropical Water Lily-house, and has been flowering for a considerable time. J. F.

THE SYDNEY GARDENS, BATH.

FOR years past Bath has been famous for its gardens, and in the time of Beau Nash the chief of these were the Spring Gardens; others of scarcely less importance were the Villa Gardens, King James' Palace and the Bagatelle Gardens; and to these were subsequently added the Grosvenor Gardens. At that time Spring Gardens "were practically in the country, and though the approach to them was repelling, they afforded from their airiness a pleasant contrast to the stuffy, narrow streets of the city. With their grottoes, arbours, and statuary, greensward, and gay parterres, music, and games, they supplied the charm of variety, and ministered to the enjoyment of the patrons."

The pleasure gardens pastimes of those days are worthy notice. A writer in one of the Bath papers, treating on Bath in the eighteenth century, says:—"Imagine the beaux and belles of our crescents and squares rising with the lark, and after a visit to the baths or pump-room, going to a public garden to breakfast, and to dance or to witness some novel diversions." Yet this was for many years a keenly relished feature in the fashionable programme of the past century. It was even customary with persons of rank and fortune to invite their friends to "concert breakfasts" at the public places in question, and to participate in the stately minuet or cotillon. In those days fashionable society must have retired to rest much earlier than in these later

days if they rose with the lark. "Every Monday and Thursday a public breakfast took place to the sound of 'French horns and clarionets.' The tariff was, it seems, moderate, the tickets being 1s. 6d. each, while 'private breakfasts without music' were charged only 1s. Ladies and gentlemen likewise met there in the evening to drink tea. The charges, it will be seen, were sufficiently low to tempt even the frugal mind. A specially advertised were the 'Spring Garden cakes and rolls,' which were ready 'every morning from early after nine.' That our forefathers were thus prompt 'to brush with hasty steps the dew away' may cause surprise, but then Nash's rules culminated 'the early to bed' maxim. The balls began at 6 o'clock and closed at 11, even in the middle of a dance, if one was going forward. Nor would he suffer them, not even to please royalty, to continue a moment longer, believing it to be injurious to invalids, and therefore bad for the reputation of the waters."

How great a gulf separates the nineteenth from the seventeenth century is curiously illustrated by one of the municipal laws enacted in the latter. It is as follows:—"That no person, after he had been chosen Mayor of the said City (Bath) should wear any nobleman's or gentleman's livery without the leave and licence of the mayor and aldermen, under the penalty of £10 to be used of the poor of the said City for every offence." In those days it was apparently a custom for the chief magistrate to borrow a suit from some lucky who came in the retinue of the more distinguished visitors, in order to show proper deference to his master. Spring Gardens continued one of the haunts of fashion until the building of Laura Place and adjacent houses having encroached on the area, it was thought expedient to lay out fresh grounds on an improved scale, which led to the establishment of the Sydney Gardens, and the eventual closing of Spring Gardens.

The beautiful sylvan grounds known as Sydney Gardens are at the termination of Pulteney Street. They were at first called "Sydney Gardens, Vauxhall." They were designed by Mr. Hircourt Master, architect, and were opened on May 11, 1795. Though not large in size, they are laid out with great taste; they are studded with stately trees, which afford grateful shade during the summer heat. Formerly they included a hotel, which was described as "elegant and spacious, and conducted with great spirit and liberality; swings, bowling greens, and a Merlin swing in the labyrinth were included in its games; grottoes and alcoves, formed with much taste, also afforded cosy nooks. During the summer there were public nights with music, fireworks, and superb illuminations. Surrounding the gardens was a ride for the accommodation of ladies and gentlemen on horseback, the terms being 2s. 6d. for one month, 5s. for three months, and 15s. a year; non-subscribers, 6d. each time. This combination of advantages failed to make either the hotel or the gardens permanently successful; both have undergone sundry vicissitudes. The building is now a branch of the Bath College; the ride and the grottoes have disappeared, and private dwellings have encroached on the ground once open to the public. Nevertheless, the gardens, though curtailed and changed, are still beautiful, and devoted as they are now chiefly to music and flower shows, furnish enjoyment and recreation to all classes of citizens." The Great Western Railway passes through the grounds by means of a deep cutting, but the changes thereby effected, improved rather than otherwise their appearance, giving additional walks, bridges, and grassy slopes, while the passage of the trains is by no means of a disagreeable character. The Kennet and Avon Canal also traverses the gardens parallel with the railway. An elegant orchestra has been erected for the use of the City Band, a gymnasium is also provided for the young; and there are likewise facilities for croquet, archery and lawn tennis; so that the gardens are now adapted to meet modern requirements.

The Sydney Gardens now belong to a body of proprietors who lease them to the Floral Fête and Band Committee. This body maintains them for the purpose of holding their band performances and floral fête. The committee consists of some sixty of the leading tradesmen of the city, who canvass the whole of the town and district annually, for the sale of tickets. A first-class band is provided, the maintenance of which costs about £50 per week, and which performs from May until September, both in the Sydney Gardens and also in Victoria Park. A yearly subscription of 5s. admits one person through-

out the season to the band performances, and also entitles the subscriber to one ticket of the nominal value of half a crown, to admission at 2 o'clock to the spring *fête* in May, and to the autumnal show in September, and additional tickets to the three other shows at a cost of 1s. each—a show of bulbs and spring flowers in March, a Rose show in July, and a Chrysanthemum show in November.

How large a financial responsibility is undertaken by the committee is seen when it is stated that last year's undertakings involved an expenditure of £324 11s., and there was a loss of £50 on the year, owing to bad weather, which involved an encroachment upon a moderate reserve fund started a year or two since. But the committee is looked upon as one of the public institutions of Bath, and its work is on no account allowed to drop. The management of the no-gardens, &c., is accomplished by means of sub-committees, as one for the carrying out of the floral *fête*, one for the band, another for the gardens, &c. Altogether the Society appears to stand almost unique of its kind, for the large amount of entertainment and enjoyment it gives for so small an outlay. And in so far as the operations of the committee give an impetus to horticultural enterprise it is doing as much as any city or town in the kingdom. There is a strong floral committee, and during the last four years the Rose, Chrysanthemum, and bulb shows have been added, making, as already stated, five in one year. The present secretary to the committee, Mr. Benjamin Pearson, has occupied this position for a number of years past. *R. D.*

OLEARIA NITIDA.

THE above-named shrub (fig. 10) came to me from a garden of a friend living on the borders of the counties of Clare and Galway, who did not know its name, so when in the first year of its existence it bloomed profusely in the cutting bed, I sent a specimen to the Herbarium at Kew, where Mr. Baker kindly named it for me. It is perfectly hardy here, and is of a neat and compact habit of growth. *W. E. Gumbelton.* [The shrub, of which we owe the opportunity of illustrating to the kindness of Mr. Gumbelton, is described by Sir Joseph Hooker in the *Handbook of the New Zealand Flora*, p. 125 (1867) in the following terms:—"A small tree, resembling *O. furfuracea*, but the tomentum is more silvery and shining, and the leaves more ovate, less coriaceous, sinuate-toothed, and acute or acuminate. Heads in close, many-flowered, rounded corymbs, on silky pedicels $\frac{1}{2}$ – $\frac{3}{4}$ inch long, about as broad; involucre scales few, pilose or laxly villous; florets, 15–20, rays short. Pappus unequal. Achene silky. *Eurybia alpina*, Lindl. et Paxt. *Mag.* . . ." Mountains of northern island, abundant throughout the middle island.]

ROUND LIVERPOOL.

(Continued from p. 11.)

BIRCHFIELD, FALLOWFIELD, NEAR MANCHESTER, THE RESIDENCE OF A. HEINE, ESQ.—This place is about two miles from Manchester, from which tram cars run past the gates every ten or fifteen minutes during the day. Here a good collection of Orchids has been formed in very little time, and what is more, they are in beautiful condition. Vandas occupy one-half of a good-sized house; they include most of the leading varieties of *V. tricolor*, *V. suavis*, and others, beautiful plants, furnished down to the pots with stout healthy leaves, that show the treatment they receive to be right. Cattleyas are represented by quantities of the favourite kinds, such as *C. Mendellii*, *C. gigas*, *C. Dowiana*, *C. Trianae*, *C. Skinneri*, and *C. Mossiae*, in their varied forms. Many of the plants are large masses, that have been imported within the last two years, and are in beautiful condition; some of them are from 3 to 3½ feet in diameter. *Lælias* of the various favourite kinds thrive equally well, the bulbs and leaves in many cases as short and stout as when imported. *Dendrobiums*, such as *D. Wardianum*, *D. crassinode*, *D. devonianum*, *D. densiflorum*, *D. thysiflorum*, and the longer bulbous species, such as *D. ambriatum*, are as vigorous as they well could be.

The warmer section of the East Indian species, such as *Aerides*, *Saccolabiums*, and *Cypripediums*, show by their condition that the treatment they get suits them. The cool kinds, comprising *Odontoglossums*, *Masdevallias*, and others that require a like temperature thrive as well as could be desired. Plants of *O. crispum* that have been imported three

years have made progress such as usually requires more time to effect.

The remark is often made that it seldom happens that the different sections of Orchids that respectively require warm, intermediate and cool treatment are all done well at the same place, but Mr. Cragg, the gardener here, seems to be successful with all.

WOOD LAWN, DIDSbury, NEAR MANCHESTER, THE RESIDENCE OF J. BROOME, ESQ.

This place is about 3 miles from the Manchester Exchange, from which the trams run frequently. Plants of various sorts are well represented here; a nice collection of specimen hardwooded stove and greenhouse kinds, including *Azaleas* and *Heaths*, are well grown. Fine-leaved plants are likewise present in considerable numbers and in good condition. Pitcher plants are a leading feature, they include both *Sarracenias* and *Nepenthes*; of the latter—though too early in the season to see them at their best—there is a number of fine specimens, amongst which may be named *N. bicalcarata*, bearing sixteen of its singular pitchers; *N. Mastersiana*, two forms quite distinct in appearance, but both fine; *N. sanguinea*, still very rare, and one of the best; *N. Broomeana*, which may be described as something in shape between *N. Rafflesiana* and *N. Hookeriana*: the ground colour is pale green, the marking which covers much of the surface is nearly black. *Sarracenias* comprise all the leading kinds, of which may be mentioned *S. Drummondii*, several forms of *S. flava*, including *S. flava maxima*, [which is one of the finest;



FIG. 9.—CŒLOGYNE DAYANA.

S. Chelsoni × *S. Mitchelliana* × *S. Tolliana* × *S. Swanniana*, *S. ornata* × *S. illustrata*, and *S. Madisoniana* × *Mr. A. Cole*, Mr. Broome's gardener, is successful with these, as he appears to be with whatever class of plants he takes in hand.

There is an interesting collection of *Sonerillas*, comprising nine or ten kinds of these beautifully marked small-leaved plants. A small house is filled with filmy Ferns, which are in good condition and very interesting.

Amongst Orchids are several noteworthy specimens, *Vanda teres Andersoniana* in particular, a plant of which had over fifty spikes, carrying 240 of its singularly beautiful flowers coming on. This specimen alone is worth going some distance to see.

CŒLOGYNE DAYANA.

THIS seems to have become a great favourite as *C. Massangeana*, which it somewhat resembles in habit; its pseudo bulbs however are long and slender, and the leaves of a darker green. The flowers of *C. Dayana* are produced on long drooping scapes, each bearing from twenty to thirty blooms, the sepals and petals are light yellow shaded with a bronzy tint, lip yellow and white on the inner surface, the side lobes being evenly marked as with a grainer's comb. The plant should be grown in a basket and suspended in a Cattleya-house, in which position it shows to advantage its elegant inflorescence. *C. Dayana* was received from Borneo by Messrs. Jas. Veitch & Sons, of Chelsea, who flowered it about two years ago and forthwith distributed it. Our illustration (fig. 9) was taken from a flower off a grand spray which was produced on Baron Schröder's plant this year.

Notices of Books.

Handbuch der Pflanzenkrankheiten. (Manual of Plant Diseases.) Von Dr. Paul Sorauer. Berlin: Paul Parey, 1886.

In these days of depression in agriculture, and of close competition in all horticultural work, a good book on plant-diseases is an undoubted boon to all growers of plants, and one which no wise gardener or farmer can afford to reject. Dr. Sorauer's book is written in German, and therefore is inaccessible to many readers in this country; but its lessons are sure to reach indirectly all who are seriously interested in its subject. No worthy book is altogether sealed to the earnest student, since it influences all contemporary work of the like kind; and if I may say so in these pages few better services have been done to lovers of plants than the accounts of researches on plant diseases published in these columns and associated with the names of the Rev. Mr. Berkeley, Mr. Worthington Smith, Mr. Plowright, and others. These are happy for the most part original, but all more or less influenced by and full of criticism of such work as Sorauer's book contains. A notice of it here, therefore, is in its right place. This second edition, as it is called, is virtually a new book. The first edition, published in 1874, is a book of 406 pages, while the first volume, now published, of the present edition, dealing with non-parasitic diseases only, contains no fewer than 920 pages. This comparison gives a rough but striking idea, not only of the enlargement of the book but of the progress of the subject, of which it is a fair index—with the reservation, however, that the present edition is a better book for its time than the first one was. Since the publication of the first edition research has been very busy, and the life-histories of many disease organisms have been traced; and not only this, but Frank's admirable *Krankheiten* has appeared in the interval, and has largely contributed to the making of this book possible in its present form. Frank's book showed the extent of the field, and to cover it comprehensively Dr. Sorauer has undertaken a reconstruction of his former work, and has done it, it may be said at once, with great care and fulness. He has gone independently to the original sources of information, has brought the treatment of it up to date by incorporating the results of recent research, and has written the book in a style of his own. It appeals not only to the scientific man but to the intelligent plant-grower, for whose benefit the author frequently goes out of his way, as it were, to make clear such portions of his subjects as, usually treated, demand a knowledge of plant anatomy for their proper appreciation. As he happily says, "the practical farmer has no more need to be a plant-pathologist than he has to be a veterinary surgeon," but all the same he has need of such knowledge as shall enable him, in case of sudden need, to deal with outbreaks of disease, and to guide him towards its prevention. The author proposes shortly to issue an "Atlas of Plant Diseases," with the object of rendering familiar to a wide class the appearance of specific diseases. Such an atlas, were each plate of it accompanied by concise and clear directions as to the treatment of the disease, would be by far the best form of literature for the purposes of the plant-grower. Assuredly, too, in these times, when one hears of the "inherent degeneracy" of certain plants being responsible for epidemics, there is great need of a lucid explanation of those causes which favour the spread of diseases. More light is needed on the questions which arise as to the effects of the cultivation on crops. The fact that the growing together of vast numbers of plants of the same species encourages the spread of parasitic disease, is often explained by the statement, that the plants in question are in some way (more or less mysterious) weakened by a natural habit (if the plant be not gregarious in a wild state), and thus rendered more susceptible to disease. Whether there is anything in this speculation some one may in time try to find out (and there may be something in it), but surely the simple explanation, that when plants grow close together the spread of infection is a very easy matter, lies nearer at hand than the other. That this is the case among wild plants growing together is a familiar fact. Almost every one has observed, for example, that when white rust (*Cystopus candidus*) once attacks a patch of Shepherd's Purse, very few plants of that patch escape. Of far

greater interest, however, is the inquiry into the nature of the disease-resisting powers of races, and the alleged gradual loss of such power. Such questions are touched upon by Dr. Sorauer in his interesting preface, and perhaps he does not touch upon them very cautiously in all cases. The whole question of predisposition to disease requires very careful handling, and enquiry can hardly take a more fruitful direction than the precise causes of predisposition. At all events, it is important for the grower to know that a susceptible state need not be in itself an unhealthy state—that it probably—nearly always—is but a normal phase in the development of the plant.

The present volume is devoted to the non-parasitic diseases, and after a short introduction the author

dealt with at great length—wounds of the axis, wounds of foliage, of fruits, and of seeds, and the reparative processes in plant tissues. Chapter V. is a short one on the various knot formations, which are, however, very fully treated of. The subject of Chapter VI. is galls, and it is discussed in great detail; the galls formed by Coleoptera, Lepidoptera, Hymenoptera, Diptera, Orthoptera, Hemiptera, Acarina, worms and Rotatoria being each dealt with in succession. The abnormal production of gum, resin, and the like, is the subject of Chapter VII., and the last (Chapter VIII.) is devoted to weeds. There are three indexes to the book, one of gall-bearing plants, one of the other plants, and one of subjects, which is a pity, since a good general index is much to be preferred.

Gardens of Light and Shade. By G. S. C. Elliot Stock.

In such a matter as ornamental gardening there is room for the greatest diversities of taste, but there should be no prejudice. Our author is apparently no botanist, and has little love or care for plants as such. So much the worse for him; he misses the main charm and interest of a garden—its life. Still, for all that, he and those like him may and do extract a vast deal of pleasure from a garden, looked at from their point of view only; and in considering his book, we have, of course, to look at it from his point of view. He is a thorough admirer of the picturesque style of gardening, and he upholds Nature as the model for the gardener to follow. No one will gainsay such a truism, no one questions the validity of the oracle, it is the interpretation of it that leads to diversity of opinion. Nature teaches us that the highest, the most satisfying sort of beauty is that styled the beauty of appropriateness, or fitness for purpose, suitability to circumstances, and harmony with surroundings. When these are secured there is for those who can read it a consistent history—a lesson in adaptation. The natural style of gardening is unquestionably in the abstract the most beautiful and the most agreeable, but in practice it must be modified more or less according to the size of the garden, its situation, the nature of its surroundings, and the purpose for which it is required. A garden is by its very nature to some extent artificial; if it were not so it would not be a garden. To conceal the art that made it what it is often demands the exercise of the finest taste, but there are cases where any attempts to conceal the formality and art employed must necessarily be futile and ridiculous. The chapter that pleases us least in the present book is that headed "Spare the trees." Here the author rebukes the "average gardener" for his alleged propensity to mutilate, and if possible destroy trees. Well we know that some men calling themselves gardeners have little sympathy with trees and make away with them when they can. Sometimes they have good reason for so doing; they want something, or are told by their employers to do something incompatible with the presence of trees. But let us suppose that there is no such necessity—that it is a mere question of personal taste and inclination, then let us ask, Which is the man that "spares the trees"?—he who, by timely thinning, pruning, and judicious management, gets the utmost possible beauty out of the tree or shrub for the greatest length of time, or he who lets the internecine war between tree and tree, and bush and bush, go on till not a well-formed—that is, a naturally formed—tree or shrub is left on the place, but only a collection of distorted cripples cruelly deformed for want of proper attention, and marked with the scars of ceaseless struggles which might have been obviated, and from which it is the gardener's business to protect his subjects. In the forest or on the mountain side such sights are often grandly picturesque, suggestive, and interesting to the highest degree; but in a suburban villa garden, such as our author contemplates, such things are incongruous and ridiculous where they are not painful. In the suburbs of our large towns we are shocked and horrified daily at the cruel treatment of shrubs and trees, and the waste of good material from sheer ignorance. We may well cry "Spare the trees," but in a different sense from our author. When we see as we do choice shrubs and trees each with a beauty of its own crowding one another out of existence, not a chance being given to any one of them to develop its beauty properly—when we see Californian monsters and Himalayan giants sweeping the bed-room windows with their branches, and knocking against the chimney-pots, truly we may say, "Spare the trees," and lament that all this barbarous want of attention, all this cruel ill-treatment, this careless ignorance, this incongruity, has not been spared us by the timely forethought and intervention of the gardener. Conservatism such as our author advocates in this matter really and truly leads to the most deplorable anarchy, and ultimately to the destruction of the very elements of beauty, picturesque, and comfort he is so anxious to preserve. No, it is not the gardener (there are gardeners and gardeners) who is the Goth and Vandal; the scandal and enormity lie at the doors of those who allow ignorance, unreasoning sentiment, and temporary gratification to stand in the way of intelligence, foresight, and progressive improvement.

With the author's suggestions as to the arrangement of small plots—"Jack-towel Gardens"—we have more



FIG. 10.—OLEARIA NITIDA; HARDY SHRUB; FLOWERS WHITE. (SEE P. 44.)

deals with his subjects in the following order. The first chapter contains a very exhaustive treatment of the influence of the soil on vegetation. First he discusses the position, "the lie of the land," then he takes the unfavourable physical conditions of the soil, and lastly the like chemical conditions, subdividing the last portion into sections, dealing with the power of absorption of the soil, with the causes which lead to starvation, and to excess of water and food. In Chapter II. hurtful atmospheric influences are considered; first of these frost, with the manifold injuries caused by it, then excess of heat, next want of light and excess of it, with sections on the effects of storm, lightning, hail, snow, and ice incrustations. Chapter III. contains a very full and exceedingly good account of the injuries caused by noxious gases and fluids—chief of these sulphurous acid, produced in the combustion of coal. In Chapter IV. wounds are

German authors are much too fond of classified indexes.

Such are the subjects dealt with in the book, and on each of them it is an ample storehouse of information. They are all treated of with adequate detail, but the grasp of the matter is not the same throughout. Nevertheless the book is not only trustworthy, but it is an indispensable guide to plant diseases for all students of the subject. Dr. Sorauer deserves the thanks of botanists for having brought us much nearer a true plant pathology than we have yet been. To the great body of information he has gathered together here, research must add still more before the subject can be satisfactorily laid down on truly scientific lines. Much has been done already, and among those who have worked in the right direction Dr. Sorauer's name bears an honoured place. G. M.

sympathy. His plans are not too much cut up, secure variety and interest, and as much breadth and repose as the restricted dimensions will allow. Plan E, at p. 69, with its path intersecting the whole length of the lawn, does not commend itself on paper, but paper plans on so small a scale often give a very faulty impression of the real appearance of the garden. The lists of plants suggested seem appropriate. Personally we doubt the policy of introducing fruit trees into such small gardens as the author contemplates, either from the point of view of beauty or economy; but if the fancy of the owner must be gratified in this direction he might be counselled to select cordian Apples on the Paradise, or pyramidal Pears on the Quince. A standard fruit tree in a flower garden is as ugly a thing as—well, a standard Rose.

The Carnation and Picotee: its (sic) History, Properties, and Management, &c. A reprint of the essays and papers thereon by Mr. E. S. Dodwell. Groombridge & Sons.

May I be allowed to add a word of acknowledgment and welcome on the appearance of Mr. Dodwell's book on the culture of the Carnation and Picotee, wherein the knowledge and practice of many years, hitherto given at intervals, and in wider bounds, is now gathered into one permanent and more accessible form.

Speaking figuratively, from the flower it represents and treats upon, it has, like the bizarre Carnation of triple colour gifts, the white ground colour of a helpful pure intent, the bold markings of a full experience, and for the third feature of richness the history of the Carnation as a botanist's and a florist's flower.

No one need, and I think no one will, unless out of extreme innocence of the existence of Mr. Dodwell's book, attempt to go over the floral ground it covers. The history of the Carnation and Picotee could literally only be repeated, and its culture could not be more plainly and practically set forth, while the important principles of improvement by seed are explained by one who has had a rare experience and a large success.

What constitutes excellence is well known among florists, and is here faithfully laid down. What shall be the super excellence of the future, of this alone we present labourers may not write. That will ever remain an unfinished tale of any florist flower—a story without an end, so long as there shall be florists who, in their day, will lead their flowers on, and make record of advances gained.

In Mr. Dodwell's book I note one modest omission, though from his words on "Pleasures of a garden," one might almost infer it without aid—that one point is the constant beauty of order, and spotless cleanliness, whether from weed, or pest, or decaying matter, in which his flowers always have been nurtured. It was always a pleasure to see the condition and surroundings of Mr. Dodwell's Carnations and Picotees—nothing about them to detract or distract. I know that some of us, so long as the jewel was there, have not always cared about the setting, but, nevertheless, untidiness was not fair to the jewel. On one thing we have much to thank Mr. Dodwell for, and that is the bestowal of his very intimate knowledge of, so to say, the personal and family history of so many varieties of the Carnation and Picotee. It is the result of careful notes and close observation, and many other acts of patience and deep interest, and but for him such history would have been lost.

The Carnation is both a favourite garden flower and of high standing as one of the sterling old flowers of the florist. But not alone to the florist, I feel sure, will this book be of great practical use: much of the same treatment and attention, if paid to the usual garden varieties, will amply justify its adoption. What is needful to the florist flower will be a complete luxury to the border Carnation, though to neither is it a system of riotous living and unnatural coddling. Valuable to all who would grow Carnations of any kind is the knowing how to secure seed, from the early hour of catching the fugitive pollen on the anthers, to the time for harvesting the rather shelly and shabby-looking pod; generally necessary, also, is knowledge of the causes, symptoms, and remedy of disease. Welcome to all is the right teaching on packing the plants, or their flowers. On all such matters import Mr. Dodwell's book will be of more than limited use.

Yet I hope, too, that it will be a means of spread-

ing the knowledge and cultivation of a beautiful and fragrant flower in its more varied and more highly-gifted forms. Let it stand, to "strangers yet," on these intrinsic merits, though we could all speak of what more to a florist his florist flowers are. I would only remark that the Carnation and Picotee are not necessarily pot plants, neither are they a whit less frost-proof than the border kinds. Some are of a habit more slow of increase, and of slenderer growth; but most will be found robust enough for the open garden. There they will, as two-year old plants especially, be abundant bloomers, and as showy as any tougher things; but the more they flower the smaller the size, as indeed also with the tougher things. The severer the exposure, the less lasting their beauty; but so it will be, too, with coarser kinds. In the matter of propagation the method of always having a succession of plants from layers is the best. No winter will destroy a healthy rooted layer, but in two-year-old plants, or older, winters like the last will be found fatal in destroying the pith of an old main stem, and so the entire plant.

I hope that, even as a garden flower, the florist Carnation and Picotee will become more known, and that Mr. Dodwell's words of guidance may fulfil the practical horticultural object for which he has written the length and breadth of his long experience as a grower, judge, and raiser of the Carnation and Picotee. F. D. Horner.

THE NOMENCLATURE OF PARADISIA.

Now that botanists have carried it thus far and saddled it with such a pleasant name it is hoped they will rest on their arms and leave it alone. I have traced it through nine Latin or Greek generic names, and three or four English names, such as Liliaster, St. Bruno's Lily, and Savoy Spiderwort. None of the generic names are very recent, which shows that the older botanists were quite as mischievous in their nomenclature as those of the present day, and might well have been asked "where they were going."

Paradisia is so named because considered a suitable inhabitant of Paradise. Bertolini in his *Flora Italiana*, iv., 132, authorises this name, but many other European botanists have each named it according to his own liking. Linnaeus is quoted as the authority for both *Hemerocallis* and *Anthericum*, although it is most probable he authorised *Hemerocallis* liliastrium only. The plant is described in Loudon's *Encyclopedia of Plants* under both the above names in the first edition of the book, and almost in the same words, referring in each case to the *Botanical Magazine*, t. 318, where it is figured as *Anthericum*. It is described and figured in the *Illustrated Dictionary of Gardening* as *Anthericum*, but is referred to *Paradisia* later on. In the *Journal of the Linnean Society*, xv., 286, Cracchia is the adopted name, and is perhaps next to *Anthericum* that most commonly employed in gardens. Other names, such as *Phalangium*, *Liliastrium*, *Atroborgia*, and *Hyperogyne*, have probably never been employed in British gardens, nor much quoted in gardening books. Amidst all this tangled synonymy it is significant to note that the specific name, *Liliastrium* seems to have been retained in every case except where the latter has been used by Link in his *Handbook*, i., 173, as the generic name, when *Liliastrium*, album was used. If it could be demonstrated that the latter was the oldest name it would be a very suitable and desirable one to adopt; but the mischief attached to the alteration of long-standing or well known garden names is incalculable, and cannot be appreciated by gardeners generally who hate synonyms, nor can understand why botanists alter them, even if only to rectify a popular but erroneous garden name. There is but one species of *Paradisia*, namely, *Liliastrium*, a native of the Pyrenees and the Alps of middle Europe generally, from whence it was introduced to this country in 1629, and may probably have retained a position there ever since, seeing that it is harder than some people are willing to imagine. It likes a tolerably moist, rich, open soil, but is not fastidious in that respect, and maintains itself in the open border without the slightest artificial protection even in the northern parts of this island, attaining an average height of 18 inches, flowering in spring or early summer and then going to rest. Speaking broadly, it would bear the same relation to *Hemerocallis* that *Scilla nutans* does to

Hyacinthus. The perianth is six-parted, with hypogynous stamens, while *Hemerocallis* has the perianth united at the base, and the stamens seated upon it. *Scilla nutans* has the perianth segments slightly united at the base, the stamens, however, seated upon it, and *Hyacinthus* has a tubular flower. *Paradisia liliastrium* is figured in *Flore des Serres*, 2182, where a great number of synonyms are given. J. F.

The Flower Garden.

PRUNING AND INCREASING RHODODENDRONS.

THIS is a good time to trim in Rhododendrons, as if cut in now they will throw up an abundance of young shoots in a few weeks' time, but the growths made will not bloom the following year. Should it be desired to increase the stock of any particular variety of these or hardy Azaleas, the present is a good time to layer them. Prepare some good sandy peat and surround the plant with a mound about 6 inches in depth. Get some strong hooked pegs and secure the branches on which it is desired to operate, making them fast to the ground. With a sharp knife proceed to tongue the shoot, cutting it from below in a slanting direction upwards. Be careful not to cut too deep, as the wood is brittle. Mound some of the sandy peat over the shoot at the place operated upon and a flat stone can be laid atop of all to prevent evaporation, and secure it from being disturbed by birds scratching. The soil must never be allowed to become dry, else the rooting process will not proceed rapidly. They will also root freely without tonguing, but not so quickly. Most American plants are now growing freely, and they will derive great benefit from liberal doses of water; applications of weak cow-dung water will be of great benefit.

DAHLIAS, HOLLYHOCKS.

Continue to tie up Dahlias and Hollyhocks as they advance in growth. Use rather broad strands of tying material, so as not to cut the stems. If it be intended to show either of these, it will be necessary to reduce the number of spikes on Hollyhocks to one; and the quantity of blooms on Dahlias will require to be reduced in number. Frequent waterings with manure-water should be given, and a good mulch should be spread over the beds. If this is likely to prove objectionable, 2 or 3 inches of soil can be scraped from the bed, the mulching material then laid on, and the soil returned to the top. The dry soil will prevent the escape of ammonia, and will also neutralise the smell of the manure.

ROSES.

Roses will require liberal supplies of manure-water. If this be neglected mildew will result, followed by the total loss of flowers. Should mildew appear at once take measures to stop its ravages. Syringe the trees, and while they are wet dust them over with flowers of sulphur. I have tried double-ripened petroleum with good results. Heat rain-water to a temperature of 85°, and put into 6 gallons of it a small 60-floater of petroleum. Stir it up twice in the vessel with the syringe before each draw out. Be careful not to draw from the very top, and do not use any after it gets within 3 inches of the bottom of the vessel. There is nothing which I have tried as yet so deadly with red spider as petroleum. Stop all gross shoots on Roses, to equalise the flow of sap. The shoots thus stopped will throw two or three moderate shoots, and will flower well in autumn. Budding must be no longer delayed, and Carnations should be layered forthwith. Wm. Baillie, Luton, Herts.

PLANTS AND THEIR CULTURE.

FERNERY.

IN this department more air must now be given to mature the fronds, and a plentiful supply of water should be given to the roots, whether in pots or planted out. The stems of Tree Ferns of all sizes must be kept well moistened, thereby encouraging them to increase in bulk, as well as causing a more robust growth in the whole plant. Shading of moderate thickness should be used, and that only when the sun is shining fully on the house; blinds that are fixtures should be avoided if possible. Pot

up such seedlings as may be required. Now is a good time to start a batch of *Adiantum cuneatum* and *A. gracilimum*, which have been at rest for a short time. Any of the small and delicate varieties, such as *Chellanthus*, *Oncidium japonicum*, *Llavea cordifolia*, &c., which may not be doing well, should be reported, using good fibrous peat, similar to that employed for *Orchids*, with plenty of broken sandstone and charcoal intermixed; elevate the plants slightly above the rim of the pots, and do not over-pot them. Encourage root-action as much as possible; if a good quantity of roots is not made during the summer or early autumn, it is very difficult to keep the plants in a healthy state through the winter. Trailing varieties, such as *Lygodium scandens*, should be tied to trellises or sticks.

The Filmy Ferns should have careful attention, never allowing them to suffer from dryness at the root, or in the air of the house, for if this point be overlooked the ends of the fronds will become brown and unsightly. Keep the blinds down over this house so long as the sun shines out. Pot up singly any seedlings of last year; they will make nice little plants by next season; regulate the creeping rhizomes on pans and rockwork, so as to get the space covered where desired.

AZALEA-HOUSE.

Specimen plants of these when in active growth must be supplied regularly with some fertiliser, such as Standen's or Clay's manure, giving also liberal supplies of water at the root, except to those which have been recently potted, and have not yet got hold of the new soil. Syringe regularly twice a day to keep up a moist atmosphere, as well to keep trips in check as to promote healthy foliage. If trips be present it is better not to resort to smoking until the growths get more matured, and no more shade should be given than is necessary, shutting up the house about 2.30, except on days when the sun is very hot, when it may be closed about 4 o'clock. Plants that have made their growth should be removed to an airy house or pit; at no time would I advise the placing of Azaleas out-of-doors without some protection against storms. All plants that were grafted some time ago, and have made a nice growth, should have a few ties put to them, as it is frequently the case in moving or rearranging the plants that some of them get their scions broken off, and most commonly where they can be ill-spared.

THE CONSERVATORY.

This structure will now be gay with plants, both flowering and foliage, and these intermixed with Balsams, Celosias, Tuberoses, Pelargoniums, Gloxinias, Fuchsias, &c., the benches, &c., edged with Ferns, Pansies, Tropæolum, Tradescantia, or some other graceful plant. See that the plants are not crowded together. Regulate the trailers on the roofs, trellises, and pillars; do not tie them in too closely or their elegance will be lost. All such plants as are planted out in narrow borders, will require frequent waterings, otherwise their blooming season will be much shortened. For a few days keep the ventilators a little closer, near plants which have just been brought in from warmer houses.

GREENHOUSE PLANTS.

Successional batches of tuberous Begonias, Coleus, Balsams, Fuchsias, and similar useful plants should now be coming forward to take the place of those that are getting past their best. Pelargoniums when over should be placed out-of-doors, in a sunny position, to ripen their wood prior to cutting down. *Hydrangeas*, when the flowering is over, should be placed with the Pelargoniums, but giving them a large supply of water at the roots. Cuttings of these should be put in without delay, singly, in pots, in bottom-heat. If kept to single stems they make fine blooming heads early for another season.

All soft-wooded *Ericas* will now be making free growth, and will require liberal supplies of water, and during the bright hot days we are experiencing will be benefited by being dewed over with the syringe. If mildew should show itself, a dusting of sulphur must be applied. In this department, if at all crowded, many plants of hardier constitution may be placed out-of-doors, such as *Camellias*, *Grevilleas*, *Acacias*, *Agapanthes*, *Lomatias*, &c., if they have completed their growth, placing them in shady positions at first, and ultimately bringing them in a more sunny place later in the season; this must be observed, otherwise the foliage will get discoloured and burned, and oftentimes causing a great gap in the plant supply where it can be ill-spared. *A. Evans*, *Lythe Hill, Haslemere*.

FRUITS UNDER GLASS.

PREPARING STRAWBERRY PLANTS FOR FORCING.

THE first step to be taken in this direction is to obtain the necessary number of 6 and 7-inch pots—only a small percentage of the latter size for late varieties—and well crock them, by placing a large piece of crock in the bottom of each pot, then 2 inches thick of two or three smaller sizes (the smallest pieces being placed on the top), over which sprinkle a handful of fresh soot, to prevent the ingress of worms, and over that a few rough pieces of loam or leaves. This done, fill the pots to within an inch of the top with a compost consisting of three parts good loam and one of horse droppings, rubbed through a quarter-inch sieve, ramming it in firmly as the work proceeds. The pots should then be taken to the Strawberry quarters and placed so as to reduce to a minimum the chances of the runners being displaced in the process of watering the plants and gathering the fruit. The runners should be layered in the centre of the pots as soon as they are large enough to handle, and secured there by means of small pegs (one to each plant), a sufficient number of which should be made beforehand out of old brooms on wet days. The best runners should, as a matter of course, be selected, and the superfluous ones cut away as the work of layering proceeds. The plants thus layered should be watered overhead every afternoon during bright sunny weather; this, in addition to keeping the surface of the soil moist, which is all that is required until the roots have pushed into it, will keep the young plants clean and fresh.

As soon as they have become sufficiently established to admit of their being severed from the parent plants they should be removed to a favourable situation, where they will be well exposed to the sun, and be placed, not too closely together, on sifted coal-ashes, or on the brick walls enclosing Vine borders. From this time until the plants have completed their growth they should have liberal supplies of diluted liquid manure at the roots, together with an occasional surface-dressing of Beeson's manure, so as to develop large consolidated crowns; and with this object in view, all runners and any small crowns that may proceed from the original and principal ones should be removed as soon as they appear. As the runners, one in each, are being layered the points immediately beyond the miniature plant should be pinched out.

THE BEST VARIETIES FOR FORCING.

These are *Vicomtesse Hericart de Thury*, *La Grosse Sucrée*, *Keen's Seedling*, *President*, and *Sir Joseph Paxton*; and the entire number of plants grown should consist of as many of the two last-named varieties as the three first-named ones together. These varieties make a good succession by putting them into the forcing-house in the order in which their names appear.

PEACHES.

In order to assist the trees in late houses to swell fine fruits they should be kept well supplied with liquid manure at the roots, every eight or ten days, until the fruits commence colouring, when supplies of clear water will be sufficient. Failing supplies of liquid manure being at hand an occasional surface dressing of Beeson's manure before giving clean water at the roots will answer the same purpose. The shoots should be kept tied up to the trellis and all lateral growths be pinched clean out, and in tying the young and best placed shoots in their proper position to the trellis those of last year's growth, which have no fruit on them, and which in the ordinary way would be cut out at the winter pruning, may, with advantage to the tree, be removed forthwith, using a sharp knife. Anything approaching crowding of the shoots should be avoided, otherwise the very object which most gardeners have in view—the production of good well-ripened wood—will be defeated.

Houses in which the fruits are ripening should have a sufficient thickness of soft dry grass laid on the bed beneath the trees to prevent any of the fruits which may fall from being bruised. This is better than looping a piece of garden netting underneath the trees, unless it be secured pretty close to the

latter, and be made of some soft material, otherwise the ripe fruit would sustain injury in the fall by coming in contact with the net. I need hardly say that these houses should have abundance of fresh air admitted to them day and night, and the trees, regardless of the fact of the fruit being ripe, should not be allowed to suffer for want of water at the roots—a condition which would cause them to drop their fruit sooner than they otherwise would do, and their leaves to become infested with red-spider. Bearing this in mind the soil (if indoors) should be thoroughly watered before putting the material indicated above on it, and again, as soon as the fruit has been gathered, and once or twice during the interval, should the weather be hot at the time, the trees should be well syringed overhead morning and afternoon after the crop has been taken.

FIGS.

Trees swelling their fruit should, in order that the latter may attain to large dimensions, have occasional waterings of liquid manure at the roots, and the points of strong growing shoots should be pinched out prior to tying them in to the trellis, and all superfluous growths be removed forthwith. Syringe the trees and house generally, in the morning and afternoon at shutting up time—about half-past four o'clock—when the temperature may be run up to 90°. *H. W. Ward, Longford Castle*.

HARDY FRUIT GARDEN.

WHERE bush fruits are grown extensively, and the greater part of it has to be gathered for preserving, a busy time is now at hand, and considerable management will be necessary, especially during changeable weather, in order to harvest the crop in a satisfactory condition. When the weather is favourable it is by far the best plan to employ as many hands as possible, so that when the fruit is ripe it may be gathered as quickly as possible. Should this excessively dry weather continue, undoubtedly more hands than are available will be required for watering. At least the roots from which the dessert Strawberries are to be gathered for some time to come should receive timely attention in this respect, or the bearing season will be quickly over. The nets should be entirely removed two or three times during the period the plants are fruiting, and all weeds and useless runners removed, as much for the preservation of the nets as for the benefit of the plants. The breastwood should now be spurred back on wall Plums and Apricots, and afterwards the trees should receive a good syringing or hosing overhead, and a good soaking of water at the root. Young trees growing rapidly should receive attention as to pinching and training as opportunities occur, and the growths be kept clean by frequent syringings. *G. H. Richards, Somerley, Ringwood*.

BUPHANE TOXICARIA.—This plant is generally recorded under the name of *Brunsvigia*, and sometimes under that of *Hæmanthus*, some of the species of which it certainly resembles strongly, such as *H. catharticus* and *H. Kalbreyeri*, in the many-flowered umbels of starry flowers. The latter, however, throws up its flowers at the same time, while *B. toxicaria* is perfectly leafless, or merely showing the tips of the young leaves. The scape is exceedingly short, with a dense umbel of pedicellate starry red flowers. They are, however, generally recorded as pink, but are certainly much darker in the specimen flowering in the Cape-house at Kew. As in *Hæmanthus*, the stamens are a conspicuous feature of the flower, and the filaments in the present instance are red, with white anthers, until they burst, exposing the pale yellow pollen. The pedicels elongate after flowering, the lower fall down until the fruiting umbel presents a globose outline. Flowering is of rare occurrence with this *Amaryllid* in this country, and a quantity of curiously characteristic distichous leaves is usually all the growth made in a season when the plant goes to rest, and remains in that condition for great part of the year. It is grown as an economic plant, because the expressed juice is used at the Cape as an ingredient in the poison used to tip arrows. It is called by the Dutch, *Bolletje's Gift*, or *Poison-bulb*. There is a figure of the species in the *Botanical Register*, 7567.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	July 13	Royal Horticultural Society's Meeting of the Fruit and Floral Committees, at 4 A.M.; Scientific Committee, at 4 P.M.
		Show of Flowers and Fruit.
WEDNESDAY,	July 14	East Gloucestershire Rose Society's Show, Norwich Rose Show (two days).
		Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms.
THURSDAY,	July 15	Bedford and Bedfordshire Horticultural Society's Show.
		Hull, East Riding, and North Lincolnshire Horticultural Society's Show (three days).
FRIDAY,	July 16	Winchester Show.
		Northingham Horticultural Society's Show.
SATURDAY,	July 17	Chwick & Co. Horticultural Society's Summer Show.
		Sale of a Collection of Orchids in Flower and Bud, at Stevens' Room.
		Sale of Imported Orchids, at Protheroe & Morris' Rooms.
		Royal Botanic Society of Manchester: Rose Show.

IN spite of the attractions offered by the Rose Show a gloom hung over South Kensington on Tuesday last. The Roses, poor things! did their best in the sweltering heat. If they did lose their character, change colour, and open their eyes, that was not their fault; they preserved their beauty as well as could be expected, and the Rose maniacs, who are about as business-like a set of people as we know, also did their parts well. Our friends are so much of specialists that we almost fear to express any opinion, but we do not think we are far out when we say that the show was not up to the average, though as much so as the season the Roses have gone through, and that they are now enduring, would lead us to expect. Among hybrid perpetuals A. K. Williams was remarkable for its brilliant rose colour and the perfect symmetry of its flowers. Madame de Watteville is a new Tea of great promise, with large flowers of pale cream colour, flushed with pale violet-pink. Lady Mary Fitzwilliam, one of Mr. BENNETT's seedlings, was shown in fine condition, with large very full ivory flowers flushed with pale pink—very lovely. The prize for the best Rose in the exhibition, however, fell to a white Rose, Souvenir d'Elise Vardon. It was very large and beautiful, and we shall not contest the judgment; only we think the judges laid too much stress upon mere size, but rosarians, and hot-water apparatus-makers are gentlemen Editors have a wholesome fear of, and so we shall be careful in expressing an opinion, though we cannot help thinking that in class 22 the basket of Tea Roses marked No. 2 was better than that to which the judges awarded the first prize; but, good rosarians, this is really only a matter of opinion!

But as we have said, not even the Roses could dissipate the gloom from the faces of the horticulturists. What could be the matter? It was not the heat. Growers of stove and greenhouse plants can stand that. It was the news that the great Provincial Show at Liverpool, from which so much was hoped, had proved a financial failure. We need not point out in the present state of the affairs of the Society how serious a matter this is, nor how great are the disappointment and surprise. When a great catastrophe has happened the British public looks out for somebody to hang. On this occasion they will have a difficulty in finding anybody to fit the noose. The clerk of the weather was most amiable; such a sunny sky, not only for one day, but for the whole duration of the show, has rarely, if ever, been experienced. The show, if not quite the most varied, or quite the best, since 1866, was, at least, quite up to the average; the exhibitors did their duty in the main; the Council, instead of keeping aloof, took an active share in the work, and mustered in force on the ground; the managers, Mr. BARRON and Mr. RICHARDSON, with Mr. KER and the staff, did all that men could do, and a good deal more than most would have done. The Liverpool horticulturists did their part well, and yet we have sorrowfully to chronicle a dismal failure, and this in a city

swarming with people as densely as London itself—that is, if area be considered. On the five-shilling day, it was said, Wait till the shillings come; on the half-a-crown days, still the hope was held out—the shillings will make amends; but the shilling days came, and the sixpenny days came, and they were, if possible, more thinly attended than the others. What could be the reason? The Press gave good reports, the show was fairly, if not extensively, advertised; the Mayor did his best, and yet! The only causes of failure that we can think of were the elections and the close proximity of the vast and varied "Shipperies" Exhibition. This absorbed all the shillings and sixpences, and left the Horticultural Society, we fear, with resources not more than sufficient to pay the attendants, and utterly inadequate to defray the other items of the cost. Had some arrangement been made earlier in the week, so that one reduced payment should have admitted to both exhibitions, the result might have been different. The result might have been different also if the elections had not been going on at the time, but Liverpool is so vast and is the centre of so vast an outlying population that the elections could have had but little effect. So far as horticulture is concerned the loss is immaterial. The show was a good one, and if the Society could not command success it at least amply deserved it. Instead of finding fault, as some are disposed to do—they always do on such occasions—we think the horticulturists are under a debt of gratitude to the Society for having made a right gallant attempt in the proper direction, and their failure is a matter not only for sincere regret, but for such support and assistance as the horticulturists may be able to give. The matter was gone into with spirit for the benefit of horticulture and horticulturists, and they should be the last to find fault. We shall probably not hear any more of provincial shows for some time to come.

As a set-off against the melancholy failure at Liverpool, it is pleasant to record a genuine success for the Gardeners' Royal Benevolent Institution. Mr. SHERWOOD, as head of one of the largest seed firms, was the right man in the right place, and we are glad to learn that the largest amount ever collected (£1430), not even excepting occasions when Royalty presided, was got together when one intimately connected with gardening and gardeners filled the chair. We hope the precedent now set will be followed in the future, and we hope that the gardeners will on another occasion send their shillings and sixpences, or as much more as they can afford, freely. We had occasion to speak of this in a former issue; it is satisfactory to know that ultimately a considerable number of small donations were received from gardeners.

— **PÆONIA BROTERI.**—We gladly avail ourselves of Mr. BARR's courtesy by publishing an illustration of this species taken for us from a living plant in his collection (fig. 11). The species is about 2 feet in height, with crimson, fragrant flowers, and is intermediate in general characters between *P. coralina* and *P. officinalis*. It was described by Mr. BAKER in our columns, July 5, 1884, p. 10, and is now, as we believe, figured for the first time. It is a native of Spain and Portugal.

— **THE "GARDENER'S BENEVOLENT."**—Mr. CUTLER must really excuse us if we refrain from quoting the full title of the Institution he continues to direct with such skill, and with such advantage to the community. We know he will, for he has not communicated to us an interesting fact with reference to the VEITCH family? In the spring of 1843 he was, he tells us, introduced to the late Mr. JAMES VEITCH of Exeter, who became a subscriber at that time; his son, whom most of us remember at Chelsea, was a firm supporter of the Institution, and at the festival on last Friday, two more generations of the VEITCH family were represented in

the persons of Mr. HARRY VEITCH, the present head of the firm, and Messrs. J. H. and ARTHUR VEITCH, the great-grandsons of the original JAMES VEITCH. It is permitted to very few Secretaries to be personally acquainted with four generations of one family, and the fact says a good deal for the family as well as for the Society.

— **"GARDENERS' CHRONICLE" PRIZES.**—In reply to several enquiries we have to state that the first prize essay will be published as a whole or in part so soon as the woodcut reproductions of the drawings are completed. This necessitates a delay of some weeks.

— **MR. H. SCHMITZ.**—We learn that Mr. H. SCHMITZ, formerly Secretary of the Compagnie Continentale of Ghent, has established on his own account a horticultural agency and seed store on a large scale at 20, Rue de Brabant, Ghent.

— **THE LIVERPOOL SHOW.**—The prizes which Messrs. JAMES CARTER & Co. offered to be competed for at the above show on the 29th ult., for their Telephone, Telegraph, Stratagem, and Pride of the Market Peas, fifty pence of each, were not (in consequence of the judges having confounded them with those that were staged for the Royal Horticultural Society's prize for three dishes of Peas) awarded until the second day of the show, when the 1st prize was given to Mr. H. W. WARD, Longford Castle, the only exhibitor in this class, and who also, as previously reported, secured the Society's 1st prize for three dishes of Peas.

— **ROYAL GARDENS, KEW.**—A second edition of the *Official Guide to the Museums of Economic Botany* has been published, or rather to No. 1 Museum. The value of such a catalogue depends upon the compiler. The exhibits are there, as we all know, in profusion, and they are admirably arranged, and now the showman has done his part, and provided an excellent systematic catalogue.

— **ROYAL HORTICULTURAL SOCIETY: BOILER CONTEST AT LIVERPOOL.**—The competition in the three classes began about mid-day on Tuesday, Wednesday, and Thursday respectively, and each lasted till about 8 o'clock the next morning, being banked up about 8 P.M. the previous night. In the 1st class, for boilers capable of heating 2000 feet of 4-inch pipe, the entries being Messrs. F. & J. MEE, of Liverpool, with a 6-foot wrought-iron saddle boiler, having water-way bars and back; Messrs. FOSTER & PEARSON, with their "Chilwell Nurseries" boiler, 6 feet long, being an adaptation of the Rochford pipe boiler; and Messrs. WOOD & Co., of Bristol, with a tubular saddle boiler. Messrs. MEE came out best. In the 2d class, for boilers capable of heating 1000 feet of 4-inch pipe, the entries were Messrs. MEE, with the same boiler; Messrs. FOSTER & PEARSON, with their "Beeston" boiler, a wrought-iron sectional boiler, with tubes connecting the sections; Mr. F. WITHERSPOON, of Durham, with his "Red Rose" cast-iron tubular saddle boiler; and Mr. SAM. DEARD, of Harlow, with his coil boiler on waterway bars. Messrs. FOSTER & PEARSON retired from the contest during the day, and Mr. DEARD's boiler showed the best results. In the 3d class, for boilers capable of heating 500 feet of 4-inch pipe, the entries were—Mr. J. G. WAGSTAFF, with his combined wrought and cast-iron saddle boiler, with waterway bars; Mr. S. DEARD, with a small coil boiler (without waterway bars); Mr. WOOD, with a similar boiler to his 2000 feet one, but smaller; and Messrs. FOSTER & PEARSON, with their independent wrought-iron "Liverpool" boiler, which they withdrew from competition. Mr. DEARD's boiler again came out best. Messrs. MEE and Mr. DEARD were awarded Silver Medals, and Messrs. WITHERSPOON, WAGSTAFF, and WOOD a Bronze Medal each.

— **MISTLETO IN JULY.**—Well, we have very extraordinary weather this summer, that is certain. The newspapers are so busy that they have failed to record the extraordinary Gooseberry, though the state of Kensington Gardens has not escaped notice, and the big show at Liverpool was noted, as usual, as the biggest of its kind since 1866. But we—we, the *Gardeners' Chronicle*—have something more extraordinary to record—something not quite

so often dished up, and that is the appearance of Mistletoe berries at midsummer, or soon after. The branch lies on our table before us with its glistening white berries, and sends us back in memory to that period a few months since, when wagonload after wagonload passed our window to the adjacent market, as they will probably do next December. Its appearance at midsummer baffles calculation. Can it have anything to do with the elections? Our

joined the Society, which has been in existence little more than four months, and lectures on various gardening subjects have been given. Mr. J. CROOK has been appointed librarian, and Mr. J. HUGHES has shown great energy in obtaining the special donations to the library fund. The Birmingham Botanical and Horticultural Society has arranged that for an annual subscription of £5 5s. the Gardeners' Society shall have the privilege of free admissions on all ordi-

collections which might otherwise escape the observation of those most concerned. The plant named at the head of this paragraph was shown at the National Rose Society on Tuesday last, at South Kensington, and the solecism of showing an Irid at a Rose show may be pardoned with the expression of a hope that the authorities will do it again. Their reputation is so well established, that no one will misconstrue their action, but all will gratefully appre-



FIG. II.—*PAEONIA BROTERI*: FLOWERS CRIMSON, FRAGRANT. (SEE P. 48.)

specimen comes from Gordon Castle garden, up in Aberdeenshire.

— THE BIRMINGHAM GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—A library in connection with this recently formed Society was opened lately, funds to the amount of £60 having been subscribed by gentlemen of Birmingham for this purpose, and 100 volumes of standard gardening works have been already purchased at a cost of £40, and fifty-two other books have been generously presented by other persons. Two hundred members have already

nary days and Sundays to all members on presenting their cards of membership, and to free access to the Botanical Society's library for reference, and other privileges. Mr. W. B. LATHAM, Curator of the Botanic Gardens, is the Chairman of the new Society, and a series of essays and discussions, as well as lectures, are being arranged for the autumn and winter season.

— *GLADIOLUS WATSONIODES*.—The Kew authorities are rendering excellent service by exhibiting from time to time specimens from their magnificent

plate the feeling which induces them to lay their treasures before the horticultural fraternity. The present species is a *Gladiolus* with a spike of orange-pink curved trumpet-shaped flowers. The special interest lies in the fact that it was raised from seed collected on Killimanjaro, the snow-capped mountain of South Tropical Africa, at a height of 10,300 feet, by Mr. H. H. JOHNSTON, and sown in January, 1885. Mr. O'BRIEN at once recognised the plant as *Gladiolus Watsonius* of the *Botanical Magazine*, t. 450, and t. 569. This latter name is not taken up in Mr. BAKER's *Systema Iridacearum*, at least, we have not

discovered it. In any case, the discovery of the plant on the slopes of Kilimanjaro is a fact of great significance and high interest.

— **BANANA CULTURE IN COSTA RICA.**—The British consul, writing on the agriculture of San José, Costa Rica, says the cultivation of Bananas on the Atlantic slope is increasing steadily, owing to the success which has attended those who have taken up lands alongside the railway for that purpose. Many who bought land on credit at £1 per acre have been enabled, in less than four years, to pay off not only the principal and all working expenses of clearing and cultivating the land, but to be in possession of a farm of some 250 to 500 acres of Banana plants, grazing-ground, and woodlands, bringing in an income of £65 to £80 per month.

— **THE ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY'S SHOW.**—There were six entries for the prizes offered by Messrs. WEBB & SONS, of Wordsley, Stourbridge, and the competition was keen, all vegetables being of first-class quality, and in addition to these their customers were fortunate in taking thirty-two 1st and 2d prizes in the open classes.

— **ARRACACHA.**—From a letter addressed to the London Secretary of State for India by the Director of the Royal Gardens, Kew, and published in the *Proceedings of the Agricultural and Horticultural Society of India*, it seems that the Arracacha (*Arracaca esculenta*) is now fairly established in India. Mr. MORRIS, lately of Jamaica, considers it "a most valuable food-plant," becoming more palatable and desirable the longer it is used, and states as his opinion that "if the natives of India take to it as an article of food, he could conceive nothing more likely to flourish in the hill districts, and to afford with little labour the means of sustaining life under adverse circumstances." Regarding the distribution of the plant from Kew, Mr. DYER says:—"A supply of tubers received at Kew from Jamaica was sent in 1883 to Saharanpur, Ootacamund, and Ceylon, and in 1884 to Calcutta for Darjeeling. Mr. LAWSON, Director of Government Cinchona Plantations, Parks and Gardens, Nilgiris, reported in 1884 that plants had been raised from tubers sent from Kew. The result of the other two botanical establishments has not reached us. From Ceylon Dr. TRIMEN has recently reported that he has raised the Arracacha from seed obtained direct from Jamaica. He appears to have obtained the tubers without difficulty and in abundance. As a matter of taste, he has a less favourable opinion of them than Mr. MORRIS; but the important point is, that the introduction of the esculent into India is accomplished, and that its further diffusion need present no difficulty."

— **BRICK TEA.**—Reporting on the trade of Foochow for 1885 the British consul says the manufacture of brick-tea of varieties of tea-dust by Russian merchants only, for export to Siberia, is acquiring considerable importance. The low cost of the dust, the cheapness of manufacture, the low export duties upon it, together with the low import duties in Russia, combine to make this trade a success and a profitable business. "The most expensive part of the business is the freight on the bricks by sea to Tientsin, and the carriage on camel-back to Kiachia. The Russian merchants export Tea-leaf, but in small quantities, for Russia proper, their chief business being the making of brick-tea, their commissions on orders from Russia being large, and no loss is incurred. The brick is so beautifully made, and is so portable, that it has surprised me that the British Government does not get its supplies from this port; they would find it less expensive and wholesaler than what is now given the army and the navy. I think a trial should be made, or that a Government agent should be employed on the spot to manufacture the brick-tea in the same way that the Russians here and at Hankow do."

— **CYPRIPEDIUM GODEFROYÆ AND ITS ALIENS.**—Widely distinct as the types *C. concolor* and *C. niveum* may seem to be, the differences are all bridged over by *C. Godefroyæ* and its forms. The two former are figured in the *Gardeners' Chronicle*, vol. xix., n.s., p. 19, fig. 3, where the leading and characteristic differences are pointed out. All have flowered from time to time at Kew, but at present a

whole series of forms is flowering together, affording an excellent opportunity for comparison. The leading points of *C. concolor* are the narrow petals, the elongated laterally compressed labellum, the rhomboid-triangular staminode, or columnar shield, with its upper edge pubescent, the pale yellow ground colour dotted with purple, and the leaves spotted or blotched with grey above, and closely mottled with purple underneath. *C. niveum* differs from the above in the broader petals, shorter more inflated labellum, the shorter subreniform staminode, with a tooth in the notch, the white ground colour of the flowers, and in the under-surface of the leaves being generally of a uniform dark, almost black, colour. This character of the leaves, however, is not altogether constant in *C. niveum*, which has its foliage sometimes uniformly green above. *C. Godefroyæ* is distinguished by its broad sepals and petals, short sub-inflated labellum, roundish tridentate, often almost orbicular, staminode without the pubescence on its upper edge, and the white ground colour of the flowers more or less heavily spotted, almost blotched, with purple. A form of this, also flowering, has the narrow laterally compressed labellum, and the pale yellow ground colour of *C. concolor*, but otherwise conforms to *C. Godefroyæ*. All these forms are, botanically, varieties of one variable species, although for horticultural purposes they may be treated as distinct.

— **ORNITHOCEPHALUS GRANDIFLORUS.**—Of the twenty known species of this genus the subject of this note is by far the largest, most handsome and deserving of the attention of Orchid growers. The other members of the genus, though diminutive and inconspicuous, are interesting on account of the unwonted and extraordinary elongation of the rostellum and pedicels of the pollinia. This is noticeable to some extent in *Phalenopsis Lowii*, which, however, does not approach anything resembling the development of those organs in the large-flowered *Ornithocephalus*. The flowers themselves are produced in long drooping racemes, exhibiting a peculiar mixture of the purest white and deep green. The sepals and petals are white with a distinct green blotch above the base excepting the upper sepal, which is concave add without the blotch. The labellum is white with large-toothed deep green crest, which serves greatly to give character to the flower. A coloured plate given in the *Belgique Horticole* for 1884, p. 89, gives an excellent idea of the natural habit, size and appearance of a plant in full flower but the artist has painted the flowers with a decided tinge of yellow which does not correspond to that of a flowering specimen in the cool Orchid-house at Kew. LINDLEY first described this species in 1840 from a dried specimen from the Organ Mountains of Brazil—and the good qualities of living flowering plants excels all that he said regarding them. This species was shortly described or noticed in the *Gardeners' Chronicle* by REICHENBACH, August 5, 1882, but excepting this no notice seems to have been taken of the genus in gardening periodicals although several of the small-flowering species have flowered in this country from time to time, chiefly in gardens of the curious or of specialists.

— **MAURANDYA BARCLAYANA.**—The genus, as now constituted, contains only about six species, even after *Urospermum* and *Usteria* have been merged in it. They are confined to Mexico and are therefore not sufficiently hardy to withstand our winters out-of-doors, although they may and are cultivated successfully in sheltered places in summer. The species mentioned above is probably the best known and oftenest cultivated in this country, and forms a fine subject for trellis work, supporting itself by twining or twisting petioles. The cordate and hastate slightly lobed leaves are beautifully enlivened by the long tubular flowers that vary considerably in colour. A figure in the *Botanical Register*, t. 1103, erroneously spelt *Maurandia Barclayana*, exhibits flowers with a whitish tube and a deep violet lamina. Two varieties of the plant grown at Pendell Court have more or less overlapped one another in growth, so that the foliage is enlivened by purple flowers with a whitish tube and pure white ones. Although both must be considered as old introductions they have not enjoyed that popularity and dissemination in British gardens which their own intrinsic merit deserves. They are readily raised from seeds and might often be utilised for the same purpose as *Thunbergia alata*, or both might be grown in combination. At Pendell Court they enjoy the protection of a cool-house, where

Himalayan *Rhododendrons* are grown planted out in a peat bed, margined by the profusely flowering *Streptocarpus Rexii floribundus*, in many shades, from pure white to varieties heavily striped with violet.

— **AWARDS MADE AT THE LIVERPOOL SHOW.**—Gold medals have been awarded to Mr. B. S. Williams, Upper Holloway, and Messrs. James Veitch & Sons, London, for groups of miscellaneous plants; and Messrs. James Backhouse & Sons, York, for filmy ferns and herbaceous plants. Silver Gilt Medals have been given to Messrs. W. Cutbush & Sons, Highgate, for group of miscellaneous plants; Messrs. F. & A. Dickson & Sons, Chester, for stove and greenhouse plants; Messrs. F. Sander & Co., St. Alban's, for a group of orchids; and Messrs. R. Smith, the Nurseries, Worcester, for a group of Clematis; Silver Medals to Messrs. Carter & Co., High Holborn, for a collection of annuals, and Mr. Charles Turner, Slough, for a group of tree Carnations; and Bronze Medals to Mr. Edward Bridge, Huyton, for Pelargoniums, and Messrs. James Dickson & Sons, Chester, for a collection of succulents; to Messrs. Sutton & Sons, Reading, for grasses, living specimens of vegetables and roots, seeds, and models of garden products, &c. This award was erroneously attached to a notice of Messrs. Cheal & Sons' cord-trained fruit-tree exhibit in our report of the show last week.

— **PROPOSED ROSE SHOW IN EDINBURGH.**—The horticultural committee of the International Exhibition, Edinburgh, has announced its intention of giving space in the hall of the exhibition buildings for a display of Roses from the 20th to the 24th inst. Most of the principal trade growers in the country have given assurances of their co-operation with the committee in the matter. It is expected that there will be an extensive display. Although Roses only have been specially solicited, space will be given for any other exhibits that may be sent in. It is also the intention of the committee to offer facilities for exhibits of other classes of cut flowers subsequently at different times during the season. Arrangements are also being made for a comparative trial of lawnmowers at the time of the forthcoming Rose Show should the weather intervening prove favourable; at present, however, the prevailing drought and heat give little promise of a sufficient growth of grass to fairly test the various machines exhibited.

— **THE GOLDEN ELDER.**—This shrub does well in town gardens, and in cases where it fails to develop the golden tint of its foliage it is recommended to be cut back severely so as to induce the formation of young vigorous shoots of the desired coloration. This plan does not, however, always succeed, but even as a green variety it is a very desirable plant in smoky situations. It differs from the common Elder, not only in colour, but also slightly in the size and shape of the leaflets, and especially in the convex, not flat, flower-cymes, the larger individual flowers, their greater substance, &c.

— **THE ODOUR OF RUBUS DELICIOSUS.**—To one accustomed to the odour emitted by this showy Bramble the question would naturally arise whether it derives its specific name from that circumstance. TORREY, however, in the *Annals of the Lyceum of Natural History, New York*, describes the Bramble as having purple flowers succeeded by a delicious fruit. It seems that all the plants cultivated in this country have white flowers, and, although it flowers abundantly at Kew both on a wall and in the open ground it never matures; any fruit nor even seems to set any. The peculiar odour of which it is possessed continues to be given off for a considerable period of time, evidently while young wood and leaves are developed, whether in the presence of blossom or not. Probably, however, the odour emitted is most powerful when the young foliage and flower-buds are bursting forth, especially when the air is still, and at any period of the day provided the atmosphere is moist. Moisture is not essentially necessary, but it seems to intensify the volume of the volatile odoriferous matter. There can be little doubt that this material is excreted by the reddish glands, with which the young shoots, leaves, and calyx are heavily beset while growth is advancing. The *Botanical Magazine* in describing the plant figured t. 6062, says, this species is without glands, bristles, or prickles, and the statement is repeated in *Flore des*

point of size of bloom, as also of richness of colouring, it is impossible that the show Pansies can compete with the fancy varieties, but they require greater skill to have them in good character. I trust that Mr. Findlay will adopt this suggestion, or the danger is that the show Pansy will be quite crowded out by the fancy varieties. I have before me the schedule of prizes of the Norton Pansy Club, the exhibition of which took place on June 19. It is an entirely new organisation, and the schedule contains sixty-five classes. If the competition was as keen as at Manchester, the judges must have had a busy time of it. One regulation is worthy of notice—it sets forth that "any stand of Pansies containing show blooms under 1½ inch in diameter, or fancy blooms under 1½ inch in diameter, will be disqualified." This is done to ensure the presence of good-sized flowers, but one can understand what an onerous duty would be put upon the judges if they had to measure many blooms apparently undersized. The beautiful fancy Pansies are now to be seen in almost every garden; but the show varieties have their claims upon growers also, and it is to be hoped they will not be suffered to fall away from cultivation through neglect. *R. D.*

Strawberry The Captain.—When we get any fruit or vegetable that is extra early or late it is a great acquisition to our list of good things. A few years ago we had an extra late and extra good Strawberry in Loxford Hall, now we have got two extra early in King of the Earlies and The Captain. I gathered the first of the former in the open ground on June 15, and the first of the latter on June 19, the quality and appearance of both of them being all that need be desired. The Captain is of an immense size. In my first batch of forced plants the King was not very satisfactory, in the second batch they were good in size and flavour, but the crop was not very good. I shall certainly give both kinds another trial as an early forcer, for being a week in advance of any other they are great acquisitions for very early forcing. *D. Walker.*

Abies Pinewood.—It may not be generally known that two distinct kinds of leaves occur on the above tree—1st, those, generally on young trees, which are thickly and regularly disposed on the branches, one inch long on the underside, by half that on the upper; some bind, and with two rather indistinct silvery lines beneath; 2d, those on adult trees, where the leaves are 2 inches to 2½ inches long, usually bind, and arranged in two rows horizontally. No. 1, to which Sir Joseph Hooker refers, was that figured in the *Gardener's Chronicle*, but I have sent to the Editor branches from the very tree that the cones figured were taken, in which both kinds of foliage are distinctly revealed. The true Pinewood is here perfectly distinct at all stages of development from A. Webbiana. *A. D. Webster.*

I send inclosed a branch of a handsome specimen of this variety, which is now growing in the pinetum here, and which I think will agree with me. It is quite in accord with Sir J. Hooker's description of it in your last week's issue, and which I believe to be correctly named. There are a good many trees planted here, in different positions, but this is the only one that has made a good specimen. This is planted on high ground, and it is also very much protected by other trees, and so escapes the spring frosts. It is from 30 to 40 feet high, and well furnished with branches to the ground; the others of this variety are continually losing their leaders, and so have a stunted appearance. I also send a specimen of *Abies Webbiana* as grown here. *Edward Ward, Hewell Gardens, Bromsgrove.* [The specimen sent is from a sterile branch; the one figured was from a fertile branch, as mentioned in Mr. Webster's letter. *Ed.*]

Names of Fruits.—It must be puzzling to many who receive the catalogues of nurseries, and other lists of fruits, to observe how varied the descriptions and names of the fruit are. It is not of minor importance to purchase fruit trees and wait patiently perhaps for several seasons, and then to find the fruits quite different to what one desired or expected. It is, to say the least of it, tantalising. In the case of synonyms it seems difficult to conceive how some critics class fruits, and arrange their identity. It would appear to me, that they must not have seen the kind in its true character, or probably, they have not met with it at all. For example, take Hamburg Grapes: they are changed in the descriptive lists very materially from what one was accustomed to observe in years gone by. I have old catalogues before me which I am inclined to trust, because I know the fruits were proved on the vendor's premises. Black Hamburg and Frankenthal are described in one list as the same kind, in another description they are said to be quite distinct; Victoria Hamburg is described as Dutch Hamburg, while we read elsewhere as to the complete distinctness of these kinds. The Victoria is represented as a superior sort, while the Dutch is described as coarse and third-rate. What I have (from my earliest recollections) supposed to be

Victoria Hamburg, is one of the coarsest and least palatable Grapes I know, and I have seen it awarded prizes when the fruit was quite unfit for the most plebeian dessert. I have always known the old Black Hamburg, Esperione and Champion Hamburg as being first-rate kinds and distinct in foliage, form of berry and flavour; but Hamburg's, under certain conditions, change their character very much. I have seen Esperione smooth and round one season, and quite hammered, like Victorias, the next (in the same vineyard and on the same vines, too). Some preparations of liquid-manure are said to have a strong tendency to cause the hammered-looking surface. Abercraie Seedling I noticed is confounded with West's St. Peter's. The samples which I had from Mr. Brown, the successful gardener at Abercraie, were more unlike the true West's St. Peter's than any other black Grape with which I am acquainted. The berries of this Perthshire-raised Grape are more like Black Alicante than any kind I know of. Some fruit of this kind, which I had from another source, having been received from Abercraie many years ago, probably during the time the late excellent gardener, Mr. Arnott (the raiser), had charge of Abercraie Gardens, and seemed much like the fruit I received from Mr. Brown two years ago; flavour, perhaps, less sugary. The names and descriptions of Muscats are perplexing in some catalogues. We know three kinds of Muscats as being quite distinct—Muscato Alexandria, Canon Hall, and Bowwood. I notice one authority describing the Canon Hall as having "better set bunches." I would go a long distance to see better set bunches of this kind—as it is rarely met with more than half set—but sometimes seen in prime condition, and is really a sight worthy of record. Bowwood Muscat, I notice, is described as being the same kind as Muscato Alexandria. Our experience is, that it sets as freely as a Hamburg. The berries are larger, stiffer, and of deeper colour than the Muscato Alexandria. I thought when I first saw this kind of Bowwood (I was then an underling in that part of Wilts) that it was most valuable acquisition, and I think so still. It is seldom that it can be purchased true, but when it is obtained, and the bunches and berries in good condition, will be found to resemble very strongly the plate issued in the *Botanologist* many years ago. I have had it in my garden in several minor quantities more than once tried to try, and received Muscato Alexandria instead. It is properly described in a catalogue of Mr. Rivers' dated 1877. I once had the strongest reasons to value its free setting qualities and other good characteristics. At Impney Park, Worcestershire (a place where I was entrusted to form a new park, gardens, &c., under the supervision of Mr. McCormack), the Vines were ordered before my arrival on the ground, and I was pleased to find in a choice selection Bowwood Muscat, and it proved to be the kind which I had longed in vain for years to see. The canes were planted, but shortly afterwards I was instructed to fruit the young and newly planted Vines to give a supply the first year, and the Vines intended to be the permanent stock were made "supernumeraries," and went through a severe ordeal, the Bowwood Muscat standing the severe treatment among the best. In 1881 a notice of these gardens, Grapes and their cultivation, was given in the *Gardener's Chronicle*, October 1, p. 427, and the Bowwood Muscat, a conspicuous and noticeable to the most casual observer, the large yellow berries being very prominent alongside of fine Muscats of Alexandria. The descriptions given by vendors of fruits in their lists are far from being reliable, and many are at variance with each other in their opinion. *Mr. Temple, Carron House.*

A Novel Plant House.—Mr. J. Goddard, of Fulham, the inventor of the useful patent adjustable "clip," designed to hold together two or more pieces of glass, slates, or other suitable material to form a protection from sun, wind, &c., and therefore very useful in the striking of cuttings and a thousand other ways amongst lights and so on, has designed what may not be inappropriately termed a novel and useful plant house, inasmuch as it will meet the wants of a large class. There are thousands of houses with low garden walls from 4 feet to 5 feet high, the occupiers of which would like to have the means of growing or preserving flowers or plants without going to the expense of raising the wall, and who object to plant frames. The house in question is specially adapted for such garden walls. It is made from 4 feet to 6 feet high, about 5 feet wide, and 4 feet over 2 feet from front to back; the roof is made to take off, so that it can be used as a hand-light in the garden or on a frame. The glass is very readily removed or replaced being held in position by the "clips." No door is required, as any square of glass in the front or ends can be taken out to get at the contents of the house, or, as it is called, again in one minute, as it is held by a screw knob and nut. If the house is set at a distance, the packing case is made to be utilised as a frame for the roof of the house, so that the packing-

case in this instance does not meet with the fate in store for packing-cases generally, which are stowed away, and become eyesores and nuisances. *B.*

Araucarias Coning.—Many of our readers will doubtless remember a fine Araucaria on my lawn. It is now about 45 feet high, and is probably one of the most perfect specimens in the kingdom. Last year, for the first time, it bore a profusion of male cones on the upper branches, and this year it has borne a further quantity, but only on the south side, and in bunches of two, three, and four on the upper terminal boughs. On the morning of the 4th ult. a singular circumstance occurred which is worth reporting. My attention was called to "smoke" issuing from the cones. Upon looking up I saw the cones were discharging pollen in a regular systematic manner, and so profuse as to resemble a good puff of smoke from a cigar or pipe. The display continued nearly the whole day at intervals of about a minute, and was watched with considerable interest by a succession of visitors. The weather was warm and bright, with little or no wind, and so was the next day, but no further display occurred. After each puff of pollen it disappeared like smoke, and was doubtless wafted to immense distances. The cones before discharging the pollen appeared of an inconspicuous green colour, and after a very conspicuous brown. I enclose a sample for your inspection, and please note their curious formation. The four formed one bunch. *W. H. Rogers, Southampton.*

Astrantia maxima.—So far as my knowledge goes this appears to be a very rare plant in our gardens, and I am not aware of any nurseryman's catalogue of hardy plants in which it occurs for sale. The Astrantia seems to be altogether overlooked, or passed over as worthless, but I consider them both beautiful and interesting plants, if a suitable situation can be found for them in a shady place or in a woodland walk. The ordinary Astrantia major has green flowers, and is not a striking plant, but A. maxima has pinkish flowers and a deep purple centre, and is certainly a beautiful plant either for the border or the wild garden. I send herewith flowers of both these varieties for your opinion. My stock of the many kinds of them came originally from the wreck of the Longford Bridge Garden, where a grand collection of hardy plants was got together by the late Edward Leeds. Astrantia maxima is figured in the *Botanical Magazine*, No. 1553, in the year 1813. It appears to have been named A. maxima, by Pallas, in 1790, and was grown by the Loddiges from seeds sent from the Caucasus. It occurs in Alton's *Hortus Keuensis* as *A. helioborifolia*, a name which had been given to it by Salisbury, in his *Paradisi Lustum*; but the proper name is A. maxima, the English name the Helio-bore-leaved Astrantia. All collectors of hardy plants should endeavour to obtain this plant, as its rosy coloured flowers are very pretty, and it is most useful for floral decoration, the tall sprays lasting many days in water. *Wm. Brockbank, Brockhurst, Didsbury.*

Double Chinese Pæonies.—The wonderful beauty of both colour and form to be found in this group of late flowering Pæonies may make a few words of use and interest to the many minds who are growing. Mr. Walker of Whittington, has made a careful selection of them, both from home and foreign collections. He finds the confusion amongst their names equals that amongst Narcissi. If some "central authority," such as the Narcissus Committee, would take them in hand, it would save many a disappointment to the growers of these fine flowers. At first sight, the large piece of ground devoted to them at Whittington looks like a garden of Roses, from white to deepest crimson in colour; but without vying with the Queen of Flowers, these Pæonies have a singular beauty of their own, not less striking in the half-open smaller blossoms and globular buds than in the soft masses of varied colour to be seen in the large full-blown flower. The following kinds are named from Mr. Walker's collection. Perhaps the loveliest of all is a semi-double, bluish white with a centre of golden stamens, called P. anemoneiflora (but quite distinct from an early Feony also called anemoneiflora); Duchesse de Nemours, white shading into a canary centre; Caroline Allain, pale pink shading into pale yellow; Modeste, bluish with pale yellow centre; Viscomtesse de Balleret, pink shading to cream; Princess Galitzin, Marie Jacquin, bluish; Princess Nicholas Ribex, pink, outer petals with yellowish-white small petals round the centre, which is pink; and Canary, creamy-white shading to sulphur; Professor Moren, shaded pink; Alice de Julvecourt and Pulchra, resembling the Rose Souvenir de la Malmaison in colour; Auguste Mielley, pale pink; and Maxima, white with a small patch of red in the centre (a beautiful flower); P. Whitely fl.-pl., large globular white with pale pink outer petals; Louis Parmentier, nearly white, a very late kind; Marie Lemoine, a very good white, also late flowering; and amongst darker shades, Duchesse de Thèba and

Auguste d'Hour, dark crimson; Zoé, bright rose, full and globular in form; and Madame Musier, deep rose. Any of all these *Fœnies* would be a valuable addition to the beauty of every garden in which they are not already grown. C. M. Owen.

Pentstemon.—In discussing the origin of the florist's section of the genus *Pentstemon*, your usually well-informed correspondent, J. Douglas, seems for once to have gone very wide of the mark (see vol. xxv., p. 754). I imagined that every horticulturist of note was well aware that the bedding *Pentstemon*s of the present day are lineal descendants of the *P. Hartwegii*, Benth., introduced some forty years since, and well represented at t. 3561, vol. lxx. of the *Botanical Magazine*, under the erroneous name *P. gentianoides*. The true species of the latter name having been subsequently introduced, the former was re-christened by the name it now bears. Possibly these two species, to neither of which Mr. Douglas alludes, may jointly have originated the present race of *Pentstemon*s, employed with such good effect as bedding and border plants; but it is quite as probable that they are the progeny of the *P. Hartwegii* alone, as a comparison of any variety with the coloured illustration above referred to will show no greater departure from the type than can easily be accounted for by forty years of cultivation and selection. That either *P. speciosus*, or any of the other forms of *P. glaber*, have had any share in the production of the plants under discussion there is not a tittle of evidence that I am aware of, and those who are best acquainted with these species will doubtless agree with me that it is very improbable. At the same time I am far from refusing to believe in the possibility of obtaining a hybrid of the *P. Hartwegii* with one or other of the glaber section, but I venture to hazard the opinion that a successful cross would give plants very distinct from those at present cultivated. Let me add that the *P. Jaffrayanus* alluded to amongst other species is certainly inferior as a garden plant to the best forms of *P. heterophyllus*, the flowers of which are of a lovely sky-blue. It is readily raised from seed, and selected varieties can, if desired, be as easily increased by cuttings. With plants of uniform size and strength a most charming bed may be arranged by any intelligent gardener. *Seixante*.

A Work on Colour.—What a boon it would be to those not "up" in colours if some authoritative book were published descriptive of colours. Such a diversity is presented in Queen Flora's charming dominion! The visitor at a flower show must be often puzzled to "hit off" exactly the colour of some object which is there displayed for his admiration. For instance, take only a flower which claimed notoriety at the recent Conference and the day which is kept sacred to the memory of an illustrious statesman—refer, of course, to the *Thimrose*. The range of tints to be found in this now popular flower is, indeed, astonishing—from pure white, and the most delicate shades, running to rich gold, orange, bright or deep red, maroon, crimson, or purple. But to return to the work in question. Supposing that some alphabet of colours with their shades were prepared, what a source of satisfaction it would be to those in search of information—useful, too, to reporters of the horticultural Press, who must be often at their wits' end to adequately describe the subjects continually coming under their notice—one representative of the fourth estate giving it as one, and his companion of the pen another colour. No two people agree in this matter. To instance what we mean—supposing blue, with its various shades (to take a common example) is the colour in question, for which reference would be made in the book, under B would be found an illustration of the colour, with description of it and its shades. We throw out these very crude ideas for what they may be worth, and if any one learned in colour can be induced to take this important matter up these rambling remarks will not have been written in vain. B.

A Fine Begonia.—Now that the tuberous-rooted *Begonias* are popular in gardens it might be interesting and encouraging to growers to place on record the successes of Mr. Mitchell, the gardener at Telhid Park, Camborne, Cornwall. Some eight years ago he added to his fine collection a plant of that good single flowered variety, Madame Oscar Lamarche, and he has grown and preserved the same tuber ever since. The result is that he has the finest specimen that has ever come under my notice, and just now it is the pink of perfection—a mass of glowing orange-red flowers—so clustered are they on every side that the handsome foliage is almost hidden from view. This extraordinary plant is found growing in a 20-in. pot, with the tuber is over 15 inches in diameter, whilst the height of the plant from the top of the pot ranges from 3 to 4 feet, and it is quite 5 feet wide. W. Napper, Alphington Cross, July 3.

Cucumbers Diseased (pp. 768, 797, vol. xxv.).—The case of young Cucumbers dying from the tips downwards is probably familiar to too many gardeners. The accompanying illustration (fig. 12) taken from examples of the dying ends of Cucumbers observed by me at different times, probably shows the ailment referred to. The plants may possibly have been thrown out of health by treatment similar to that mentioned by "C. D." However this may be, the dying ends of the diseased Cucumbers swarm with fungus threads and colourless fungus spores. The spores are shown enlarged 400 diameters in the middle of the illustration. I take the bodies illustrated to be the buds or spores of *Gloeosporium leucicola* (illustrated on p. 796), or a closely allied species which grows in and on Melons, Gourds, and Cucumbers. As the ends of the Cucumbers soften and decay a white mould often covers the perished end; this mould does not belong to *Gloeosporium*, but is *Polystichum vulgare*, illustrated in the *Gardener's Chronicle* for February 8, 1886. It seems probable that the conditions mentioned by "C. D., p. 797, may encourage the growth of these fungi. The spores, of course, when living under favourable conditions are able to continue the disease, and they no doubt often swarm in *Cucumbers*, Melon-pits, vineries, and orchard-houses. Good



FIG. 12.—TIPS OF DISEASED CUCUMBERS: NATURAL SIZE; With fungus spores enlarged 400 diam.

ventilation—as opposed to warm, moist, stagnant air—would probably have a beneficial effect on the growth of ailing *Cucumber* plants. W. G. S.

Reports of Societies.

CRYSTAL PALACE: July 3.

THE Rose Show of the Crystal Palace Company was a decidedly good one, there being keen competition in most of the classes, and almost every prize offered was awarded. The blooms of the *Roses* were very nice, and when the condition of the season is considered good. The tables on which the boxes were placed had been separated and spotted all over the body of the Palace, the leading classes occupying the centre transept, and consequently plenty of room was allowed for the visitors. This was as well for the attendance was numerous, great interest being shown in the flowers.

Mr. B. R. Cant, Colchester, stood 1st in a keen competition for seventy-two varieties, distinct, single trusses, with a collection of handsome blooms, which fully merited their prize. The varieties were so arranged that their colours blended and balanced each other. Some of the best examples were Duke of Connaught, Merveille de Lyon, Madame de Watteville, Général Jacqueminot, Innocente Pirola, Lord Macaulay, Victor Hugo, Maréchal Niel, Marie Finger, Pirola, Madame Lambert, Madame Ch. Maurice, Marguerite de Romaine, and Duchess of Bedford; 2d, Messrs. Paul & Son, Old Nurseries, Cheshunt, who followed very closely with, among others, S. Reynolds Hole, Julia Touvais, A. K. Williams, Duke of Edinburgh, Souvenir d'Elise Vardon, Alba rose, and Souvenir d'un Ami; 3d, Mr. F. Cant, Colchester.

With forty-eight varieties, distinct, three trusses of each, Mr. B. R. Cant was again 1st; and Messrs. Paul & Son 2d, with almost the same blooms as were shown in the seventy-two varieties. Specially fine examples of Baroness Rothschild, Duke of Wellington, and Madame de Watteville being included in the 1st prize lot; while Messrs. Paul & Son showed

specially good blooms of Madame G. Luizez, Victor Verdier, and Marie van Houtte; Messrs. Keynes, Williams & Co. were 3d.

The next class was twenty-four varieties of H.P.'s in threes. There was good competition here, all the exhibitors in the class showing uniformly fine blooms. Mr. C. Turner, Slough, showed the best collection, the best varieties being Mons. Noman, Lady M. Fitzwilliam, Madame G. Luizez, and Duke of Wellington; Messrs. Cooling & Sons, Bath, were next in merit, with Merveille de Lyon, A. K. Williams, Françoise Michelon, and Prince Arthur as their best blooms.

For twenty-four varieties, distinct, in single trusses, Mr. G. Prince, 14, Market Street, Oxford, secured the 1st place in a good competition, having fine specimens of Princess of Wales, Lady M. Fitzwilliam, Madame Cusin, Maréchal Niel, and Madame G. Luizez. Mr. C. Turner, Slough, was 2d, with Merveille de Lyon, Xavier Olbo, Maréchal Niel, and Souvenir d'Elise Vardon; 3d, Mr. G. Mount, Canterbury.

The Tea-scented and Noisette *Roses* were numerous and on the whole very fine, and they appeared to find great favour with the visitors. The best eighteen varieties, three trusses of each, came from Mr. George Prince, nurseryman, Oxford, who had fine examples of Alba rose, Francisca Kruger, La Boule d'Or, Niphotos, Princess of Wales, Catherine Mermet, Jean Ducher, Marie van Houtte, Souvenir d'Elise Vardon, Anna Olivier, Innocente Pirola, Madame Hippolyte Jamin, Hon. Edith Giffard, and Amazone; 2d, Mr. G. W. Piper, nurseryman, Uckfield, with admirable flowers of Souvenir d'Elise Vardon, Marie van Houtte, Jean Ducher, Comtesse de Nadiillac, Anna Olivier, Niphotos, Jean Pernet, Etiole de Lyon, and Catherine Mermet; 3d, Mr. C. Turner.

Then followed a series of classes for *Roses* in colours, but as the collections were unlimited in extent some showed a greater quantity of flowers than others. The best collection of yellow *Roses*, three trusses of each, came from Mr. Geo. Prince, all of them being tea-scented, and included fine blooms of Jean Ducher, Princess of Wales, Francisca Kruger, Etiole de Lyon, Comtesse de Nadiillac, Perle des Jardins, Madame C. Kuster, Marie van Houtte, and Amazone; 2d, Mr. J. Mattock, nurseryman, Oxford, who had Comtesse de Nadiillac, Jean Ducher, Marie van Houtte, Anna Olivier, Boule d'Or, and Belle Lyonaise; 3d, Mr. B. R. Cant. Next came a collection of white *Roses*, three trusses of each, and here Mr. B. R. Cant was 1st, with a superb lot, comprising Edith Giffard, Niphotos, Devonensis, Innocente Pirola, Madame Lacharme, very fine, and Madame Bravy; 2d, Mr. G. Prince, with Edith Giffard, Anna Olivier, Alba rose, Niphotos, Innocente Pirola, &c., also very good; 3d, Mr. G. W. Piper.

Messrs. Paul & Son had the best collection of pink *Roses*, staging a very fine lot, comprising Mad. G. Luizez, Marguerite de St. Amand, Madame Montels, Madame Hippolyte Jamin, Mons. Noman, Pride of Waltham, Baroness Rothschild, Catherine Souper, Princess Beatrice, Julia Touvais, Lady Mary Fitzwilliam, Marie Finger, Duchesse de Valombrosa, Madame Cusin, Souvenir d'un Ami, and Catherine Mermet; 2d, Mr. B. R. Cant, with very fine blooms of Madame Cusin, Marguerite de St. Amand, Mons. Noman, Lady Mary Fitzwilliam, Mad. Gabriel Luizez, and Duchesse de Valombrosa; 3d, Messrs. J. Burrell & Co., Cambridge.

Messrs. Paul & Son had the best collection of crimson *Roses*, staging fine blooms of A. K. Williams, Duke of Edinburgh, Dr. Androm, Mons. E. Y. Teas, Gen. Jacqueminot, Duke of Teck, Ulrich Brunner, Comte Rimbaut, Marie Rady, Marie Baumann, Madame Victor Verdier, and Camille Bernardini; Mr. R. B. Cant, with A. K. Williams, Fisher Holmes, Charles Lefebvre, Dr. Sewell, Marie Baumann, Gen. Jacqueminot; 3d, Geo. Christy, Esq., Westham.

Mr. R. B. Cant was 1st with a collection of velvety crimson *Roses*, having Duke of Edinburgh, Fisher Holmes, Prince Arthur, Duke of Marlborough, Dr. Sewell and Maurice Bernardini; 2d, Messrs. Paul & Son, with Louis van Houtte, Prince Arthur, Reynolds Hole, Charles Darwin, Prince Camille de Rohan, &c.; 3d, Messrs. Geo. Bunyard & Co.

Mr. B. R. Cant had the best eighteen trusses of Maréchal Niel, Mr. Geo. Mount, St. Dunstan's, Canterbury, being 2d.

In the class for the same number of trusses of any Tea or Noisette *Rose*, Mr. B. R. Cant was again 1st with a superb lot of Souvenir d'Elise; Mr. W. J. Grant, Hope End Farm, Lechlery, being 2d, with Marie van Houtte, and Mr. Prince 3d, with a superb lot of Comtesse de Nadiillac.

In the class for eighteen trusses of Marie Baumann or similar coloured *Rose*, Messrs. Keynes & Co. were 1st, with Ferdinando de Lesseps; Mr. B. R. Cant 2d, with Marie Baumann; and Messrs. Bunyard & Co. 3d, with the same.

The best eighteen trusses of Prince Camille de Rohan, or other *Rose* of similar colour, came from

Messrs. Paul & Son, who had Abel Carrière; 2d, Messrs. Keynes & Co., with Abel Carrière; 3d, Mr. R. B. Cant, with Fisher Holmes.

Mr. W. J. Grant had the best eighteen trusses of François Michelon, or similar colour, staging Marquis de Castellane; the Cranston Seed and Nursery Company were 21 with François Michelon; Mr. B. R. Cant being 3d with John Hopper.

The best eighteen blooms of Lady Mary Fitzwilliam, a similar colour, brought some exquisite blooms of this lovely Rose from Mr. H. Bennett, the raiser; Mr. B. R. Cant being 2d; and Mr. T. W. Girdlestone, Sunningdale, 3d, with the same.

Mr. G. Prince had the best eighteen trusses of A. K. Williams; Mr. W. J. Grant being 2d; and Messrs. Paul & Son, 3d.

Mr. Prince had the best eighteen trusses of W. A. Richardson, showing it richly coloured; Mr. W. J. Grant was 2d; and Messrs. Paul & Son, 3d.

The Rev. J. H. Pemberton, Romford, had the best eighteen trusses of Niphetos; Mr. Geo. Prince being 21; and Mr. E. T. Atherton, Chatteris, 3d.

Messrs. Paul & Son had the best twelve bunches of Rosa polyantha, showing nice specimens of Madame Pacquerette, Perle d'Or, Simplex, Mignonette, and Anna Maria Montravel; Mr. G. Prince was 2d, having, distinct from the foregoing, Cecil Brunner.

Messrs. G. Cooling & Son had the best examples of Rosa rugosa, staging good bunches of the red and white forms; Messrs. G. Bunyard & Co. being 2d.

In the amateurs' division there was as good a show as in the open classes, but the competition in some classes was not very large, still it was large enough to cause all the prizes to be awarded. On the whole this division was remarkably fine, good blooms being the rule.

For forty-eight trusses, one of each, W. J. Grant, Esq., Hope End Farm, Leabury, was 1st, having, Vernet, Sultan of Zanzibar, Madame G. Luizet, and Duke of Edinburgh, being the most remarkable specimens; 2d, Mr. G. Campbell, gr. to S. P. Budd, Esq., 8, Gay Street, Bath, including Baroness Rothschild, La France, Pride of Waltham, Prince Camille de Rohan.

In the class for twenty-four varieties, distinct, H.P.'s, one truss of each, there was a fine exhibition of uniformly good blooms, the judges considering it right to award as follows:

Mr. J. Ridout, gr. to T. B. Haywood, Woodhatch Lodge, Reigate, was 1st, with Mrs. Baker, François Michelon, A. K. Williams, Madame Lacharme, F. de Lesseps, and Madame Noman; 2d, R. E. West, Esq., Reigate, having Ulrich Brunner, Merveille de Lyon, Abel Carrière, Etienne Levet, and Madame G. Luizet; 3d, Mr. R. Gray, gr. to Earl Stanhope, Chevening, Sevenoaks; and extra 3d, G. Christy, Esq., Buckhurst Lodge, Westerham.

With twenty-four varieties, three trusses of each, T. B. Haywood, Esq., was 1st, with good blooms of J. S. Mill, La France, Madame Victor Verdier, Marquis de Castellane, A. K. Williams, Marie van Houtte, Alfred Colomb, François Michelon, Marie Fougère, Madame Lacharme, and Lady Mary Fitzwilliam; W. J. Grant, Esq., was 2d, having Lady Mary Fitzwilliam, Horace Vernet, Charles Lefebvre, La Rosière, Beauty of Waltham, &c.

Mr. Jas. Brown, gr. to A. J. Waterlow, Esq., Rainham, was 1st, with twelve varieties, having good flowers of La Havre, Lady Mary Fitzwilliam, A. K. Williams, La France, Marquis de Castellane, Madame G. Luizet, Pride of Reigate, charmingly striped; Merveille de Lyon, Countess of Rosebery, Pride of Waltham, Eugene Firsi, &c.; 2d, J. L. Curtis, Esq., Chatham.

The Rev. Dr. King, Madingley Vicarage, Camb., had the best twelve Tea and Noisette Roses, having Catherine Mermet, Marie van Houtte, Souvenir d'Elise Vardon, Madame Cusin, Innocenta Pirola, Souvenir de Paul Neron, Princess of Wales, Maréchal Niel, Jean Ducher, and Souvenir d'un Ami; 2d, Rev. J. H. Pemberton, with a very good lot, running the 1st somewhat hard.

SEEDLING ROSES.

Mr. H. Bennett had Viscountess Folkestone, a fragrant bluish coloured variety, with a few flesh centre; Messrs. William Paul & Son had Grand Mogul, a crimson A. K. Williams, and Silver Truce, silver-white, with deep flesh centre.

CARNATIONS, PICOTEES, AND PINKS.

Mr. C. Turner had the best twelve Carnations, staging good blooms of Illuminator, A. K. Mayor, Charles Turner, John Keet, Outsider, a good scarlet-flake; Mrs. MacLaren, Figaro, Miss E. Wemyss, and three Cloves; 2d, Mr. James Douglas, Great Gearies, Ilford, with seedlings. Mr. Douglas had the best twelve Picotees, showing mainly good ground seedlings; Mr. C. Turner being 2d with Clara Fensom, Evelyn, William Summers, Mrs. Rudd, Chanticleer, &c. Mr. Henry Hooper, nurseryman, Bath, had the best twelve Pinks, showing very large flowers of Ne Plus Ultra, Henry Cannell, Boyard, Brilliant, Eclipse, W. Paul, &c.; 2d, Mr. H. Cattle, Bath.

Special prizes were offered by Messrs. Paul & Son, nurserymen, Waltham Cross, for a collection of flowers introduced from, or raised at, the Waltham Cross Nurseries; one collection only put in appearance, and that of an inferior character.

GROUP OF TUBEROUS BEGONIAS.

In this class Messrs. J. Laing & Co., Forest Hill, were the only exhibitors. They were awarded the 1st prize for a group occupying about 144 square feet. The group formed a square pyramid, and was relieved with Caladiums, Palms, Ferns, Mosses, &c., which relieved the blaze of colours from the bloom of the Begonias.

MISCELLANEOUS.

Messrs. W. Paul & Son, Waltham Cross, contributed a fine group of Roses, which were arranged in a tasteful manner in front of the stage. Numerous varieties were shown, and samples of almost every form. There were entire baskets each of a sort separated by Adiantum. Pots of Roses were studded here and there, and at both ends and forming a line at the back were ornamental standard baskets and standard Roses in pots. The following were included in this group:—Lady Mary Fitzwilliam, Captain Christy, Violette Bowyer, Ma Capucine, Madame Falco, Anna Olivier, &c., and two new ones—Grand Mogul and Silver Queen.

E. Holman, Esq., Rockhills, Crystal Palace Park, exhibited six pots of Petunias, which were well flowered and of good appearance.

Mr. P. Perry, gr. to W. G. Rowlett, Esq., showed some pots of Carnation Magnificence, full of bloom of a delicate rosy-salmon colour—very attractive.

Messrs. J. Cheal & Son, Crawley, Sussex, contributed a nice little collection of herbaceous flowers, having Cnothera Youngi, Spiraea (several vars.), Phlox (vars.), &c.; also they showed a group of Roses, R. rugosa vars., the Moss Rose and Provence, as well as Teas, &c.

NATIONAL ROSE SOCIETY'S SHOW : Tuesday, July 6.

THE annual meeting of this Society took place in the conservatory of the Royal Horticultural Society at South Kensington.

The flowers were quite as numerous as on any former occasion, but the quality of the blooms had suffered much from late frost, and yet more from the great warmth experienced for the last week in England. Many of the flowers were found with damaged or open centres, and almost all were under-sized. New Roses were shown in a few instances, but there was nothing remarkable to be found in any of those exhibited, and they were of poor quality generally.

The competitors in the smaller classes were, as usual, in great numbers; but the entries in the classes for seventy-two, forty-eight, and twenty-four, were fewer, and were those whom we always expect to see head the lists of prize-winners at this and other large gatherings of Rose growers. The day was exceedingly warm, so that the blooms soon after being set up, showed signs of distress, and by the evening many flowers were spoilt.

NURSEYMEN.

Seventy-two, distinct, single trusses.—In this class Mr. B. R. Cant, nurseryman, Colchester, took the 1st prize, with a lot of fairly even flowers of H.P.'s, amongst them being nine blooms of Boileau, Lord Macaulay, Duke of Connaught, Beauty of Waltham, Duke of Wellington, La France, Ariadne, Marie Verdier, A. K. Williams. Of Teas were Souvenir d'Elise Vardon, Devonians, Marie van Houtte, La Boule d'Or, and Innocenta Pirola.

The two Silver Medals in the nurserymen's classes for the best H.P. and the best Tea were awarded to a bloom of Boileau to H.P. and to Souvenir d'Elise, Tea, in this stand, 2d, Mr. F. Cant, Colchester, with a good stand, his best flowers being Mrs. Jowitt, Maréchal Niel, Anna Olivier, La Havre, and Horace Vernet; 3d, Messrs. Paul & Sons, The Old Nurseries, Cheshunt; 4th, Mr. C. Turner, Slough.

Forty-eight distinct, three trusses of each.—The 1st prize was again taken by Mr. B. R. Cant, who showed a stand in which were excellent examples of Lady M. Fitzwilliam, Dr. Sewell, Fisher Holmes, Ulrich Brunner, Horace Vernet, Marquis de Castellane, Niphetos, and Souvenir d'un Ami. A good 2d was seen in Mr. C. Turner's stand, who put up a bright fresh collection of flowers, conspicuous examples being observed in Catherine Mermet, Horace Vernet, Countess of Rosebery, Reynolds Hole, Abel Carrière, Beauty of Waltham, and Alba rose. The 3d prize fell to Messrs. Paul & Son, Cheshunt, whose flowers of Lady Mary Fitzwilliam, Seneur Vaise, Marie Rady, and Alfred Colomb were very superior. The fourth prize was awarded to the Cranston Seed and Nursery Company, Hereford.

Twenty-four Teas or Noisettes (distinct), single

trusses.—In this class the 1st prize was well taken by Mr. G. Prince, Ojard, with a beautiful stand, the best of which were Comtesse de Nadailac, Souvenir d'Elise Vardon, Etoile de Lyon, Rubens, Amazona, and Madame Willermoz; Mr. F. Cant, 2d, showing excellently; Mr. B. Cant, taking the 3d prize.

Forty-eight single trusses (distinct).—Messrs Curtis, Sandford & Co., Torquay, were the winners of the 1st prize, with one of the best collections in the show, very good flowers being observed in Madame S. de Laplace, Lord Macaulay, E. Y. Teas, Captain Christy, Marie Rady, and Xavier Olibo; 2d, Messrs. J. Burrell & Co., Cambridge, who showed a good lot of blooms in a very fresh condition, the finest being Maurice Bernardin, Beauty of Waltham, A. K. Williams, Françoise Michelon, and Madame Watteville; 3d, Messrs. Cooling & Sons, Bath; 4th, Messrs. J. Jeffries & Son, Cirencester.

Twenty-four, distinct, three trusses of each.—In this class Messrs. Curtis, Sandford & Co. took the lead with an excellent collection. We observed very good flowers of the excellent G. Luizet, Lord Macaulay, Duke of Wellington, Baroness Rothschild, Marie Rady, and Jean Ducher. 2d, Messrs. Jeffries & Son, who in a nice stand had fine flowers of Lady M. Fitzwilliam, Annie Luxton, Duchesse de Valombrosa, Queen of Queens, and La France; 3d, Messrs. Cooling & Son, who showed remarkably well; 4th, Messrs. Burrell & Co.

Twenty-four, distinct, single trusses.—Mr. G. Mount, the Rose Nurseries, Canterbury, was here the winner of the 1st prize, his fine examples of Lady M. Fitzwilliam, Lord Herbert, Dr. Jowitt, Maréchal Niel, Captain Christy, and A. K. Williams; 2d, Messrs. Harkness & Sons, Bedale, Yorkshire; 3d, Mr. T. Bunyard, Ashford, Kent.

Eighteen Teas or Noisettes, distinct, single trusses.—1st, J. Mattock, New Headington, Oxon, whose flowers were very meritorious; 2d, Messrs. J. Burrell & Co.; 3d, Mr. G. Mount.

AMATEURS.

Forty-eight single trusses, distinct.—The 1st prize and Challenge Trophy were taken by the Rev. Joseph H. Emberton, Havering, Esq., having the Silver Medal of the Society for the best flower in the show. A. K. Williams, a superbly finished fresh bloom, filled likewise to this exhibitor. Amongst his very fine examples were Françoise Michelon, Magna Charta, Millie, Marie Cointet, Horace Vernet, Eueene Levet, Louis van Houtte, Duke of Wellington, Countess of Rosebery, Souvenir d'Elise Vardon, and a grand Alphonse Soupert. 2d, W. G. Grant, Esq., Hope End Farm, Leabury, being the best in this stand, having Louis van Houtte, Constantine Trefakoff, Le Havre, and John S. Mill; 3d, E. B. Haywood, Esq., Woodhatch Lodge, Reigate (gr. Mr. Ridout)—Marquis de Castellane and Ferd. de Lesseps were very nice blooms; 4th, S. P. Budd, Esq., 8, Gay Street, Bath. There were nine competitors in this class.

Twenty-four, distinct, single trusses.—1st, Mr. R. Gray, gr. to the Earl of Stanhope, Chevening Park, very staged a very beautiful lot of evenly matched blooms, bright colours predominating—Paul Jamain, A. K. Williams, Horace Vernet, Xavier Olibo, Eueene Levet, Camille Bernardin, La France, and Maréchal Niel being the best of them. 2d, G. Christy, Esq., Buckhurst Lodge, Westerham—Marie Rady, Abel Carrière, Madame Lacharme, and Mrs. Newell, a fine dark Rose, being the best. 3d, E. M. Bethune, Esq., Denne Place, Horsham (gr. Mr. H. Harris); 4th, Mr. Garney Fowler, Woodford, Essex. Four lots were shown.

Twelve, distinct, three trusses of each.—1st, Rev. J. H. Pemberton, with flowers of a medium size, but of generally perfect form; the best being seen in Millie, Marie Cointet, A. K. Williams, Marquis de Castellane, Charles Lefebvre, Niphetos, Marie Baumann, Catherine Mermet, Beauty of Waltham, Madame G. Luizet, and Horace Vernet. Equal 1st, W. J. Grant, with flowers of good substance and size. H. Vernet, Françoise Michelon, Marie Rady, Beauty of Waltham, Général Jacqueminot, and Le Havre, being the finest. 3d, T. E. Hall, Esq., Larchwood, Rockferry—the flowers being rather small—Charles Lefebvre, Dupuy Jamain, Violette Bowyer, Monsieur Noman, Captain Christy, Madame Hippolite Jamain, being the best. Equal 3d, E. W. Girdlestone, Sunningdale, Barks, with flowers unequal in size and pushed by the best—Prince Arthur, Marie Baumann, Caroline Kuster, were good examples. There were eight competitors.

Eighteen Teas or Noisettes, distinct, single trusses.—1st, Rev. Dr. E. G. King, Madingley Vicarage, Cambridge, and winner of the National Rose Society's Silver Medal for the best Tea or Noisette, with Souvenir d'Elise Vardon. Other fine examples were seen in Catherine Mermet, Constant, Anna Olivier, Souvenir d'un Ami, Niphetos, Maréchal Niel, Caroline Kuster, and David Pradel. 2d, Rev. J. H. Pemberton, who had but few really first-class blooms—Madame Bravy, Marie van Houtte, Belle Lyonnaise, and Bouquet d'Or being the finest; 3d, E. M.

Bathune, Esq., small blooms, several being still in the unopened state. There were seven entries.

Thirty-six, distinct, single trusses.—1st, Mr. Brown, gr. to E. Waterlow, Esq., Great Doods, Reigate. His blooms looked fresh, and were of an even and medium size, well contrasted in colour, the finest being a K. Williams, Lady M. Fitzwilliam, Marie Baumann, Reynolds's Hole, M. Noman, Charles Darwin, Merville de Lyon, and Marie Radv. 2d, F. Wade, Esq., Entasham Hall, West Farleigh, some fine examples being observed in his M. Niel, Marie Baumann, M. Noman, E. Levett, Belle Lyonnaise. 3d, Mr. E. Mitchell, Gubens, Corbetsley, Romford, in which, among some fine blooms, were others with fully centres.

Eight distinct, three trusses of each.—1st, Mr. Brown. Great Doods, rather small, but perfect flowers as regards the major number: Etoile de Lyon, Eugène Fürst, Marie Radv, and Merville de Lyon being the finest; 3d, Mr. E. H. Fellows, Wimpole Rectory, Royston; 4th, F. Ward.

Eighteen, distinct, single trusses.—1st, Mr. E. B. Lindsell, Bearton, Hitchin—the examples of Xavier Olibo, Lord Macaulay, Baroness de Rathfeld, Madame G. Luizet, &c., Marie Baumann, being his best flower. 2d, Rev. L. Garnet, Christleton, Chester—fresh-looking, but comprising some imperfect blooms—Comtesse de Nadaillac, La France, and Le Havre, being the best examples. 3d, Miss Baker, Holmfels, Reigate (gr. Mr. J. Budgen)—Ulrich Brunner, Horace Vernet, and E. Levett, were the finest blooms; 4th, Mr. W. H. Wakley, Mackland, Rainham. There were eight entries.

Twelve Teas, or Noisettes, distinct, single trusses.—1st, E. Claxton, Esq., The Rosery, Allerton, Liverpool a lot of small blooms, evenly matched, and not over-blown as some were. The examples of Caroline Kuster, Madame Willermoz, M. H. Jamin, Princess of Wales and Jean Dicher, were very nice. 2d, E. Waterlow, Esq.: Etoile de Lyon, Alba rose and Catherine Mermet being very fine. 3d, Rev. L. Garnet—in this lot the blooms of Comtesse de Nadaillac, Madame Cusin and Souvenir d'un Ami were very good ones. 4th, E. B. Lindsell. There were eight competitors.

Eighteen, distinct single trusses.—1st, E. Wawley, Esq., Rose Bank, Berkhamstead—the finest of the flowers being seen in Captain Christy, Souvenir d'Elise Vardon, Henri Ledechaux, Charles Lefebvre Le Havre, Xavier Olibo: some of the others were not fully developed. 2d, W. H. Jackson, Esq., Stagden Vicarage, Bedford—a lot of medium-sized blooms, but comprising a few fine ones in Xavier Olibo, Alfred Colomb and Beauty of Waltham; 3d, Mr. W. Narrowsay, Headington Quarry; 4th, Mr. H. Lister, gr. to Lord Brooke, Easton Lodge, Dunmow. There were four entries.

Twelve, distinct, single trusses.—1st, Rev. Allen Cheales, Brockham Vicarage, Surrey—a capital boxful, the best being Marie Radv, A. K. Williams, Marie Baumann, Beauty of Waltham, Marchal Niel, M. Noman, Niphetos, 2d, J. H. Foster, Esq., Ashford, Kent, with fresh, smallish, generally perfect blooms—Mons. Woolfield, a very fine pink flower, and Marie Radv were conspicuous examples: 4th, Mr. Rothery, Ribsdon, Windlesham, Bagshot (gr. H. Godfrey). There were six entries.

Nine, distinct, single trusses.—1st, Rev. H. B. Biron, Lympe Vicarage, Hythe: a lot of good Roses cut at the right moment, very beautiful, were—Marie Baumann, Marie van Houtte, Madame G. Luizet, Captain Christy, Violette Bowyer, Innocenta Pirola, La Boule d'Or. 2d, Mr. E. Cuthill, Chapel Croft, West Hamble, Dorking—a pretty boxful, which were preferred by some to the previous lot. 3d, Rev. Canon Hodgson, Saltwood Rectory, Hythe—nice blooms, but not well contrasted. 4th, Mr. E. Home, Park House, Reigate. There were eight entries.

Six, distinct, single trusses.—1st, Rev. Frank S. Taylor, Littleton Vicarage, Evesham—a good stand: Boidieu, Marchal Niel, Charles Lefebvre, and Madame G. Luizet. 2d, Miss Alice Lucas, Wratton, Hitchin; 3d, J. H. Ashurst, Esq., Farningham; 4th, Mr. J. Bateman, 74, Twissdale Road, Highbgate. There were eight entries.

Six Teas or Noisettes, distinct, single trusses.—1st, Rev. F. B. Burnside, Chipping Campden, Gloucestershire, with a lovely lot of flowers—Madame Cusin, Marchal Niel, Comtesse de Nadaillac, La Boule d'Or, Souvenir d'Elise Vardon, Etoile de Lyon, comprising the sorts; 3d, Mr. Fuller, the Vicarage, Bexley; 4th, J. Sladden, Esq., Badsay, Worcester-shire. There were twelve entries.

ENTRA CLASSES.

Twenty-four, distinct, single trusses, twelve H.P., twelve Tea or Noisette.—1st, Rev. R. C. Hale, Woodmincote Rectory, Henfield, Sussex; a piece of plate went with this prize, and a very nice lot of each kind was shown, some of the finest blooms being R. Jacobs, Marie Baumann, Marie Radv, Madame G. Luizet, Beauty of Waltham, Françoise Michelon, Annie Wood, Violette Bowyer, Caroline Kuster, Madame Lambert, Souvenir d'un Ami. 2d,

Mr. W. H. Jackson—very good, not over-blown blooms: Alba rose, Souvenir d'un Ami, Marie Radv, M. Noman, Dr. Andry, and A. K. Williams, comprising the choicest varieties; 3d, W. J. Grant, Esq. There were nine entries.

A basket of Teas or Noisettes.—1st prize, and a piece of plate, C. E. Cuthill, Esq.—a large globular mass of fully developed and half-opened flowers; 2d, E. Claxton, Esq., similar; 3d, Rev. J. A. Williams, Aldermaston Lodge, Stroud. There were five entries.

Twelve, distinct, single trusses.—1st, Rev. Canon Hodgson, Saltwood Rectory, Hythe (gr. Mr. Shoosmith). In this stand we observed nice blooms of Edith Gifford, Innocenta Pirola, Duchesse de Valombrosa, Comtesse de Nadaillac; 2d, W. J. Grant, Esq. There were nine entries.

Six distinct single trusses.—1st, J. H. Ashurst, Esq.; 2d, Mr. Samuel Take, Hitchin; 3d, L. Eames, Esq., Hitchin; 4th, Rev. F. F. Lambert, Clothall Rectory, Baldock. None of these stands were of very particular merit, and showed the 'pretence hind' unmistakably. Ten competed.

Six new Roses, for the first time in English nurseries' lists since the spring of 1834 and subsequently: single trusses.—1st, E. W. Girdlestone, Esq., Sunningdale. We did not observe anything of superlative merit, and will merely indicate the names, &c., premising that none of them had undergone a course of good culture, so small and poor were the blooms:—Gloire Lyonnaise, cream-coloured; Lady of the Lake, pink, incurved petals, centre full; Madame de Watteville, creamy-white, petal cerise tipped; Souvenir de Gabrielle Drevet, similar to the previous one, but the edge colour less distinct; Grace Darling, colour of Catherine Mermet, but very small as seen; Joseph Metral, purplish-crimson. 3d, Rev. Allan Cheales.

Six single trusses of any H.P.—1st, Mr. Gray, Chislehurst, with Eugène Levett, equal to W. J. Grant, Esq., with La France. 2d, Mr. T. B. Hall, with Madame G. Luizet; 3d, Mr. W. Narrowsay, with A. K. Williams; 4th, Mr. S. P. Budd, with Ulrich Brunner. Eleven competed.

Six single trusses of any Tea or Noisette.—1st, E. Claxton, Esq.—Madame H. Jamin in this stand was a very fine bloom; 2d, Rev. F. K. Barnside—Innocenta Pirola was perhaps the best of its kind in the show; 3d, E. W. Girdlestone. Twelve competed.

OPEN CLASSES.

Twelve Teas or Noisettes, distinct, three trusses of each.—1st, Mr. B. R. Cant, Colchester, with Madame C. Kuster, Niphetos, Madame Lambert, very good; Madame Bruy, La Boule d'Or, Moire, Madame H. Jamin. 2d, Mr. F. Cant, with Madame H. Jamin, Innocenta Pirola as his best; 3d, Rev. F. P. Roberts, Rectory, Scole, Norfolk; 4th, Mr. C. W. Piper. There were seven entries.

Garden Roses, of not more than twenty-four varieties.—The prizes fell in the proper sequence to the Rev. J. H. Pemberton, J. Sladden, Esq., and J. Walker. Ten competed.

Twelve bunches of one or Provence varieties.—1st, Messrs. Paul & Son, Cheshunt; 2d, Messrs. G. Banyard; 3d, Cranston Nursery and Seed Co.

Twelve bunches buttonhole Roses, not less than six varieties.—There was a pretty display of these, many Roses not otherwise regarded as buttonhole Roses than in the bud state competed with others that appear just fitted for this purpose. 1st, Mr. J. Mattock; 2d, Messrs. G. Banyard & Co. New Roses, distinct, single trusses.—1st, Messrs. Paul & Son, Cheshunt, with the sorts Madame Rawall Chandone, pink; Longfellow, purple; Grace Darling, Richard Wilder, scarlet; Ella Gordon, scarlet; Madame Julie Gautier, soft rose. 2d, Messrs. Curtis, Sandford & Co., with Baron Trevet, Souvenir de Réed Leveque, crimson; Victor Hugo, dark red; Madame Massecall, Madame Norman Nerada, and President Senegal; 3d, Mr. B. R. Cant. Twelve single trusses of any new Roses brought out since 1884.—1st, Mr. B. R. Cant, with Madame de Watteville; 3d, Paul & Son, Cheshunt, Madame Norman Nerada.

Twelve single trusses of any yellow Rose.—1st, Mr. W. J. Grant, with Marie van Houtte; 2d, W. H. Wakley, Esq., with Marchal Niel; 3d, J. Walker, Esq.; 4th, Mr. B. R. Cant.

Twelve blooms of any white Roses.—1st, Mr. B. R. Cant, with Niphetos, in perfect form; 2d, Curtis, Sandford & Co., with Merville de Lyon; 3d, Mr. W. H. Piper; 4th, Mr. C. Turner—both with alba rosea, very delicate and nice-looking blooms.

Twelve trusses of any crimson Rose.—1st, Mr. B. R. Cant, with A. K. Williams; 2d, Mr. F. Cant; 3d, with the same kind, Messrs. Curtis, Sandford & Co.; 4th, Mr. W. H. Wakley, with Alfred Colomb. Twelve single trusses of any dark velvety-crimson Rose.—1st, Messrs. Keynes, Williams & Co., with Reynolds Hole, fine blooms; 2d, Messrs. Cooling & Son, Bath; 3d, Mr. G. Prince, with Xavier Olibo; 4th, Mr. B. R. Cant, with small blooms of Prince Arthur.

Twelve single trusses of any Rose.—1st, Mr. H. Bennett, with very fine specimens of Lady M. Fitzwilliam; 2d, Messrs. Curtis, Sandford & Co., with Ulrich Brunner; 3d, Mr. B. R. Cant, with Souvenir d'Elise Vardon; 4th, Messrs. Keynes, Williams & Co.

Messrs. Banyard & Co. exhibited, not for competition, a box of blooms of W. A. Richardson, to show its adaptability for buttonhole and bouquet uses.

Mr. J. Walker, Whitton, showed a splendid assortment of English Iris in fine bloom.

Messrs. Burr & Son and Mr. T. S. Ware had a numerous collection of hardy plants in flower.

TUNBRIDGE WELLS HORTICULTURAL: July 2.

THE exhibitions held here annually stand in the front rank of those that take place south of the metropolis. On the present occasion the display, with the exception of fruit, of which there was less than usual, was quite equal to that of former years. Stove and greenhouse plants were remarkably well shown; in the groups competing there was a total absence of the state-flowered examples which, where present, have an adverse influence on the general effect.

STOVE AND GREENHOUSE FLOWERING PLANTS.

The collection of eight, with which Mr. Gibson, gr. to T. F. Barnaby Atkins, of Westfield Place, Sevenoaks, took 1st, was one of the best we have seen for some time. It contained a well-flowered example of Dipladenia amabilis, Ixora Fraseri, a large and finely-bloomed Anthurium Scherzerianum, Allamanda Hendersoni, profusely flowered; and a large specimen of the old Clerodendron fallax, bearing a crowd of spikes of its flaming red flowers, backed by massive healthy foliage. Mr. Rann, gr. to J. Warren, Esq., Hants, took 2d, with a Croton pictus, who was 2d, had, amongst others, one of the largest and best flowered Statice—S. Gilbertii—that we have seen; it is a high coloured form of S. Butcheri, marine-blue; the specimen presented a dense sheet of flowers, 5 feet across; Epacris miniata, in beautiful condition, and a large and well-bloomed example of Azalea Juliana; 3d, Mr. S. Pope, gr. to J. J. Barrow, Esq., Holmwood Park, Tunbridge Wells.

Six stove and greenhouse plants.—Here Mr. Pope took the lead; 2d, Mr. Bolton, The Gardens, Coombe Bank, Sevenoaks, who staged a nicely flowered half-dozon.

Four stove and greenhouse plants.—1st, Mr. Moorhouse, gr. to J. W. Temple, Esq., Leywood, Groombridge, who had a group of well-managed plants.

FINE FOLIAGE PLANTS.

In the class for eight, Mr. Rann had 1st honours, staging as usual a fine group of large-leaved grown plants, the most noteworthy being Croton Evansianus, C. princeps, Phoenix tenuis, and Thrinax elegans. Mr. Pope, who was 2d, also had a fine group containing Allocasia Lowii, Croton angustifolius, and C. variegatus, in the form of pyramids, over 7 feet high, and well clothed with highly coloured foliage.

Six fine-foliage plants.—Here again Mr. Rann took the lead with good specimens in fine order, amongst them being Croton pictus, C. Williamsii—the latter one of the best of the large leaved kinds—a beautiful plant of Bonapartei stricta recurva; 2d, Mr. Moorhouse, who in a good collection had Croton Weismannii, Chamerops humilis, and a splendid example of Cycas revoluta.

FERNS.

With eight, Mr. Pope was 1st, staging a handsome collection, the best of which were Davallia Mooreana, Cyathea medullaris, Dicksonia squarrosa, and D. antarctica; 2d, Mr. Bolton.

SIX FERNS.

Here Mr. Bolton took the lead with fresh nicely grown plants; 2d, Mr. Allen, gr. to G. H. Field, Esq., Ashurst Park, also having good examples.

Hardy Ferns were well shown. Mr. Scammell, gr. to C. Reily, Esq., Tunbridge Wells, being 1st with a good group, the best of which were Osmunda gracilis and Osmunda sensibilis; Mr. Allen, who was 2d, likewise showed well.

LYCOPODIUMS.

As usual here these were shown in beautiful condition, 1st honours being taken by Mr. Scammell, whose collection included charming examples of Selaginella Widenovii, S. Martensii variegata, S. denticulata aurea, and S. caesia; Mr. Aylward, gr. to Mrs. Foster, Boyne House, a close 2d, with plants only a little inferior.

PERLAGONIUMS.

These were in very good condition for so late in the season. Mr. Shoebridge, gr. to W. Edwards, Esq., Fern Bank, Tunbridge Wells, and Mr. Wilkins, gr. to F. V. Williams, Esq., Shirley Hall, being 1st and 2d in the order of their names.

Six zonals. — 1st, Mr. Allen; 2d, Mr. Beilby, gr. to W. H. Tindall, Esq., Hollyshaw.

FUCHSIAS.

With six, Mr. Shoebridge had 1st, staging large specimens nicely flowered: Mr. Beilby, who was 2d, also had creditable plants.

TUBEROUS BEGONIAS.

The 1st prize in the class for six went to Mr. Allen; 2d, Miss Kenrick, Rushall.

GROUPS OF PLANTS ARRANGED FOR EFFECT.

These are always well done here, and being sufficiently numerous to fill a good sized tent are one of the leading features of the show. Mr. Fennell, gr. to Mrs. Cazet, Fairly, Tonbridge, took the lead with a beautiful arrangement, nicely balanced in both form and colour; 2d, Mr. Aylward, who also had a nice group; 3d, Mr. Waterman; 4th, Mr. Wilkins.

CUT FLOWERS.

Roses were forthcoming in nice condition. With forty-eight Mr. G. W. Piper, Piltown Nurseries, Uckfield, came in 1st, with a stand containing, amongst others, some good blooms of *Tes* varieties. Of these may be named *Comtesse de Nadillac*, *Marie van Houtte*, *Souvenir d'Elise Varion*, and *Niphetos*; 2d, Messrs. G. Bunyard & Co., Maidstone. Twenty-four (open). — In this class Mr. Ridout, gr. to T. B. Haywood, Esq., Woodhatch Lodge, Reigate, had 1st, with good flowers, the best of which were Captain Christy, Marie Finger, Marie Verdier, La France, Etienne Levat, Madame Gabriel Luizet, Anna Olivier, and A. K. Williams, the bloom of the last-mentioned taking the National Rose Society's Silver Medal for the best Rose exhibited in the class; 2d, Mr. R. E. West, Reigate.

Twenty-four Roses (amateurs). — Here Mr. Ridout, who was again well in front, with a good stand, in which were fine flowers of Mrs. Baker, Henri Ledechaux, Madame Gabriel Luizet, Captain Christy, and A. K. Williams, which here likewise took the National Rose Society's Silver Medal for the best flower exhibited in the amateurs' classes; 2d, Mr. Simmons, gr. to the Rev. R. C. Hales, Woodmancote Rectory, Henfield, with a nice lot of flowers.

Twelve Roses (amateurs). — Countess of Oxford, Lady Mary Fitzwilliam, Maréchal Niel, and A. K. Williams; 2d, Mr. F. Warde, West Farleigh.

Twelve Teas or Noisettes. — 1st, Mr. Ridout, with beautiful flowers, remarkable amongst which were Catherine Mermet, Souvenir de Paul Neron, Madame Charles, Comtesse de Nadillac, and Madame Cusin; 2d, Mr. F. Warde.

Six Roses. — 1st, Mr. Simmons; 2d, Mr. Shoe-smith, gr. to the Rev. Canon Hodgson, Saltwood Rectory, Hythe.

Eighteen varieties of stove and greenhouse flowers. — 1st, Mr. Moorhouse, who had a beautiful collection, principally Orchids, of which may be mentioned *Lælia purpurata*, *Dendrobium suavisimum*, *D. chrysotoxum*, *Cattleya Gaskelliana*, C. Mendell, C. Mossie, and several varieties of *Ondotoglossum*; 2d, Mr. Waterman, gr. to A. H. Brassey, Esq., Preston Hall, Aylesford.

TABLE DECORATIONS, BOUQUETS, &c.

These are always well represented at Tonbridge Wells, both as regards numbers and elegance of arrangement. With three stands, Mr. Hatton, gr. to Mrs. Swanzy, The Quarry, Sevenoaks, took 1st, having the best arrangement of the kind we have seen for some time; 2d, Mr. Searing, Oak Lodge, Sevenoaks.

Single stand. — 1st, Mr. Bishop, gr. to F. Peake, Esq., The Waltons, Croydon, with a nicely-arranged exhibit; 2d, Mr. F. R. Chard, Clapham.

Stand of five flowers. — 1st, Mrs. Fennell; 2d, Miss Edith Jenner, Golden Green.

Bride's bouquet. — 1st, Mr. Chard; 2d, Mrs. Bishop, Croydon.

Ball bouquet. — 1st, Mr. Chard; 2d, Mr. Bishop.

FRUIT

was less plentiful than usual here, and of a mixed character in the matter of quality. In the collection the mistake is made of no limit being put as to the number of dishes, the result being that a good many are introduced which are no improvement either in appearance or reality. Mr. Waterman took 1st, his best dishes being Black Hamburg and Buckland Sweetwater Grapes, Melons, Peaches, and Figs; 2d, Mr. Hoggoard, gr. to Sir Julian Goldsmid, Somershill, Tonbridge.

Three bunches of black Grapes. — 1st, Mr. Hoggoard, who had well coloured examples of Black Hamburg, a little loose in the bunch; 2d, Mr. Moorhouse, with less bunches not so well finished.

Three bunches of white Grapes. — 1st, Mr. Harvey, gr. to C. L. Huggins, Esq., Warringham, with Muscat of Alexandria, nicely coloured for so early

in the season; 2d, Mr. Moorhouse, with good examples of Foster's Seedling.

Dish of Nectarines. — 1st, Mr. Moorhouse, with fine fruit of Lord Napier; 2d, Mr. Allen, with *Violette Hâtive*.

Dish of Peaches. — 1st, Mr. Bolton; 2d, Mr. Hopkins, The Gardens, High Cross, Framfield.

Melon. — 1st, Mr. Searing, gr. to A. Monkton, Esq., Sevenoaks; 2d, Mr. Crossman.

Strawberries. — 1st, Mr. Scammell, who had a fine dish of Sir Joseph Paxton; 2d, Mr. E. Amies, Maidstone, with James Veitch.

Cherries. — 1st, Mr. Hoggoard, with a beautiful dish of Black Tartarian; 2d, Mr. Waterman, with *Frogmore Early*.

MISCELLANEOUS.

A large and effective group of miscellaneous flowering and fine-leaved plants and Ferns was contributed, not for competition, by Mr. Coleman, gr. to Mrs. Arthur Pott, Bentham Hill, which received a well merited High Commendation. From Mr. A. H. Webber, nurseryman, Tonbridge Wells, came a group of Ferns, very well put together.

TORQUAY HORTICULTURAL SOCIETY'S ROSE SHOW.

THE above exhibition was held on June 30 and July 1, in the Winter Gardens, Torquay. There was a very fine lot of Roses, all the classes well contested, but the high temperature of the building soon caused the flowers to expand after uncovering so that really the cut Roses on the second day could not have been very attractive. Messrs. Curtis, Sandford & Co. took the lead in the principal classes, Messrs. Cranston & Co., of Hereford, and Cooling & Son, of Bath, also showing in good form.

For twelve new Roses of 1885 and 1886, and for six blooms of any new Rose of 1885, Messrs. Curtis, Sandford & Co. took 1st in each.

For twelve blooms, any one variety, Messrs. Curtis, Sandford & Co. were 1st, with a fine lot of *Merveille de Lyon*; Messrs. Cranston & Co. and Cooling & Son 2d and 3d respectively, each with *Madame G. Luizet*.

For seventy-two distinct single trusses Messrs. Curtis, Sandford & Co. were well to the front with good blooms, their best blooms being Ulrich Brunner, a very fine, broad-petalled Rose; *Beauty of Waltham*, Lady M. Fitzwilliam, Eugénie Verdier, Horace Vernet, Etienne Levat, Maréchal Niel, Madame Lacharme, Mons. Noman, M. Vaillant, A. K. Williams, and Dapuy Jamin; Messrs. Cranston & Co. were in capital form; 3d, Mr. W. R. Beachey, of Kingkerswell.

For forty-eight distinct single trusses, Messrs. Curtis, Sandford & Co. again were placed 1st, with a very beautiful fresh lot of Roses, A. K. Williams, A. Colomb, Ulrich Brunner, *Merveille de Lyon* and *Marie Rady* being the best in their collection; Messrs. Cranston & Co., 2d, and Messrs. Cooling & Son, Bath, 3d.

For thirty-six varieties Messrs. Curtis, Sandford & Co. again took 1st honours—a grand specimen of Ulrich Brunner was shown in this stand; 2d, Cranston & Co.

For twenty-four distinct single trusses.—Curtis & Sandford, 1st; Cranston & Co., 2d; Mr. W. R. Beachey, 3d.

For twelve Teas and Noisettes.—Messrs. Cooling & Son took the lead with a very nice lot of blooms indeed. The best blooms in their stand being *Etoile de Lyon*, *Clothilde*, *Maréchal Niel*, *Madame Margottin*, *Alba rosea*, *David Pradel*, and *Perle des Jardins*; Capt. Christy, Sidmouth, 2d, and Cranston & Co., 3d.

AMATEUR CLASSES.

For forty-eight varieties, distinct, single trusses.—1st, Mr. Medland, gr. to Moreton Sparks, Esq., Rooklands, Torquay; 2d, Capt. Christy (gr. Mr. Evans), Sidmouth; 3d, Mr. Marsh, gr. to Sir J. G. Freake, Warfield, Dartmouth.

For twelve trebles.—1st, Mr. Teed, gr. to Mrs. Ensor, The Bungalow, Exeter; 2d, Mr. Medland; 3d, Mr. F. H. Plumtree.

For twenty-four varieties, distinct.—1st, Mr. Medland; 2d, Mr. Cole, gr. to W. B. Fortescue, Esq., Oton, Torquay; 3d, Capt. Fane Tucker.

Twelve varieties, single trusses.—1st, Mr. Teed; 2d, Mr. H. Dammerell, gr. to Lady Macgregor; 3d, Mr. Medland.

For six varieties, single trusses.—1st, Mr. Teed; 2d, Mr. Medland; 3d, Mr. H. Dammerell.

Twelve flowers, one variety.—1st, Capt. Christy; 2d, Mr. F. H. Plumtree.

Table decorations, centrepiece.—1st, Miss Florence Morris, Torquay, with a very pretty and simple arrangement; 2d, Mrs. Seaman.

Twelve stove plants, distinct.—1st, Miss Lock; 2d, Mr. F. Ferris, gr. to J. W. Kimber, Esq.; 3d, Captain Fane Tucker.

Six stove plants.—1st, Captain Tucker; 2d, Mr. H. Dammerell.

Three stove plants.—2d, Captain Tucker. 1st awarded.

Six stove and greenhouse plants.—2d, Mr. Cole; extra prize, Captain Fane Tucker.

Six Coleus, distinct.—2d, Mr. H. Dammerell.

Six greenhouse plants.—1st, Miss Lock; 2d, Mr. H. Dammerell.

Six exotic Ferns.—These were all excellent, and a good competition; 1st, Miss Lock; 2d, Mr. Cole. Six Begonias.—1st, Mr. Ferris, with a very beautiful lot, some very choice doubles being included, *White Lady*, *Perfection*, and *Sulphur Queen* being especially good of the latter kind; 2d, Miss Lock.

Four Orchids.—1st, Mr. G. Lee, gr. to W. Laveis, Esq., having good specimens each of *Ondotoglossum vexillarium*, *Cypripedium barbatum*, *Cloves*, *Cattleya Mossie*; 2d, Mr. Medland, who has always taken the lead with Orchids in this neighbourhood up to the present time.

Specimen Orchid.—1st, Mr. Lee, with a nice piece of *Cattleya Gaskelliana*; 2d, Mr. Medland, with *Thunia alba*.

FRUIT.

Collection of six distinct kinds.—1st, Mr. Cole, with good Black Hamburg Grapes, good Royal George Peaches, Lord Napier Nectarines, Golden Perfection Melon, and Sir Joseph Paxton Strawberries, fine.

Three bunches black Grapes.—1st, Mr. Cole, with Black Hamburg; 2d, Miss Lock.

Three bunches white Grapes.—1st, Miss Lock. In the classes for six Peaches and six Nectarines, Mr. Cole took 1st, with nice fruit.

For white and red Currants Mr. Plumtree took 1st prize.

Six kinds of vegetables.—1st, Mr. Cole.

SPECIAL PRIZES.

For twelve Begonias.—1st, Mr. W. R. Beachey, with a capital lot, good varieties, and well grown.

Miscellaneous groups of plants.—1st, Miss Lock; 2d, Mr. H. Dammerell; 3d, Captain Fane Tucker.

Cut flowers, twelve bunches.—1st, Mrs. Teed; 2d, Mr. Medland.

The local nurserymen contributed large collections of plants and cut flowers. Messrs. Veitch, of Exeter, showed a fine group of Japanese Maples, and a collection of choice Orchids, stove and greenhouse plants, with an abundance of cut blooms of herbaceous and other flowers, among them being *Paeonies*, very showy; *Gladioli*, of *The Bride* or *Colville* section, some very beautiful and attractive varieties were shown, especially the *Blushing Bride*, *Delicatissimus ramosus*, *Giant Red*, and *Prince Albert*, *Delphiniums*, *Paeonies*, and some excellent boxes of *Roses*. They had some very fine examples of Sir Joseph Paxton, *Vicomtesse Hericart de Thury*, and *President Strawberries*, and an early large *Marrow Pea*, which obtained a Certificate. Some beautiful *Sarracenia Cheloni* and *purpurea* were very good, together with a nice collection of double Begonias, and a very effective group was made.

Messrs. Lucombe, Pince & Co. were strong in cut blooms, especially of *Niphetos* *Roses*, excellent boxes of *Pansies*, plants of *Felargoniums*, *Paeonies*, and Orchids in great variety.

Messrs. Smale, Barton Nurseries, put up a large collection of decorative plants; also Messrs. Phillips & Co.; Mr. W. Mitchell; Messrs. Horn & Son, Mary Church, Torquay; Mr. W. H. Burridge, Paignton, and Mr. W. R. Beachey, Kingkerswell.

Mr. Medland put up a nice group of several dozen Orchids in bloom, which were a very attractive feature of the exhibition.

SHEPPERTON HORTICULTURAL:

July 1.

HELD in beautiful weather, and in the charming Thames riverside grounds of Manor House, Shepperton, the residence of Mrs. W. A. Lindsay, on the above day, a very successful show resulted, although in so secluded a corner of Middlesex it was a matter for wonder whence the people were to come from to make a financial success of it also. Disposed under gigantic overhanging Elms, the tents were small but numerous, thus scattering the exhibits, and permitting no good general effect to be obtained.

PLANTS.

Of these, the best stove and greenhouse plants came from Mr. Reeves, gr. to W. Hewett, Esq., Oatlands Park, who had a good specimen of the bearded Orchid, *Brassia Wraye*, also fair *Statice profusa*, *Plumbago capensis*, *Cladendron Balfourianum*, and *Tabernaemontana coronaria* (fine-pleo); Mr. Child, gr. to Mrs. Slade, Claygate, Surrey, was 2d best. Mr. Reeves also had the best foliage plants in good Croton majestics, *Pandanus Veitchii*, and *Caladium Prince Albert*, &c. Mr. Reed, gr. to E. Pettitt, Esq., Oatlands Park, had in his lot a capital coloured *Acalypha*. Ferns were plentiful, Mr. Reed having the best six,

whilst the best six *Adiantums* came from Mr. Barrow, gr. to the Rev. A. Brandon, Chertsey, who had fine *Formosum cuneatum gracillimum*, and with others, a good plant of *A. Sancti Catharinae*, having broad sinuate, a very handsome kind. *Coleuses* were in strong force, the best well grown and coloured pyramids coming from Mr. Waite, gr. to the Hon. Colonel Talbot, Essex. The best kinds were *Princess Royal*, *Sunset*, and *Miss Rosina*. Mr. J. Batt, gr. to H. W. Cuthbert, Esq., Charlton, was 2d, also with good coloured pyramids. Mr. Wiggins, gr. to W. Clay, Esq., Kingston, had the best six show *Polygoniums*, small, but very fresh well-bloomed plants; as also, a good showy group of seedling plants in bloom. *Zonals* were largely shown, the best doubles—really fine well-bloomed plants—coming from Mr. Waite, and included Mrs. Leavers, *Madame Pomeri*, *Colonel Pomeri*, *Double Perfection*, and C. H. Phayer. Mr. Waite had also the best singles, large well flowered plants, in John Gibbins, *Blanche Gordon*, *Miss Stockholm*, &c.; Mr. Reeves being 2d, also with good plants.

Mr. Child had the best *Begonias* in *Heletia*, *Boule de Neige*, Mr. A. Slade, and others, richly bloomed; and the 2d best lot, good compact plants, came from Mr. Thorne, gr. to A. E. Flood, Esq., Walton-on-Thames.

Gloxinias were largely shown, and generally good, the best dozen really good plants, grandly flowered, coming from Mr. Bradley, gr. to Mrs. Walker, Shepperton, and Mr. Beaver the best half-dozen.

Fuchsias were in capital form, the best pyramids, in excellent bloom, coming from Mr. Reeves, and there were in the groups good specimens of *Lord Beaconsfield*, *Wave of Life*, Mrs. Marshall, *Gustave Dore*, and *Alba coelestis*.

The only lot of six *Orchids* came from Messrs. Jackson & Son, Kingston, and included some good pieces of *Dendrobium suavisimum*, *Cattleya Mossiae*, *Cypripedium barbatum*, *C. grandiflorum*, &c. This firm also showed a capital group of their *Ericas*, and other stove and greenhouse plants.

The usual decorative groups were not a strong feature. Mr. Sutton, gr. to J. S. Sassoon, Esq., Walton, came 1st, Mr. Reeves 2d, and Mr. Reed 3d, with combinations of the usual order.

ROSES.

These, in the form of cut flowers, were in strong force, the open forty-eight singles bringing Mr. B. R. Cant, from Colchester with a full lot of blooms; Mr. C. Turner, of Slough, coming next. Messrs. G. Bunyard (Maidstone), and Fletcher (Atherstone), also being competitors. The flowers shown included many of the best known kinds.

Mr. Warwick, gr. to H. Kitchen, Esq., Hampton, had the best twenty-four blooms, and also the best twelve, all very fresh.

In the class for six blooms of one kind fifteen lots were staged, the old H.P. *Général Jacquemont* coming 1st, Lady Mary Fitzwilliam 2d—the former from Mr. Warwick, and the latter from Mr. Bennett, of Cobham.

Mr. E. Bennett, Shepperton, staged a fine box of his Lady Mary Fitzwilliam, as fine a lot as we have seen, all grand flowers. Mr. W. Taylor, Hampton, also staged good cut *Roses*.

FRUITS

were moderate, the best three bunches of Black Hamburgs coming from Mr. Osman, gr. to L. T. Baker, Esq., Chertsey; and Mr. Taylor, having the second best. The former exhibitor was also with whites, having very good *Blackland Sweetwater*; and Mr. Reed followed with Foster's Seedling. Royal George was the best Peach shown, and President, a really grand sample, from Mr. Briggs, gr. to the Rev. H. Vigne, Sunbury, the best Strawberry. James Veitch and Sir Joseph Paxton were also good. William Tillery was the best Melon, and the best Cucumbers handsome samples of *Blue Ground*, shown by Mr. Menick, gr. to A. Stearns, Esq., Hallelford; and Tender and True from Mr. Waite, who also had the best Tomato. This exhibitor also, in good competitions, took 1st prize in two separate classes for the best lot of twelve kinds of vegetables in baskets—both very fine collections, showing high merit. In one class Mr. Batt took 2d place, and in the other Mr. Child.

Bouquets were plentiful, but chiefly amateurish, solid, and heavy.

Dinner-table decorations were more varied, and in several instances very pleasing, no less than seventeen tables being dressed with large and lesser stands in all sorts of fashions. The ladies who awarded the prizes seemed to prefer heavy dressing, the 1st prize going to a composition of cream and pink *Roses* with Maidenhair Ferns arranged by Miss A. Lucas, of Hallelford; Miss Alice Lendy, of Sunbury, coming 2d, with a lighter combination of Dog *Roses*, creamy flowers in variety, grasses and Ferns, but still too much of it. One table dressed with simple wild flowers, scarlet Poppies, Ox-eye Daisies, yellow

Cornflowers, and blue Cornbottle, with grasses, was both elegant and pleasing, in spite of the combination of somewhat striking colours.

COTTAGERS' SHOW, LIVERPOOL:

July 3.

COMPARED with the other departments of the Royal, at Liverpool, the cottagers' display was a poor one indeed. Doubtless the earliness of the season had something to do with it, combined with the fact that in the neighbourhood of the show there are no true cottage gardens, these being situated some 6 or 7 miles distant, in Cheshire. Some nice bunches of annuals were exhibited—pretty and showy.

The class for three window plants was only represented by two exhibitors, who showed typical specimens of subjects that are, as a rule, so well done by cottage gardeners, one lot, the 1st prize, containing an exceedingly well-flowered double Ivy-leaved *Polygonium*. What a fine subject for window culture is the double Ivy-leaved *Polygonium*. The 2d prize lot had a nice plant of *Kalsanthes coccinea*, bright and good. A well flowered *Begonia* was also noticeable. *Fuchsias* were fairly represented in the varieties *Avalanche* and *Mrs. Lye*.

The only class in which any approach to competition was made was that in a bunch of cut flowers, the 1st prize being awarded to a nice little posy, admirably arranged, to Harry Mercer, Higher Bebbington, Cheshire. Charming buds of *Gloire de Dijon* and other *Roses*, sweet *Carragans*, pretty blue *Forget-me-Nots* and nice sprays of *Spirea*s tastefully peeping out, made up a charming yet simple combination; the fault with most being that they were lumpy—one indeed that was disqualified, but which was awarded an extra prize, being a veritable ball of flowers. This is a matter in which our cottagers need some training—in taste in arrangement, which is half the battle in a competitive display.

Vegetables call for no special comment—Potatoes, owing, doubtless, to the earliness of the season, being very small. Cabbages were pretty fairly shown. A nice collection of sweet and pot herbs was also on view. A curiosity was a bunch of five medium-sized Cucumbers (Telegraph) on a shoot or stem of some 6 or 9 inches long; originally it had produced six, one being removed. This was awarded an extra prize, and was exhibited by a shoemaker, James Norris, Liverpool Road, Formby.

RICHMOND SHOW: July 7.

THE show was held in the customary place—the old Deer Park—three large marquees, together with a few smaller tents, being there erected to hold the exhibits. These were numerous, and generally of good quality, with the exception of some of the fruits—as *Pines* and *Grapes*—*Peaches*, *Strawberries*, and vegetables being very fine, the cottagers' exhibits especially so. *Palms* and other foliage plants, *Ferns* and the groups of plants ranged for effect in the largest marquee, the *Roses* and table decorations, the latter being encouraged by special prizes offered by the members of the Royal Family resident in the neighbourhood and by others, had brought together a considerable amount of competition.

Some very beautiful *Roses* in pots and as cut blooms were shown by Messrs. J. Veitch & Sons, which were not excelled by any at the National Rose Society's show at Kensington.

Space does not allow of a full list of awards being given, but only the names of the 1st prize-takers in the prominent classes.

Groups of plants arranged for effect, 100 square feet.—Messrs. Hooper & Co., Twickenham and Covent Garden, were here the winner of the 1st prize, the *Lilium auratum*, *Petunia Empress*, *Croton Mortii*, forming some of the most attractive plants in a very pleasing arrangement.

Nine stove and greenhouse plants.—Messrs. T. Jackson & Son, Kingston, won the 1st prize with well bloomed *Erica*, *Rondeletia*, *Pimelea*, &c., each plant being excellent in its way.

Mr. F. J. Hill, gr. to H. Little, Esq., Twickenham, took 1st prize for *Polygoniums*.

Messrs. Jackson & Son were 1st for six exotic *Orchids*, having well bloomed examples, *Cattleyas* of various species, *Aceris rosea*, *Odontoglossum vexillarium roseum*, and *Saccolabium Blumet*, &c.; Messrs. F. J. Hill and Mr. H. James taking respectively 2d and 3d prizes.

Mr. Munro, gr. to E. D. Paul, Esq., Twickenham, took the prize for eight *Ferns*, well grown, handsome plants.

Mr. J. Dorset, gr. to Mrs. Welch, Westcroft, Kingston, came in 1st for nine capital *Fuchsias* of medium exhibition size.

Polygoniums of the zonal type were in great numbers, and were generally well done, the winner of the 1st prize being Mr. Sallow, gr. to Mrs. Slack.

Messrs. Hooper & Co. took the 1st prize for a group of foliage plants (six), healthy, well grown

specimens, of a useful size, the rare *Kentia Lucayana* being one of them.

In the open Rose competition Messrs. Pau & Son, the Old Nurseries, Cheshunt, took the 1st prize for thirty-six triplets.

In the amateurs' classes for twenty-four blooms, single trusses, the prizes fell respectively to Mr. Warwick, gr. to J. P. Kitchen, Esq., Hampton; Mr. R. E. West, Reigate; and Mr. Fanning, gr. to W. Clarke, Esq., Roehampton.

For twelve blooms, Mr. West and Mr. Warwick were 1st and 2d.

Messrs. C. Lee & Son, Hammersmith, had a capital non-competing group of "picture trees and shrubs," amongst them being the golden and silver *Horse Chestnuts*, *Cornus aurea elegantissima*, *Sambucus nigra aurea*, *Quercus nigra rubra*, Q. Mirbecki, Q. argentea picta, *Cerasus elegantissima*, a very pretty silvery variegation.

FRUIT.

Mr. J. Coombes, gr., Sheen House, took 1st prize for Black Hamburgs; Mr. W. Bates, gr. to Mr. Meek, Powlet Lodge, was 1st for Foster's Seedling; Mr. O. Hickle, gr. to W. Cunard, Esq., Twickenham, took the 1st prize for a small Queen Pine; Mr. E. Lake was 1st for a dish of Peaches of much merit; and Mr. O. Hickle for Nectarines. Mr. Croker, gr. to W. Reynolds, Esq., Isleworth, was 1st for two dishes of Strawberries—good fruit of President and Sir J. Paxton. For a collection of six dishes of fruit Mr. H. Cakebread, gr. to Sir P. T. Rose, Bart., Rysora, Penn. Bucks, was 1st, his Melons, Peaches, Figs and Grapes being very good. A good many bunches of Grapes were shown, but nothing was above ordinary form, Mr. T. Osman being winner with both black and white varieties; Mr. Cakebread was 2d for white sorts.

VEGETABLES.

Cucumbers were in abundance, and were of great excellence, Mr. Fillsell, gr. to T. R. Greaves, Esq., Twickenham, taking 1st prize.

In the amateur class Mr. Siron, of the Police Orphanage, Twickenham, took the 1st prize for a collection of vegetables of fairly good quality, the Cauliflowers being the weakest point. Mr. C. J. Waite, gr. to Colonel W. P. Talbot, Esq., was 1st in the open class, most of his vegetables being of good quality, especially so the Tomatoes, Artichokes, Broad Beans, and Peas.

The local exhibitors came out very strongly in the vegetable classes, and the competition was consequently of a keen character.

Dinner-table decorations, bouquets, sprays, and cut flowers generally, were in great quantities, the special and other prizes being well competed for.

TWICKENHAM HORTICULTURAL:

June 28.

THROUGHOUT the action of a neighbouring society in appropriating the date usually occupied for the summer show at Twickenham, this exhibition had to be brought forward a week, and thus to some extent in a late season suffered. Still farther, shows in two adjoining parishes on the two following days presented obstacles to many exhibitors. As a result the classes were generally thinly filled, and the show as a whole was not up to its usual mark. In one respect, however, some compensation was made, as the grand groups of cut flowers from Mr. Walker, of Whifton and Mr. W. Poupard, of Twickenham, demonstrated. Mr. Walker puts up always the finest *Daffodils*, and in the same way his *Peonies*, *Irises*, both English and Spanish in great and beautiful variety, and rich orange and yellow examples of *Papaver nudicaule*, were fresh and exceedingly beautiful. Mr. Poupard showed *Peonies* and *Irises*, also mosses and other *Roses*, crimson *Camellias*, also mosses and other *Roses*, in several striking colours, &c. Of general plant groups there were sent by Messrs. Veitch & Sons, Chelsea, a lovely lot of dwarf *Roses* in pots, wonderfully fresh and striking, neatly margined with the telling variegated *Eurya latifolia*. From Messrs. Jackson & Son, Kingston, came a charming group of stove and greenhouse plants, including good *Ericas*, *Ixoras*, *Pimeleas*, and numerous good *Orchids*. Mr. W. Gordon, of Twickenham, sent a capital lot of plants that included many good forms of *Odontoglossum Alexandrie*, also *Tuberoses*, and *Liliums*. Mr. R. Luing, Twickenham, had a pretty group of decorative plants, with standing out from them, some wondrously flowered *Tuberoses*. Mr. Wiggins, gr. to W. Clay, Esq., Kingston, sent a very effective group of seedling large-flowered and golden tricolor *Polygoniums*, which were greatly admired. Mr. Henry Little, Twickenham, showed a fine lot of *Orchids*, including many fine *Cattleyas*; and from Mr. W. Taylor, Hampton, came baskets of Captain Christy and Lady Mary Fitzwilliam *Roses*, with a good lot of other blooms, including the pretty single-flowered *rugosa*. Mr. Bray, of Richmond, had two handsome bouquets of *Roses*, one white the

other pink and crimson, with ribbon trimmings to match.

Decorative Groups.—In the open class the finest of these was sent up by Messrs. Hooper & Co., in that firm's superb style. Petunia *Empress*, a lovely soft tint, and grand Gloxinias, were prominent features in a faultless arrangement. Mr. Filsell, gr. to Mr. Greaves, next followed, with a neat arrangement. In the smaller groups the best, a very bright coloured affair, neatly arranged, came from Mr. Buckland, gr. to G. J. Atkins, Esq., Twickenham; Mr. Bates, gr. to Mrs. Meek, Pouett Lodge, Twickenham, in whose charming grounds the show was held, took 1st place with six plants in flower, having really capital examples of Allamanda Hendersoni, Clerodendron Balfourianum, Bougainvillea glabra, Plumbago capensis, Sobralia macrantha, and the pretty white Trachelospermum. Messrs. Jackson & Son were 2d, having good Francisca calycina major, Boronia elatior, and Darwinia fuchsoides, &c. The only lot of large-flowered Pelargoniums came from Mr. Hill, gr. to H. Little, Esq., fine plants of Delicatum and Nelly Fordham (fancies), and Thebas formosa, &c., large flowered.

Gloxinias were good, especially the six plants from Mr. C. Garrod, gr. to J. R. Tisdale, Esq., dwarf, finely flowered, and admirably grown; Mr. Parson, gr. to T. Twining, Esq., had the 2d best lot, really good plants also; and the only lot of Begonias in bloom, small but admirably flowered.

Fruit was moderately represented, the best Black Grapes, really good Madresfield Court, superbly finished, coming from Mr. Thomson, gr. to Messrs. Wells, of Hounslow; Mr. Parson's coming next with good Hamburgs; the best whites were good Foster's Seedling, from Mr. O. Hickie, gr. to W. Cunard, Esq., Orleans House; and Mr. Thompson was 2d best with promising Muscats. Mr. Thompson had the best dish of Peaches in fine Gros Mignonne; Mr. Hickie the best Nectarines in fine Elrige; and Mr. Waite, gr. to the Hon. C. Talbot, Esq., the best Melon, in Hero of Lockynghe. He was also 1st with a handsome brace of Tender and True Cucumbers, Royal Windsor coming 2d. The finest Tomatos, *Ne plus Ultra*, came from Mr. Hickie. Mr. Waite was an easy 1st with a fine lot of vegetables, inclusive of Snowdrop Potatoes, Leviathan Beans, Early Nantes Carrots, Telephone Peas, good Cauliflowers, &c. Mr. Poupert sent a very fine lot of market vegetables, including Giant Cauliflowers, fine Cabbages, Turnips, Tomatos, Vegetable Marrows, &c. The cut flower and table decoration tent was well filled, but Roses were of moderate quality. As usual, the best box of cut Gloxinias, really beautiful blooms, came from Mr. Norwich, gr. to J. P. Kitching, Esq., Hampton.

COLONIAL NOTES.

A HANDFUL OF NATAL TERRESTRIAL ORCHIDS.

It is well known that although South Africa does not abound in showy epiphytal Orchids, yet there are very many handsome terrestrial species in this country well worth cultivation. On looking through trade lists or scanning the pages of the *Gardeners' Chronicle*, it is rare to find aught from South Africa but *Disa grandiflora* or *D. Herschellii*. I shall venture to describe here a few of the best terrestrial species I know, omitting very many others which I have met with, as not being showy they do not seem to be worth much notice for garden purposes. I must say that it is very difficult to identify with precision any Orchid here except the best known ones. I have not seen the below-quoted plates from the *Botanical Magazine*, &c.; all know how badly Orchids dry (for the herbarium), and there is no complete set of native plants properly named in town here, but I will do the best I can. Following Harvey's *Genera* we begin with—

Eulophia ensata, Lindley, *Bot. Reg.*, t. 1147.—Pseudobulbs shaped like a flattened Potato, six to eight in number, lying well below the soil. Leaves long and narrow, about 1 inch broad, and 18 inches long. Flower-stem 1½–2 feet long, bearing at the top a dense cluster of from thirty to forty tube-shaped flowers, three-quarters of an inch long, of a clear bright yellow. Sepals, petals, and labellum, all much alike; the lip has a short spur, and is covered with short hair-like teeth. This is a tall, noticeable plant, flowering through December and the first week of January. It grows amongst long grass fully exposed to the sun, at elevations of 2500–3000 feet on hillsides, and also on level ground. Soil a heavy black loam.

Eulophia Dregeana, Lindley.—Pseudobulbs flat-

tened, conical in shape, their tops just visible above the soil. Leaves recurved, rather more than 1 inch broad and 1 foot long. Flower-stem 1½ foot long, bearing about a dozen flowers, near 2 inches across, in a lax raceme. Sepals green, petals pale primrose-yellow or white. Lip superior, mauve-coloured, with a small spur. A very bright, handsome plant, flowering about the same time as the last species. Rather rare; grows in peaty soil amongst rocks in moistish but open places, at an elevation of 3000–3500 feet.

E. sp.—A very fine species I once saw, but neglected to collect, may be briefly noted. Habit of *E. ensata*, but the flowers are twice as large, yellow, with a deep maroon spot at the base of the lip.

Lisichilus Krehlii, Reichenbach fil., *Bot. Mag.*, t. 5861.—Pseudobulbs conical, growing on the surface of the soil. Leaves nearly 2 inches across, and 1½ foot long. Flower-stem 4 to 6 feet high, bearing about fifty flowers, which are 1½ to 2 inches across. Sepals light brown or deep maroon-purple. Petals golden-yellow above, cream-coloured beneath. Lip with a short spur, yellow and purple-tinted. The finest Orchid I know of, and well worth a place in the most select collection. One variety I have seen has the petals veined with purple beneath, and is probably the same variety as that described by Mr. H. N. Ridley as *L. Krehlii* var. *purpurata* (see *Gard. Chron.*, July 25, 1885, p. 102). Time of flowering from beginning of November to end of January. Our plant is by no means plentiful, it is never found growing in the open sun, but on the outskirts of the bush in partial shade at an elevation of 3000 feet. Soil, loose peat and leaf-mould.

Satyrium candidum, Lindley.—Tubers ovate, about 2 inches long. Flower-stem 12–15 inches high, with two large ovate leaves at the base. Flowers from fifteen to twenty, about half an inch across, snow-white, sweet-scented. The back sepal has two long slender spurs. The shape of the flower reminds one of a Gothic gargoyle. It is a pretty species, one of our earliest spring flowers. It is found growing on open hillsides in black loamy soil amongst grass, flowering through November, at an elevation of 2500–3000 feet.

S. carneum, R. Brown, *Bot. Mag.*, t. 1512.—This plant is like the foregoing in habit and locality, but it flowers about a month later, and is more robust in habit. The flowers are rosy-carmine, and I have seen wild specimens 3 feet high; but I must say I am not certain of the exact names of these two *Satyriums*, owing to reasons as above stated.

Disa polygonoides, Lindley, *Bot. Mag.*, t. 6532.—Tuber long and pointed, about 4 inches long. Leaves lanceolate. Flower-stem 2–4 feet high, bearing 100–200 small close-set flowers, varying in colour from pink to scarlet. A showy species, growing often on steep hill-sides in heavy red clay or black loam fully exposed to the sun. It continues in flower during December and January at an elevation of from 2500–3000 feet.

D. macrantha, or what is taken for such, I have spoken of in a previous paper as found near the Poela.

Disperis Fanniniae, Harvey, *Thesaurus*, t. 171.—A very delicate quaint little plant. Tubers very small. Flower-stem a foot high; leaves stem-clasping. Flowers 3–5 in number, nearly three-quarters of an inch across; white with a purple tint. The structure of the flower is very curious, in aspect it resembles an old-fashioned mob-cap! It grows under the shade of trees, amongst leaf-mould, at an elevation of 3000 feet.

CULTIVATION.

In addition to the above Orchids I would mention a *Cymbidium*, possibly a terrestrial species. I have one plant, but it has not yet flowered. It has long cylindrical pseudobulbs (evidently tending to a true stem) some 2 feet long, crowned by a tuft of two-ranked leaves 1 foot long and 1 inch broad. Can this be Harvey's *Cymbidium Sandersoni* first described by him some thirty-five years ago, but since lost sight of?

And now a word as to cultivation, of which I should not have ventured to add to Mr. Brown's remarks, were it not that he refers mostly to the Cape climate which is very nearly the reverse of ours. My knowledge of the Cape peninsula is very limited. Twelve years ago I spent two days there, and partly ascended Table Mountain. In that region, as I understand, most rain falls between May and September in the winter. The dry season is in summer, from November to April.

In Natal it is just the other way about. Our Orchids flower in the moist season from November to March, during which time they enjoy much rain and sun alternately. From April to October rain is scarce—a slight shower every month on the average; but—and I wish to draw special attention to this—the soil beneath the surface does not get dust-dry. Nearly all our Orchids, save *Lisichilus*, delight in a heavy retentive black loam or red clay, interlaced with grass roots; during winter the air is very clear and the dews are heavy and of course the dry grass absorbs a good deal of moisture. There is no deep secret in the cultivation of terrestrial Orchids; we see *Disas* and *Satyriums* growing alongside of *Gladioli* and *Gazanias*, and surely any one can grow the last named.

Lisichilus and *Eulophias*, from the nature of their rhizomes, have an indefinite life, but the members of the great tribe *Ophrydeae* seem to live but a few years. Take *Disa polygonoides*, for instance. The first year's seedling will be a tiny plant about 2 inches high, the second year it increases in strength, the third it flowers, the fourth a stronger spike is sent up, and then the plant perishes. *Disas* and *Satyriums*, however, seed very freely, and there should be no difficulty in thus propagating them. I would advise firm potting in turfy loam with good drainage, and to meddle with them as little as possible. Keep the plants cool and moderately dry in the winter, and heat with moisture in the summer.

I cannot refrain (though it has no direct bearing on Orchids) from speaking of the most unusual weather we have had in the past summer. March generally sees the last of the summer rains, and the final shower is usually a heavy one, but this season has been unsurpassed for very many years. On the afternoon and evening of March 7 there fell 4.20 inches of rain. A sudden flood of course followed. Our river rose 30 feet in less than six hours, and much damage was done. I regret to say the *Tuberosa* crop has suffered much. Very many thousands of bulbs planted near the river were torn out of the ground, swept away, and totally lost; those remaining were further injured by a heavy hailstorm two days after. R. W. Adlam, Maritzburg, Natal.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, JULY 7, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC REDUCTIONS FROM GLAISHER'S TABLES 7TH EDITION.		WIND.	RAINFALL.		
							Dew Point.	Degree of Humidity, Sat. = 100.				
											Average	Direction.
Mean Reading Reduced to Sea Level.	Barometer at Time of Day.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 50 years.	Dew Point.	Degree of Humidity, Sat. = 100.	Average Direction.			
July	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.		
1	30.11	+0.20	70.5	48.5	22.0	59.2	-2.0	48.2	67	E. S. E.	0.00	
2	30.13	+0.31	78.5	51.5	27.0	63.0	+2.8	50.0	61	E.	0.00	
3	30.14	+0.33	83.5	54.0	29.5	66.0	+4.7	57.6	71	E. N. E.	0.00	
4	30.14	+0.31	86.1	50.5	35.6	71.7	+7.0	63.1	61	W. S. W.	0.00	
5	30.07	+0.26	81.2	61.0	20.2	71.0	+9.8	68.8	45	N. W.	0.00	
6	29.93	+0.13	84.5	55.5	29.0	69.2	+7.6	63.1	61	S. S. W.	0.00	
7	29.73	+0.08	86.8	59.0	27.8	69.9	+7.5	64.4	74	S. S. W.	0.00	
Mean	30.03	+0.23	81.5	55.7	25.8	67.3	+5.9	63.3	63	S.	0.00	

July 1.—Very fine day.

2.—Very fine.

3.—Very fine, few light clouds in afternoon.

4.—Fine day.

5.—Very fine.

6.—Very fine.

7.—Very fine, few clouds in morning.

LONDON: Atmospheric Pressure.—During the week ending July 3, the reading of the barometer at the level of the sea increased from 30.02 inches at the beginning of the week, to 30.24 inches by 9 A.M. on the 28th, decreased to 30.19 inches by 5 P.M. on the same day, increased to 30.33 inches by 9 A.M. and decreased to 30.27 inches by 5 P.M. on July 1st, increased to 30.34 inches by 9 A.M. on the 2nd, and was 30.30 inches by the end of the week.

The mean reading of the barometer for the week

at the level of the sea was 30.26 inches, being 0.27 inch higher than last week, 0.26 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 83° on July 3rd; on the 1st the highest temperature was 70° 5'. The mean of the seven high day temperatures was 76° 0.

The lowest temperature was 48° 5, on July 1st; on June 30th, the lowest temperature was 54° 0. The mean of the seven low night temperatures was 52° 1.

The greatest range of temperature in one day was 29° 3, on June 29th; on the 27th the smallest, was 18° 3. The mean of the seven daily ranges was 23° 9.

The mean temperatures were, on the 27th, 63° 2; on the 28th, 63° 7; on the 29th, 65° 5; on the 30th, 62° 6; on July 1st, 59° 2; on the 2nd, 63° 9; and on the 3rd, 66° 9; and these were all above their averages (excepting July 1st which was 2° below) by 1°, 2°, 4°, 4°, 2°, 1°, 4°, 2° 3 and 5° 7 respectively.

The mean temperature of the week was 63° 4, being 5° 4 higher than last week, and 2° 1 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun, was 135° 5, on the 28th. The mean of the seven readings was 129° 9.

Rain.—No rain fell during the week.

ENGLAND: Temperature.—During the week ending July 3, the highest temperatures were 88° 2 at Cambridge, 85° 0 at Truro, 84° 0 at Sheffield and Leeds; the highest at Liverpool was 73° 5, at Brighton 74° 5, at Plymouth, 76° 2. The general mean was 80° 4.

The lowest temperatures were 35° at Sheffield, 41° 3 at Cambridge, 44° at Hull; the lowest at Liverpool was 51° 4, at Plymouth 49° 9, at Brighton 49° 3. The general mean was 46° 2.

The greatest ranges were 49° at Sheffield, 46° 9 at Cambridge, 40° at Truro; the least ranges were 22° at Liverpool, 25° 2 at Brighton, 26° 3 at Plymouth. The general mean was 34° 2.

The mean of the seven high day temperatures was highest at Cambridge 78° 8, at Truro 77° 7, at Bristol 76° 1; and was lowest at Liverpool 70° 4, at Bradford 70° 6, at Brighton 71° 2. The general mean was 74° 0.

The mean of the seven low night temperatures was highest at Liverpool 55° 8, at Wolverhampton 54° 7, at Preston 54° 4; and was lowest at Cambridge 47° 4, at Truro 48° 3, at Hull 49° 1. The general mean was 51° 5.

The mean daily range was greatest at Sheffield 32° 1, at Cambridge 31° 4, at Truro, 29° 4; and was least at Liverpool 14° 6, at Bradford 18°, at Preston 18° 9. The general mean was 22° 5.

The mean temperature was highest at Blackheath 63° 4, at Wolverhampton 62° 6, at Leeds 62° 4; and was lowest at Sheffield, 57° 2, at Hull 58° 8, at Bradford 59° 8. The general mean was 60° 9.

Rain.—There was no rainfall at any station during the week, excepting at Nottingham, when the amount of two days was 0.16 inch.

SCOTLAND: Temperature.—During the week ending July 3, the highest temperature was 81° 7, at Dundee; at Greenock the highest was 77° 2. The general mean was 79° 4.

The lowest temperature in the week was 37° 5, at Perth; at Dundee the lowest temperature was 45° 6. The general mean was 47° 8.

The mean temperature was highest at Dundee 61° 3, and lowest at Aberdeen 58°. The general mean was 60° 0.

Rain.—Rain fell at Aberdeen to the amount of 0.16 inch. No rain fell at Glasgow, Edinburgh, Dundee, Greenock, Leith, Paisley, or Perth.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, July 5, 1886, issued by the Meteorological Office, 116, Victoria Street, London, S.W.1.—The weather has been cloudy and somewhat showery in the extreme north of Scotland, but fine in all other parts of the kingdom.

The temperature has been above the mean in all districts, the excess varying from 1° in "Scotland, N.," and "England, E.," and 2° in "England, N.W.," to 4° in "England, N.E.," and "England,

S.W.," and 5° in the "Midland Counties," and "Ireland, S." The highest of the maxima, which were generally registered on the 3d or 4th in England and on earlier dates in Ireland and Scotland, were as high as from 85° to 89° over the greater part of England, between 81° and 84° in Ireland, and 69° and 81° in Scotland. The lowest of the minima, which were registered during the earlier part of the week, ranged from 42° in "England, E.," to 49° in "England, N.E.," and to 53° in the "Channel Islands."

The rainfall has been slightly more than the mean in "Scotland, N.," but in all other districts rain has been almost entirely absent.

Bright sunshine shows a decrease in the extreme north and east of Scotland, but a very considerable increase elsewhere. The percentages of the possible amount of duration over England and the "Channel Islands" were very high, ranging from 55 in "England, N.E.," and 61 in "England, N.W.," to 77 in "England, S.," 83 in "England, S.W.," and 89 in the "Channel Islands." The highest percentages at individual stations were 89 at Jersey, 88 at Hastings, 86 at Falmouth, and 85 at Pembroke. These figures are higher than any which have been recorded since the commencement of the "Bright Sunshine" returns in April, 1880. The highest percentages previously recorded were 83 at York, and 85 at Geddston, for the week ending May 22, 1882.

Depressions observed.—During the whole of this period the distribution of barometric pressure over our islands was anticyclonic, and the only depressions which appeared in our area were some large but shallow disturbances which passed in an easterly direction outside our northern coasts. The winds over the United Kingdom were consequently light and variable, but at our northern stations westerly or south-westerly breezes generally prevailed, and in the south, light easterly or north-easterly airs.

Answers to Correspondents.

LEAF-CUTTER SAWFLY: L. M. The holes in your Rose-leaf are made by the larva of the Rose Sawfly



FIG. 13.—LEAF-CUTTER SAWFLY.

(fig. 13), which builds its nest of the fragments, and retires into retreat into the case so formed, till it alters its form, and changes its mind, and issues as a perfect insect.

DOUBLE LILY: Y. S. W. Many thanks. Please mark the plant and report on its behaviour next year. The specimen was not in fit condition for determination when we saw it.

ERRATA: Liverpool Show Report.—Class 76, instead of "R. B. Laird & Sons, 1st and Cocker & Sons, Aberdeen, 2d," read "1st, Messrs. Cocker & Sons, Aberdeen; and 2d, Messrs. R. B. Laird, Edinburgh." Implement class: hand-moving machine—"The Silver Medal, given to Messrs. Chadborn & Coldwell for their exhibit, was of equal value to that given to Messrs. Barford & Perkins, these latter gentlemen objecting to the use of the definite article." Messrs. J. Carter & Co., 227 and 228, High Holborn, London, showed a collection of hardy annuals raised from seed, and were awarded a Silver Medal.

FLORA OF ALGERIES: Miss O. Munby's Catalogue, published by Taylor & Francis.

FLORA OF FRANCE: Miss H. Gillet et Magne, Flore de France.

FOXGLOVE: Miss S. Your plant is distorted by fasciation, caused probably in this case by some injury in a very early stage of growth.

NAMES OF LARGEST ENGLISH GROWERS OF TOMATOES, CUCUMBERS, AND MUSHROOMS FOR MARKET: H. T. We do not know who are the largest growers.

NAMES OF PLANTS: H. R. Grape, white, Mrs. Pearson; Jasminum Sambac fl.-pl.—Collins & Co. Campanula

pumila.—P. J. I. x, Lotus perenne; 2, Festuca pratensis; 3, Arrhenatherum avenaceum with smut (Puccinia); 4, Festuca pratensis var. elatior; 5, Festuca ovina; 6, Bromus erectus.—H. S., Guernsey. 1, Galium mollugo; 2, Heracleum sphondylium; 3, Senecio Jacobaea; 4, Chrysanthemum Leucanthemum; 5, Scrophularia nodosa; 6, Fumaria capreolata; 7, Lychnis dioica; 8, Achillea Millefolium; 9, Silene inflata; 10, Lotus corniculatus; 11, Corydalis umbellifera; 12, Cautalis Anthriscus; 13, Vicia sativa. Another time send six specimens only.—W. C. B. 1, Eucromocarpus scaber; 2, Geranium platyptalum; 3, Jasminum revolutum; 4, Santolina incana.—F. C. 1, Lepidium sativum; 2, Leontodon autumnalis; 3, Medicago lupulina; 4, Dentia scabra; 5, Leontodon hirtus; 6, Crepis biennis.—E. C. D. Fuchsia procumbens.—T. K. Ingram, 1, Dolichocheira tubiflora; 2, Peperomia resecidiflora; 3, Scilla peruviana; 4, Francoa ramosa; 5, Rivina leavis; 6, not in a fit state to name.—H. P. Eragrostis longipes. The fruit of some varieties of this are said to be of good flavour, but your fruit is too rough-tasted to be eaten raw; it may perhaps make good jam or tart.—W. S. Barkeria elegans.

PETUNIAS: Y. C. & Co. Your complaint should be addressed to your German correspondents, and if they decline to furnish a satisfactory explanation then we might publish your protest.

RED SYCAMORE: A. Y. Z. The red-fruited form of the common Sycamore, Acer Pseudo-Platanus variety erythrocarpa.

THE BEST COLONIES FOR A FLORIST AND GARDENER: Constant Subscriber. Those that have been the longest settled, and where wealth abounds, viz., the large towns and cities of Canada and Australia. In the latter you would have to compete with the frugal and laborious Chinaman; and in the former with a winter of six months' duration. Flower growing would pay better than vegetable culture. Assisted passages are not given to gardeners. Visit the Colonial Exhibition, read the Catalogues, and decide for yourself.

WILSON JUNIOR BLACKBERRY: Y. C. & Co. The best plan will be to exhibit specimens before the Fruit Committee at its next meeting.

WIREWORM AND CRESSYLIN.—If W. Birt will forward his address to us, we could publish his letter on the above subject.

CATALOGUES RECEIVED.

PETER VAN VELSEN & SONS, Houtvaart, Overveen, Haarlem—Dutch Flower Koots.

ROVELLI BROTHERS, Pallanza, Italy—General Catalogue.

THOS. METHVEN & SONS, 15, Princes' Street, Edinburgh—Dutch Flower Koots.

FRIEDR. ROEMER, Quedlinburg, Germany—Flower and Vegetable Seeds.

COMMUNICATIONS RECEIVED:—W. K.—W. C. J. J. W.—G. H. W.—T. W.—A. G.—J. G.—J. S. Whall.—A. W.—J. M.—E.ucharis (we cannot notice anonymous letters).—Compagnie Continentale (enclosure).—C. H.—L.—E. & B.—Jas. Backhouse & Son.—A. M.—T. B.—P. S.—G. H. H.—J. D.—F. M.—B. B.—Elvaston.—J. Kelly.—W. K.—J. H.—C.—J. G.—H. Drake (no space for your report).—F. S.—Messenger & Co.—Professor Reichenbach.—J. E.—J. R.—J. C.—T. D.—W. S.—A. D.—W.—W.—Marshall.—W. W.—E. J. Canning.—F. S.—G.—J. C.—A. Kershaw.

Obituary.

MR. WILLIAM SERJESSION.—This gentleman died at Trafford Park, Manchester, on June 25, in his eighty-second year. He had held the position of Head Gardener to Sir Humphrey and Lady de Trafford since 1849. Though an invalid for eight years, he was, through the kindness of Lady de Trafford, allowed to retain his position up to the time of his death. He was buried at St. Ann's Church, Baxton-or-Irwell.

Markets.

COVENT GARDEN, July 8.

MARKETS very heavy, with business dull. James Webber, Wholesale Apple Market.

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, per doz. 4 0 ..	Mint, green, bunch 0 4 ..
Asparagus, Eng., 100 2 0 ..	Mushrooms, punnet 1 0 ..
French, bundle 2 6 ..	Mustard and Cress, doz. 0 6 ..
Beans, Kidney, lb. 1 0 ..	Onions, per bushel, 4 0 ..
Best, red, per dozen 1 0 ..	Fansy, dozen bunch 2 0 ..
Carrots, per bunch 0 6 ..	Potatoes, per cwt. 4 0 ..
Calliflowers, per doz. 3 0 ..	kidney, per cwt 4 0 ..
Celery, per bundle 1 0 ..	Spinach, per bushel 3 0 ..
Cauliflowers, doz. bunch 8 0 ..	Spruce Asparagus, per
Cucumbers, each 0 6 ..	bunch 1 0 ..
Endive, per dozen 1 0 ..	Tomatoes, per lb. 1 6 ..
Herbs, per bunch 0 4 ..	Turnips, bunch 0 6 ..
Leeks, per bunch 0 3 ..	Veget. Mar., each 0 6 ..
Lettuce, per dozen 1 0 ..	

POTATOS:—Best Kidneys, 7s.; Rounds, 5s. per cwt.

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Cherries, ½-sieve .. 3 0-6 0	Melons, each .. 1 0-3 0
Currants, ½-sieve .. 3 6-4 0	Peaches, per dozen .. 2 0-10 0
Figs, per dozen .. 12 0-18 0	Pine-apples, Eng. .. 2 0-4 0
Grapes, per lb. .. 1 6-3 0	St. Michael, each 2 6-8 0
Lemons, per case .. 18 30-36 0	Strawberries, per lb. 0 6-1 0

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Analia Siccholdi, doz. 9 0-18 0	Foliage Plants, vari-
Berding Plants, vari-	ous, each .. 2 0-10 0
bus, per dozen .. 1 0-2 0	Fuchsias, dozen .. 3 0-9 0
Begonias, per dozen 6 0-12 0	Hydrangeas, doz. .. 9 0-18 0
Bouvardias, doz. .. 12 0-18 0	Lobelias, per dozen .. 2 0-4 0
Calceolarias, per doz. 5 0-8 0	Marguerite Daisy,
Cyperus, per dozen. 4 0-12 0	per dozen .. 8 0-12 0
Dracena terminalis,	Mignonette, per doz. 4 0-6 0
per dozen .. 30 0-60 0	Musk, per dozen .. 2 0-4 0
—viridis, per doz. 12 0-24 0	Myrtles, per dozen. 6 0-12 0
Edicas, various, doz. 12 0-24 0	Nasturtiums, dozen 3 0-6 0
Euronymus, in var.,	Palms in var., each 2 6-32 0
per dozen .. 6 0-18 0	Pelargoniums, doz. 6 0-15 0
Evergreens, in var.,	—scarlet, per doz. 3 0-6 0
per dozen .. 6 0-24 0	Potunus, dozen .. 2 0-6 0
Ficus elastica, each 1 6-7 0	Rhododend, dozen. 6 0-9 0
Ferns, in var., dozen 4 0-8 0	Spirea, per dozen .. 6 0-12 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Arum Lilies, 12 blms. 4 0-6 0	Parvies, 12 bunches 1 0-3 0
Bouvardias, per doz. 0 6-1 0	Panicles, 12 blooms. 1 0-2 0
Campanulas, 12 blms. 4 0-9 0	Pelargoniums, per 12
Carnations, 12 bunch. 2 0-3 0	brusses .. 0 9-1 0
Carlinflowers, 12 bus. 1 6-3 0	—scarlet, 12 trusses 4 0-6 0
Daisy, common, 12	Pinks, var., 12 bus. 2 0-4 0
bunches .. 2 0-4 0	Polyanthus, 12 bus. 2 0-6 0
Delphiniums, 12 bus. 2 0-4 0	Rhododend, 12 bus. 0 9-0 0
Eucharis, per dozen 4 0-6 0	Roses, Tea, per doz. 0 9-2 0
Forget-me-Not, or	—red, per dozen .. 2 0-4 0
Myosotis, 12 bus. 2 0-4 0	—outdoor, 12 bus. 3 0-9 0
Gardenias, 12 blooms 2 0-4 0	Moss, 12 bus. .. 2 0-4 0
Iris, various, 12 bl. 0 6-1 0	Spiraeas, 12 bunches 6 0-8 9
Lapageria, 12 bl. 1 0-2 0	Stephanotis, 12 spys. 1 6-3 0
Lilium longiflorum,	Sweet William, 12 bus. 2 0-4 0
12 blooms .. 4 0-6 0	Toponellus, 12 bus. 1 0-2 0
Marguerites, 12 bus. 3 0-6 0	Tuberoses, 12 blms. 0 4-1 0
Mignonette, 12 bus. 1 0-9 0	

SEEDS.

LONDON: *June 30*.—Messrs. John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C., write that the seed market to-day was most thinly attended, with scarcely any transactions passing. The samples of new French Trifolium now coming to hand show fair quality, but the prices asked for same are still considered to be too high. In Clover seeds for the moment no business is taking place. There is no variation in Rape or mustard. Hemp and Canary sell slowly at previous rates. The inquiry for blue Peas continues, and the finest samples have consequently become exhausted. There is no alteration in other articles.

FRUITS AND VEGETABLES.

COLUMBIA (East London): *July 7*.—Plentiful supplies of all kinds with a good demand at following rates:—Gooseberries, 2s. 9d. to 3s. 3d. per sieve; English Strawberries, 5s. 6d. to 6s. 6d. per peck; Peas, 2s. 6d. to 3s. per sieve; Cabbages, 7s. 6d. to 9s. per tally; Radishes, 5s. to 6s. do.; Lettuce, 6s. to 10d. per score; bunch spring Onions, 6s. to 7s. per dozen; do. Greens, 5s. to 6s. do.; do. Carrots, 1s. to 2s. do.; Turnips, 3s. to 4s. do.; do. Mint, 2s. do.; do. Parsley, 2s. to 3s. do.

STRAFORD: *July 6*.—Supplies have been good, and a fair trade has been done at the following prices:—Cabbages, 3s. to 8s. per tally; Greens, 2s. 6d. per dozen; Turnips, 2s. per dozen bunches; Carrots, household, 3s. do.; Onions, spring, 4s. to 5s. do.; green Peas, 4s. 6d. to 5s. 6d. per bag; Gooseberries, 1s. to 1s. 6d. per sieve; Cherries, English, 4s. 6d. to 8s. per basket; Strawberries, 3s. 6d. to 5s. per peck; black Currants, 4s. 6d. to 6s. per sieve; red do., 3s. 6d. to 4s. do.; Cucumbers, 1s. 3d. to 1s. 9d. per dozen.

POTATOS.

BOROUGH AND SPITALFIELDS: *July 6*.—For old Potatoes there is now very little inquiry. New Potatoes come on offer more freely, and meet a quiet demand. Quotations:—Jersey and French kidneys, 6s. to 7s.; Malta rounds, 5s. to 6s.; Lisbon, ditto, 4s. 6d. to 5s. 6d. per cwt.

COLUMBIA (East London): *July 7*.—Quotations:—New Jersey kidneys, 6s. to 6s. 6d.; do. rounds, 5s.; St. Malo kidneys, 6s.; do. rounds, 4s. to 4s. 6d.; Cherbourg kidneys, 6s. 6d.; do. rounds, 4s. to 4s. 6d. per cwt. Old: Champions, 50s. to 60s.; Magnums, 55s. to 80s. per ton.

STRAFORD: *July 6*.—Quotations:—New: Kidneys, 130s. to 140s.; do. rounds, 70s. to 90s. per ton.

Imports.—The imports into London last week consisted of 388t cases 48 boxes Chebourg, 2547 packages Jersey, 438 packages St. Nazaire, 77 boxes Cadix, 56 boxes Harleur, 218 cases Bordeaux, 129 bags 11 cases Malta.

HAY.

STRAFORD: *July 6*.—Quotations:—Hay, 80s. to 90s.; Clover, 90s. to 110s.; and straw, 30s. to 35s. per load.

Government Stock.—Consols closed on Monday at 101½ to 101¾ for delivery, and 101½ to 101¾ for the account. Tuesday's and Wednesday's final prices were 101½ to 101¾ for delivery, and 101½ to 101¾ for the account. Thursday's latest quotations were 101½ to 101¾ for both delivery and the account.

IMPORTANT TO GARDENERS.

FRANCIS & CO.

SUPPLY:—

- 1.—Garden Syringes of all kinds.
- 2.—Indiarubber Delivery and Suction Hose.
- 3.—Galvanised Wire Netting.
- 4.—Indiarubber Door and Carriage Mats.
- 5.—Gutta-percha Goods.
- 6.—Superior Waterproof Garments.
- 7.—Barometer, Thermometers, and Rain Gauges.
- 8.—Prepared Chloride of Ammonia for destroying Insects.
- 9.—Telegraph Instruments.
- 10.—Insulated and Galvanised Iron Wires.
- 11.—Medical and other Batteries.
- 12.—Lightning Conductors.
- 13.—Electric House Bell.
- 14.—Fire and Burglar Alarms.
- 15.—Speaking Tubes.
- 16.—Adjustable Electric Thermometers.
- 17.—Disinfecting Fluids, Sprays, and Rain Gauges.
- 18.—Francis & Co.'s Insect Destroyer.
- 19.—Garden Tools of every description.
- 20.—Quotations for every requisite.

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ADJUSTABLE ELECTRIC THERMOMETERS

For GREENHOUSES, VINERIES, CONSERVATORIES, FORCING PITS, INCUBATORS, and for FIRE.

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"Your Thermometers are now in all the Sheds, and to you we are indebted for uniformly strong and healthy Plants."

"At night your Electric Tell-tale saved what is probably the finest house of Vines in the Kingdom."

"Your Electric Thermometer is a mighty good thing, and no Wine Grower should be without them. Timely notice of approaching frost means the saving of perhaps a whole crop."

THE ADJUSTABLE ELECTRIC THERMOMETER

Is so applied, that when the temperature either rises above or falls below the degree at which it may be set, a bell is sounded or other signal given at however great a distance. Any number of Thermometers may be employed with the same Bell, so that every point can be under thorough protection at COMPARATIVELY TRIFLING EXPENSE.

FRANCIS AND CO.'S Thermometers are largely employed by Wine Growers in the open as well as under Glass, and are most valuable for Conservatories, Greenhouses, Forcing Pits, Hospital Wards, and in the process of Incubation.

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Readily applied. Fitted with ease and certainty.

PRICES.

Large Bell Wire Push and Battery, com- s. d.	
plete for any communication	1 5 0
Ordinary Thermometers, from—each ..	0 1 0
Registering " " " " " " " " " " ..	0 1 6

Insulated Wire, Galvanised Wire and Insulators as desired. Bells, Batteries, Thermometers, &c., separate if required.

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ALL GOODS GUARANTEED.

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For Preserving Ironwork, Wood, or Stone.



This VARNISH is an excellent substitute for oil paint or any outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of forty years ago by the Advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requiring no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of most of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

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"Some twenty years ago I used your Black Varnish, and be still glad if you will forward me a cask, as I consider it the best thing known for the preservation of all outdoor work, either wood or iron, the requires to be painted."

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as do "crown" Edgings, consequently being much cheaper. GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable, and superior to any other variety of design. F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kensington Road, W.

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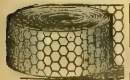
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10s.; ditto, 4 yards wide, 3d., or per 100 yards, 25s.
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SHADING BLINDS made up any size.
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	2 ft.	3 ft.	4 ft.	6 ft.
Mesh.	width.	width.	width.	width.
3-in.	3 9	5 8	7 6	11 3
4-in.	5 4	8 0	10 8	16 6
1-in.	6 9	9 13	12 19	
1-in.	10 0	15 0	20 0	30 0



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Special Quantities for large quantities.
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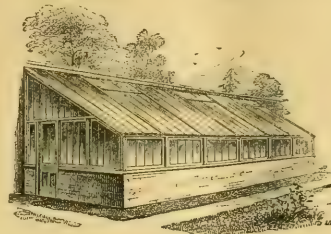
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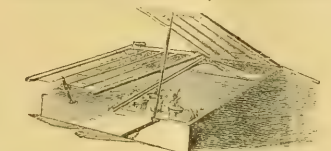
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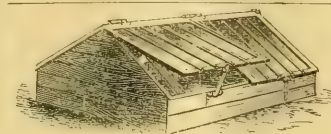


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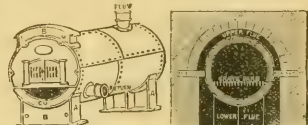
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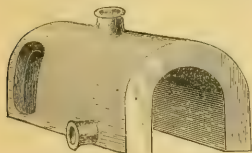
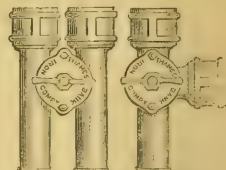
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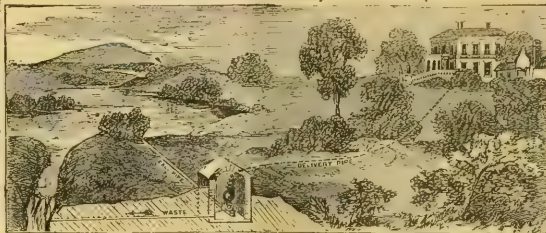
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HULL, EAST RIDING, and NORTH LINCOLNSHIRE HORTICULTURAL SOCIETY. A GRAND HORTICULTURAL EXHIBITION will be held in the Hull Botanic Gardens, on WEDNESDAY, THURSDAY, and FRIDAY, JULY 14, 15, and 16. Upwards of TWO HUNDRED GUINEAS in Money Prizes, besides Gold and Silver Medals. Scheduled and particular of PHILIP MAC MAHON, Curator. Hull Botanic Gardens. The following, amongst other valuable Prizes, will be awarded:—Group of Ten Stove and Greenhouse Plants in bloom (Orchids excluded), and Six Ornamental, Fine-foilage or Variegated Plants, distinct varieties, 1st Prize, £15 and the Society's Gold Medal; 2d Prize, £10; 3d Prize, £5.

BEDFORDSHIRE AGRICULTURAL SOCIETY'S SHOW at Luton, on WEDNESDAY, July 21. A GRAND SHOW of FLOWERS and FRUITS, open to the United Kingdom, will be held in connection with the above, when the following VALUABLE PRIZES, amongst others, will be offered:— 20 ORCHIDS, 1st, £10; 2d, £6; 3d, £4. 6 " 1st, £6; 2d, £4; 3d, £2. 10 STOVE and GREENHOUSE PLANTS, 1st, £15; 2d, £10; 3d, £5. 1st, £7; 2d, £5; 3d, £3. Also for ROSES, &c. For Schedules and particulars apply to Mr. S. C. OLIVER, Hon. Sec. Park Square, Luton.

NORTHAMPTONSHIRE HORTICULTURAL SOCIETY'S GREAT SUMMER SHOW, Delapre Park, Northampton, AUGUST 4 and 5 (Bank Holiday and following day). £45; in Prizes. For best sixteen Plants, £18; £10; £5; Central Group for Conservatory Decoration, £9, £6, £2 10s.; twenty-four Roses, £5, £4, £1, &c. Entries close July 24. Schedules and full particulars from A. FORBES, Secretary, Northampton.

MATLOCK BATH HORTICULTURAL SOCIETY'S FIFTEENTH EXHIBITION, on SATURDAY, August 7. Upwards of SIXTY POUNDS given in PRIZES in Class open to all England. For Schedules apply to Mr. A. CLARK, Matlock Bath.

NARCISSEUS.—All the best varieties for cutting and for every description of forcing Bulbs. See my Special Trade offer, which may be had upon application. THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

PRIMULAS.—PRIMULAS.—PRIMULAS.—Seventeenth year of distribution. Williams' Superb Strain, 12, 6d. per dozen; 10s. per 100. CINERARIAS, same price. Packages and carriage free. Also Double White Primulas, 6d. each.—JOHN STEVENS, The Nurseries, Coventry.

CLEMATIS JACKMANNI ALBA (new).—Strong flowering Plants (4 feet high), of this free-blooming "White Jackmanni," now ready, 3s. each, 30s. per dozen. Choice varieties of CLEMATIS, 10s. 12, 6d., 2s., to 2s. 6d. each. The usual allowance to the Working Nursery, Surrey. GEO. JACKMAN and SON, Woking Nursery, Surrey.

PRIMULAS, CINERARIAS, CYCLAMEN.—Plants now ready for potting in single pots. First-class strains (suiting Customers who have had from us for 12 years). PRIMULAS and CINERARIAS—12 for 1s. 6d., 24 for 2s. 6d., 100 for 9s. CYCLAMEN—12 for 1s. 6d., 24 for 2s. 6d., 100 for 9s. WM. CLIBRAN and SON, Oldfield Nursery, Altrincham; 12, Market Street, Manchester.

ROSES in POTS.—Her Majesty, the Bennett Rose, and all the best new English and Foreign varieties. All the choicest well tried sorts, in pots, 15s. to 30s. per dozen. Descriptive LIST free on application. RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

Now Ready. TEA and NOISETTE ROSES, in Pots, of best sorts only, in great quantity, and of best possible quality. Price LIST gratis. A Sample Dozen will be put on rail, carefully packed for travelling, on receipt of 13s. 6d. EWING and CO., Sea View Nurseries, Havant, Hants.

Hyacinths, Tulips, Crocus, Lilies, &c. C. G. VAN TUBERGE, Jun., Haarlem, Holland.—Wholesale CATALOGUE now ready, and may be had free on application to Messrs. R. SILBERRAD and SON, 25, Savoy Gardens, Crutched Friars, London, E.C.

To the Trade Only. E. H. KRELAGE and SON, Haarlem, Holland, have just Published their Wholesale CATALOGUE for the Season 1886-87 (75th year, No. 358A), of Dutch Flower Roots and Miscellaneous Bulbous and Tuberous rooted Plants. The Catalogue was sent to all the Correspondents of the establishment who have a right to it, and will be sent as well on prepaid application to Nurserymen, Seedsmen, and Florists only.

PEACHES—NECTARINES—PEACHES.—During the present month we can obtain good prices for first-class Fruit of the above. WISE and RIDES, Fruit and Flower Salesmen, Fruit Market, and 360, Flower Market, Covent Garden, London, W.C.

WANTED, COMMISSIONS in CLOVERS, GRASSES, GARDEN and AGRICULTURAL SEEDS for Bristol, West of England, and South Wales. P. O., Athenzium, Bristol.

Floral Commission Agency. A. HILL and CO., 52, Hart Street, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS in any quantity. A. H. & CO., giving personal attention to the selection, are thus enabled to obtain the highest market prices. All Cheques forwarded weekly. Bankers and good Trade references. Boxes and Labels supplied.

WANTED, CUTTINGS of good SHOW PELARGONIUMS. W. and J. BROWN, Stamford.

Hyacinths, Tulips, Crocus, &c. THE NEW WHOLESALE TRADE CATALOGUE is now ready, and will be forwarded, post-free, on application. B. J. LOMANS, Haarlem, Holland.

PRIMULAS, DOUBLE WHITE, 4s. per dozen, 30s. per 100. TAYLOR and CO., Nurserymen, Timperley, Cheshire.

New Fern. ADIANTUM FRAGRANTISSIMA (First-class Certificate).—See full description in Gardeners' Chronicle, July 10. Strong healthy plants, in 4-inch pots, each, 5s. and 7s. 6d.; 16s. for 100, and 30s. for 1000. E. G. HENDERSON and SON, Pine-apple Nursery, Maida Vale, London, W.

CARNATION "PRIDE OF PENSURST."—The most beautiful yellow (First-class Certificate Rural Horticultural Society). Vigorous grower, perpetual bloomer, suitable for either pot culture or borders, perfectly hardy, forces well. Healthy, well rooted plants, established in pots, of this lovely variety, 12s. per dozen; sample plant post-free for fifteen penny stamp. F. WEBBER, Quarry Hill Nursery, Tonbridge, Kent.

East Lothian Intermediate Stocks. THOMAS METHVEN and SONS offer their choice strain of the above, in five varieties, viz., Scarlet, Purple, White, Crimson, and White Wall, leaved, at 1s. 6d., 2s. 6d., &c. each colour. Price to the Trade on application. By Royal Warrant, Nurserymen and Seedsmen to the Queen, Edinburgh.

CLEMATIS JACKMANNI ALBA (Noble). The White Jackmanni. The Raiser now distributes the above at the Reduced Price of 3s. each. The value of strong 2-yr. old Plants will be well understood by all. CHARLES NOBLE, Bagshot. Other Nursery Stock. Send for prices.

PALMS.—A few hundreds of hardy grown Scariothia elegans and Latania borbonica, 15 inches high, 4s. per dozen, 25s. per 100. Scariothia elegans, Latania borbonica, and Euterpe edulis, averaging 20 inches high, 1s. per dozen, less quantity, 1s. 3d. each. Packages and Parcels post-free. A visit solicited. GARDENER, Holly Lodge, Stamford Hill, London, N.

FOR SALE, 40,000 GENISTAS in thumbs, good plants for shifting to 48s., at 1s. per 100; 12s. per 100 for cases and packing; for Cash only. Post-office Orders Payable at Leyton Green. T. BALDWIN and SON, Edith Nursery, Burchall Road, Leyton.

LOVEL'S STRAWBERRY RUNNERS.—Strong, healthy, and well-rooted, from leading varieties. LIST on application. Sample of Plants, post-free, 3d. W. LOVELL and SON, Strawberry Grower, Driffield.

The New Raspberry. LORD BEACONSFIELD. A Seedling. Finest Raspberry and best Cropper in England. First-class Certificate awarded by the Royal Horticultural Society, 1883. Now to be seen in full fruit. Fruity, 2 1/2 miles from Knibbston Station, G.W.R. Nurserymen and Gardeners are invited to an inspection. A. FAULKNER, Inkpen, Hungerford.

BEESEON'S MANURE is the best for all Horticultural Purposes. Sold in tins, 1s., 2s., 6d., 5s., 6d., 10s., or 1 cwt. bags, sealed, 13s. each. By Nurseries, Seedsmen, or direct from Bonehill, Bonehill, Sheffield. Also pure CRUSHED UNBOILED BONES, any size, and guaranteed of the best quality.

12-oz. Sample Packets, free by post, 12 Stamps. FIBROUS PEAT for ORCHIDS, &c. BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., 6s. 6d. per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample Packets, 1s. 6d. per Bag. Fresh SPHAGNUM, 12s. 6d. per Bag. SILVER SAND, Coarse or Fine, 5s. 2d. per Truck of 4 Tons. WALKER and CO., Farnborough Station, Hants.

HORTICULTURAL SOILS, MANURES, & SUNDRIES, and BERKSHIRE POTTERY. Catalogue, Free per post, of every Horticultural Requisite. BENJAMIN FIELD, F.R.H.S. (Son-in-law and Successor to J. Kennard), Swan Place, Old Kent Road, London, S.E. Established 1854.

First Arrival New Archangel Mats this Season. J. BLACKBURN and SONS are now prepared to quote Prices to Buyers on application at 4 and 5, Wormwood Street, London, E.C.

To Nurserymen, Seed Merchants, and Florists. J. BLACKBURN and SONS are offering Archangel MATS lower than any other house in the Trade. Also Petersburg MATS and MAT BAGS, RAFFIA FIBRE, TOBACCO PAPER, and Shading Materials. Prices free on application.—4 and 5, Wormwood Street, London, E.C.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Rafta, Mats, Bamboo Canes, Rustic Work, Manure prices &c. WATSON and SCULL, 50, Lower Thames St., London, E.C.

SALES BY AUCTION.

Tuesday Next.

BRAZILIAN ORCHIDS AND PLANTS.
Collected and brought to this country by Mons. S. A. Batallador, of Rio de Janeiro.

MESSRS. PROTHEROE AND MORRIS
will include in their SALE OF **TUESDAY NEXT**, July 20, 200 plants of **CINNABARINA**, 350 **L. PERINII**, 100 **SOPHRONITIS GRANDIFLORA**, 20 **S. COCCINEA**; also fine specimens of **VRIESIA GIGANTEA**, **EPHEDRA**, **CRIS**, **COCOS GLAUCOA**, **EUTERPE EDULIS FOLIIS**, **VAREGIATIS**, **PALM SEEDS**, &c.

On view morning of Sale, and Catalogues had.

Tuesday Next.

NEW CATTLEYA, raised and sent home by Mr. F. Mau, **ODONTOGLOSSUM HASTILABUM**.
MESSRS. PROTHEROE AND MORRIS
will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT**, July 20, at half-past 2 o'clock precisely, by order of Mr. F. Mau, a grand importation of a quite new **CATTLEYA** from a hitherto unsought district, as is confirmed by the numerous perfect specimens which are offered. The habit of the plant is somewhat in the way of *Cattleya Mendelii*, but the bulbs are much stronger, and the leaves are of a thick leathery texture, very broad; flowers, 2 or 3 together, on a pedicel; sepals and petals of a delicate rose to pure white; lip very large, deep magenta-purple, with yellow in the centre, and beautifully fringed edges. The dried flowers will retain their colour and the masts have over 200 bulbs. Also a fine lot of **ODONTOGLOSSUM HASTILABUM**, &c.

On view and Catalogues had.

Furze Down Park, Tooting Common, S.W.
Eight minutes' walk from Tooting Junction Station.
IMPORTANT CLEARANCE SALE OF CHOICE STOVE AND GREENHOUSE PLANTS, Valued at £1000, &c., by order of Charles Seely, Esq., who is leaving the neighbourhood.

MESSRS. PROTHEROE AND MORRIS
are favoured with instructions to sell by AUCTION, on the Premises, above, on **FRIDAY NEXT**, July 21, at 12 o'clock precisely, the whole of the **VALUABLE COLLECTION OF STOVE AND GREENHOUSE PLANTS**, including many handsome and choice specimens of *Eucharis*, *Imantophyllum*, *Crotons*, *Dracenas*; several beautiful Palms and Tree Ferns; smaller Palms and Ferns in quantities; fine specimens of *Stephanotis* in flower; and being several large white varieties useful for cutting; a fine assortment of Established Orchids, comprising eighty *Dendrobiums* for cut flower; *Yanda Aridea*, *Colombia*, *Milnias*; many fine examples of *Greenhouse Rhododendrons*, *Garden Seats*, *Pots*, &c.

On view the day prior to the Sale. Catalogues may be had of the Head Office, Mr. R. Laing, on the Premises; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next.—Imported Orchids.

MESSRS. PROTHEROE AND MORRIS
will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, July 23, at half-past 2 o'clock precisely, the following **ORCHIDS**:—**PERINII**, from Messrs. Shuttleworth, Carder & Co., **CATTLEYA**, **MINNERII**, from Messrs. J. & W. Kitchin, **ODONTOGLOSSUM SPECIOSISSIMA**, **C. SANDERIANA**, and **ODONTOGLOSSUM ALEXANDRE** of the best style.
From the New Plant Company, **ODONTOGLOSSUM PAPILLO**, **O. LURIDUM**, **O. JUNCIFOLIUM**, **ODONTOGLOSSUM HASTILABUM**, and **O. CORONARIUM**, &c.
Also a quantity of **DENDROBIUMS** in variety, and other **IMPORTED ORCHIDS**, and other property.

On view morning of Sale, and Catalogues had.

Orchids in Flower.

MESSRS. PROTHEROE AND MORRIS
beg to announce their next **SPECIAL SALE OF ORCHIDS** in Flower, to take place on **TUESDAY NEXT**, July 27, for which they will be glad to receive notice of entries in due course.

Harrow Road, W.

By order of the Executors of the late Mr. Henry Baller.

MESSRS. PROTHEROE AND MORRIS
will sell by AUCTION on the Premises, The Woodfield Nursery, Harrow Road, W., close to Westbourne Park Station, on **WEDNESDAY NEXT**, July 28, at twelve o'clock precisely, the whole of the well-grown stock-in-trade consisting of a magnificent collection of 2000 **SUCCULENTS**, a collection probably unequalled in the country; a variety of **STOVE AND GREENHOUSE PLANTS**; 2000 Ferns and Palms, specimen Palms and other plants for furnishing; 600 fine healthy *Araucarias* eximia in 48 pots; the Erections of Five **GREENHOUSES**, 2100 **ROSE TREES**, 200 **PIPING**, 200 **ROSES**, nearly new Spring Market **VAN**, **PONY CART**, spring **VAN**, capital **BROWN MARE**, **PONY**, **MOULD**, **LOAM**, **MANURE**, and other effects.

On view day prior to sale; catalogues had on the premises, of J. O. Jacobs, Esq., Solicitor, 85, Blackfriars Road, S.E., and of the Auctioneers, 67 and 68, Cheapside, E.C.

Chertsey.

In the village of Thorpe, about 20 miles from London, in a healthy and picturesque neighbourhood, twenty-five minutes' walk from Egham or Virginia Water Stations.
IMPORTANT TO BE OFFERED is a large and well-situated compact **FREEHOLD ESTATE**, with advantages for combining business with pleasure. For Sale, with possession.

MESSRS. PROTHEROE AND MORRIS
are instructed by the owner and occupier, who is leaving the neighbourhood, to sell by AUCTION, at the Mart, Topham Road, Putney, E.C., on **THURSDAY NEXT**, July 29, at 2 o'clock precisely, the whole of the **FREEHOLD ESTATE**, known as the West End Fruit Garden, Thorpe, near Chertsey, embracing a total area of about 10 Acres of excellent Land, well stocked with Fruit Trees and Buses in bearing condition, and Market Garden Produce. There is a modern brick-built Residence, containing seven Bedrooms, Dressing-room, fitted Bathroom, three Reception-rooms, two Kitchen, and domestic offices, numerous Glass Erections and Sheds, brick-built Cottage and Stabling; the fruit garden is bounded on one side by a concrete wall, 6 or 7 feet high, and on the other by a fence of 200 feet to the road from Staines and Windsor to Chertsey, a portion of which can be easily utilised for building, without detriment to the remainder of the land. The entire Estate possesses a great prospective building value, and a portion contains a valuable bed of the best gravel to a good depth. May be viewed, and full particulars, plan, and conditions of Sale may be had on the Premises, at the Mart, E.C.; of W. Sharp, Esq., Solicitor, 9, Walbrook, E.C.; and of the Auctioneers and Surveyors, 67 and 68, Cheapside, E.C.

Wednesday next.—(Sale No. 7189.)

ESTABLISHED ORCHIDS, STOVE PLANTS, &c., the property of Mr. J. C. Stevens, will be sold by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY NEXT**, July 21, at half-past twelve o'clock precisely, a fine **CALCEOLARIA**, **ESTABLISHED ORCHIDS**, **STOVE** and other **PLANTS**, the property of a Gentleman giving up their culture, comprising *Cattleyas*, *Cypripediums*, *Dendrobies* in quantity, *Calceolarias*, *Onocleas*, and other **ORCHIDS**; also **ALO-CASIAS**, **CROTONS**, **CYPRUS ALTERNIFOLIUS**, **DRACENAS**, **EUPHARIAS**, **GARDENIAS**, **IKORAS**, **CALENDULAS**, **ACHIMENES**, **GLOXINIAS**, **ADIANTHUMS**, &c.

On view morning of Sale, and Catalogues had.

Thursday next.—(Sale No. 7190.)

CYPRIPIEDUM GODEFRY in flower, magnificent var. **CYPRIPIEDUM**, new variety in flower, **CATTLEYA GASKELLIANA**, fine varieties in flower, **ESTABLISHED ORCHIDS**, 200, specially fine specimens in **TRICHOPIALIA GALLIOTIANA**, rare. [flower. **MASDEVALLIA BACKHOUSIANA**, fine specimen.

MR. J. C. STEVENS will sell by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, July 22, at half-past 12 o'clock, precisely, by order of Mr. F. Sander, the above fine **ORCHIDS**, also **VANDA SANDERIANA**, **MORDES LUNATA**, **EUPHARIAS**, **CATTLEYA WARKNERI**, **CYPRIPIEDUM NITANS**, &c.

On view morning of Sale, and Catalogues had.

Whitlessy, near Peterborough, Cambridgeshire.

TO NURSERYMEN AND FLORISTS.
MESSRS. S. GREGORY AND SON will sell by AUCTION at the "Falcon" Hotel, in Whitlessy, on **FRIDAY**, July 23, at 7 o'clock in the evening precisely, a **NURSERY** and **FLORIST'S** business, and stock, Mr. James Lomax. The Glass comprises 50-foot House, 50 x 13; three Houses, 50 x 9; one House 22 x 12, and several pits. The Houses were recently built and in good repair, and heated by Hot Water on the best principle. The ground comprises about 3½ acres, half an acre of which is sub-let to a Tennis Club. The stock consists of about 3000 *Cosa Trees*, *Conifers*, and other Shrubs, nearly 2000 *Acres* of Potatoes, and about three-quarters of an acre of Strawberries. The houses are well-stocked with *Pelargoniums*, *Coleus*, *Ferns*, &c. Immediate possession and assistance in making the business for sale. A few weeks if required, and the Purchaser can have a lease of the ground for ten years. The Premises are well situated for Railway communication, and the whole can be sold in one lot. For further particulars, and view apply to Messrs. S. GREGORY AND SON, Auctioneers, Highcousway, Whitlessy.

Bothwell Castle Collection of Heaths
Very Important Public Sale of the RARE and CHOICE COLLECTION of Heaths and Shrubs at Bothwell Castle, Bothwell, N.B., curated by the late Mr. Andrew Turnbull for the Right Honourable the Earl of Home.

MESSRS. MORRISON, DICK, AND McCULLOCH are instructed by the Right Honourable the Earl of Home to sell by AUCTION in Houses Nos. 2 and 3, Bothwell Castle, Bothwell, N.B., on **THURSDAY**, July 29, at 12 o'clock Noon, the **COLLECTION OF RARE AND CHOICE HEATHS**, well known as the most important and unique in the United Kingdom, and containing many Varieties confined to this collection.

The *Scott's Gardeners' Chronicle* says:—"The cultivator can scarcely err in possessing himself of the different varieties originated by such men as Mr. Turnbull of Bothwell Castle, who we believe raised more excellent varieties than any other man of his day."

The whole will be on view in the Houses on Monday, Tuesday, and Wednesday, July 26, 27, and 28, from 10 a.m. to 4 p.m., and on **FRIDAY** up till Hour of Sale. To prevent overcrowding, admission by Catalogue only (price Sixpence, returnable to all purchasers), on application at our office, 98, Sauchiehall Street, Glasgow; or forwarded by post on receipt of Sixpence in Stamps.

MORRISON, DICK, AND McCULLOCH, Auctioneers.

THE LIVERPOOL HORTICULTURAL COMPANY (John Cowan), Limited,
Have a large and fine stock of **EAST INDIAN, MEXICAN, and other ORCHIDS**; and they are constantly receiving fresh Importations from various parts of the world.

Full particulars of Orchids in stock, and also of fresh importations as received, forwarded on application.
The Company have also a large stock of **TEA** and other **ROSES** in pots, **GRAPE VINES**, **FERNS**, and other **ORNAMENTAL PLANTS**.

LISTS with full particulars on application.
THE VINEYARD AND NURSERIES,
GARSTON, LIVERPOOL.
ADDRESS FOR TELEGRAMS—"COWAN, LIVERPOOL."

FOR SALE.

NURSERY AND SEED BUSINESS.

THE OLD-ESTABLISHED NURSERY
and **SEED BUSINESS**, so successfully carried on for upwards of 60 years by **THOMAS IMRIE & SONS, AYR**.
The Nursery Grounds, extending to about 42 acres, adjoining the Railway Station, and are well stocked with all the best Fruit and Shrubs, and there are commodious premises for carrying on the Seed Business. The Business may be sold either as a Nursery and Seed Business, or being disposed of solely on account of Mr. Imrie's delicate state of health.
Further particulars on application to **THOMAS IMRIE AND SONS, AYR, N.B.—June 11, 1886.**

BERKS.

TO BE LET OR SOLD,
as a thorough going concern,
A NURSERY,
Comprising 3½ Acres of 2000 to 3000 plants in London, with Shop in Market Place.
Good Dwelling House, Greenhouse, Frames, &c.
For particulars, apply to **J. FLOOD, 57, Albert Street, Mornington Crescent, London, N.W.**

FOR IMMEDIATE DISPOSAL, a
FLORIST'S BUSINESS.—The Proprietor of a large and highly successful business, in which he has been established for over twenty years, and is beautifully situated in the main road, Bayswater, known as Bayswater Hill, and commands the traffic from the principal entrance to Kensington Gardens, is desirous of disposing of the same. There is an unexpired term of fifteen years to run of the present lease, at an exceptionally low rental, and the trade return represents a large amount per annum. The books show various records of Royal patronage, and a *clientele* which includes a great number of the Nobility and Gentry of London, and also of numerous Country patrons. To those seeking a good Floral Business, this is confidently recommended as a first-class investment. It is especially suited to a partnership where the combined energies of two or more practical men would conduce to a great increase, as a large portion of the business is in Ball and Road furnishing, and in the ever increasing demand for floral decorations in refined society at all seasons of the year. The whole stock, tools, and lease, will be sold together as a going concern, as the Proprietor, being practically single-handed in the management, now finds it much too great a strain upon him, and he wishes to retire in consequence of ill-health. Further particulars will only be furnished to Principals or their Solicitors. Apply to
J. A. KING, 79, Queens's Road, Bayswater, London, W.

To Gardeners and Amateurs.

TO BE SOLD, a Detached Twelve-roomed HOUSE, with about 2 Acres of **GARDEN GROUND** of the richest quality, producing a great quantity of Fruit and Vegetables (2 to 3 tons of Tomatoes and several hundredweight of Grapes last year) 3½ miles west of London. Price £2750, with possession.
E. AND F. SWAIN, Agents, 82, High Street, Notting Hill Gate, W. (3795).

London, N.

A few doors from railway station, in a good neighbourhood.
FLORISTS' AND SEED SHOP
HOUSE,—long lease. Stock, Fixtures, and Good-will, £250. A capital opening.
Apply to **PROTHEROE AND MORRIS, 67 and 68, Cheapside, E.C.**

TO BE LET, ON LEASE, MARKET GARDEN GROUND at Camberwell, close to the station on the London and Dover Road, and about 25 acres, being within three miles of Covent Garden and other Metropolitan Markets.
For particulars, apply to Messrs. **DRIVER AND CO., 4, Whitehall, London, S.W.**

TO LET, a NURSERY GARDEN and
a good walled-in **GARDEN and HOUSE**, suitable for Boarding-house, situated on the South Coast; 7 or 8 acres of Land. Has been chiefly used for growing shrubs, medicinal herbs, and flowers, and is well adapted for re-sale valuation.
R. LAMBE, Blatchington, Seaford.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

To Landed Proprietors, &c.
A. MCINTYRE (late of Victoria Park) is now at liberty to undertake the **FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELLING existing GARDENS**. Plans prepared.
115, Listeria Park, Stamford Hill, N.

J. JENSEN & CO'S
NORWEGIAN
FISH-POTASH MANURE.

Fish Manure is composed of flesh and bone—the best of all fertilising materials, and in combination with pure Salts of Potash and Magnesia forms a perfect fertiliser, as it contains the important ingredients of Ammonia, Phosphates and Potash in their most concentrated and available form. It is equally valuable for Farm Use, for Fruits, Flowers, and Vegetables, and produces wonderful growth, especially with Vines.

The Average Manurial Constituents are as follows:—
Cod Fish and Potash. Herring and Potash.

Per Cent.	Per Cent.
20.0 Ammonia 8.30	
15.0 Phosphates 9.0	
15.0 Potash 5.5	
10.0 Magnesia 10.0	

Or, in other words, a ton of **COD FISH and POTASH** is composed, approximately, of—
10 Cwt. of Dried Fish Bone—Organic Matter.
4 " of Dried Fish Bone—Phosphates.
3 " Sulphate of Potash.
1 " Sulphate of Magnesia.
1 " of Moisture, and ingredients not of manurial value.

The Prices are £10 per Ton (bags included) for the **COD**, and £9 for the **HERRING**, on Rails in the Docks, subject to Discount for prompt Cash.

Retail Prices, Cartage Paid, upon receipt of P.O.O.
IN TINS, 2½ lb. for 1s. 1d.; and
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 VERY FLORIFEROUS AND FRAGRANT. 6-8 FLOWERS WERE SEEN ON ONE
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NEW EPIDENDRUM, provisionally called E. WALLACEI. In the way of E. Stamford-
 anum, BUT DIFFERENT AND FAR FINER; has much broader and shorter foliage (obovate)
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A WHITE BLETTIA, found growing on the mountain slopes in grass and loamy soil; with a
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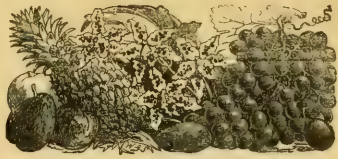
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THE

Gardeners' Chronicle.

SATURDAY, JULY 17, 1886.

THE GARDEN IN MIDSUMMER.

AMONG the many pleasures of a garden none is greater than the return to it in summer, after an absence of some little time, and just now this pleasure is mine. True, the Apple blossoms are gone that I left tossed up against the deep blue sky. Poets and painters alike have tried to depict this fairest of spring's sights, but, as the rosy dawn breaking across the azure heavens vanishes while yet we gaze, so does the subtle beauty of the Apple bloom seem to escape the power of words and the most delicate touch of the artist's brush. I remember once, in an old garden, finding an Apple branch covered with bloom as tender as the rose lining of a deep-sea shell, and centred, almost smothered mid the blossoms, lay the nest of a goldfinch, embroidered with the pale grey moss or lichen with which age had clothed the stem of the old gnarled tree. Softly swayed the branch in the summer wind across the clear blue sky, merrily hummed the bees around the blossoms, but the bird sat calm and still, with her crimson head above the silvery nest. As the Apple bloom has passed, so, too, have the Bluebells ceased to uprear their spikes. Very lovely were they on June 1, when the stems had grown so tall that the blossoms seemed to float as azure cloud above the fresh green grass beneath the trees. The Gorse on the wide ground shows now but as a golden brocade, while some time since so massed together in many places were its blossoms that they looked like concentrated sunbeams, not a spray of green being left visible.

But if the sweet freshness of May be gone, the full richness of June has come; every leaf is expanded, and the shadows bring delightful coolness. The meadows after the late rains have a luscious growth, and are full of King-cups and honied Clover, while the seedling grass looks purple as it bends in the light breeze. In the garden, the Poppies hold sway. The great crimson Papaver bracteatum, with dark blotches at the base of each petal, and blossoms measuring a foot across, flings its wild arms in every direction—now, into a group of Iris dalmatica, among the pale mauve flowers that flutter with a delicious coolness around the fiery blossoms; now into a tangle of Scotch Roses, the snowy-white and crimson making brilliant contrast; then falling among the dark-leaved, silver-lined, sweet Rosemary, with soft grey blossoms, that rest the eye beside the glowing Poppies.

But, brilliant as they are with the sun shining on them, more dazzling still do they appear with the sun shining through them, while sinking toward the west; then the light and brilliancy is that of rich stained glass: as they gleam like some old cathedral window one feels it is the hour of vespers in the garden. These Poppies are easily raised from seed, transplanted when of sufficient size to where they are to bloom. With a growth miniature in comparison to the oriental Poppies, Papaver umbrosum is just now very bright and gay; the slender

stems and fragile petals fanned by the light breeze have a wavering, fluttering motion, like the butterflies that hover round them. The dark blotches, too, seem deeper on the outer side of their shining petals than within, giving a very distinct appearance when the flowers are half closed. In good rich soil these Poppies produce a succession of blossoms during the early summer months, and are never so fine as from seed sown in autumn. Not far from these sparkling blossoms is a group of Iceland Poppies. They do not flutter in the breeze, but are like little bowls of beaten gold, and their colour, from pale yellow to orange-red, is most satisfying to the eye. Coming from such a northern latitude they are naturally indifferent to our winter frosts, waking up each spring into soft cushions of green to be crowned with blossoms a little later on. The Siberian Irises are beautiful in companionship with them, especially the variety orientalis, with its crimson spathe-sheaths and gem-like depth of colour. These Irises rather resent being moved, but once established are fair to see, especially if given a cool deep soil.

Growing against the wall and blossoming now for the first time is a tall tree of Abutilon trifolium. Four years ago it was a little seed, now, after the spring's fresh growth, it covers a goodly space, and has quite forgotten that every leaf was torn from it in the winter storms. The flowers are exquisite in bud, of a soft pinkish tinge, changing as they expand to pale lilac and opening out quite round, and almost flat, but for the curved bowl-like rim encircling them.

Not far from this flowering shrub is a plant of Rodgersia podophylla. Well pleased with a peaty soil and shaded situation its noble bronzy leaves measure 30 inches across, and a spike of bloom moving like a white feather above the polished leaves adds to the effect. In a niche on the little rockery the Edelweiss is at last content, and consequently its flowers are large, soft, and of a pearly whiteness. It was only last year that a friend told me how best to grow this plant. "Give it," he said, "plenty of lime rubbish from an old wall," and following his bidding, the seedlings so planted are to-day large tufts of velvety-white, beside the deep crimson Dianthus crenatus. The heights of Switzerland need not be searched for this star of the mountain, when it can be so easily grown at home. But still, how dull and commonplace it seems to pluck it in the garden, compared with the alpine climb, the snowy summit far above, the intoxicating freshness of the mountain air, the wonder of the unknown scene; and then the flower itself, like snow shadows, brought home as a message from those lonely heights. The Edelweiss may be freely grown in our gardens, but the romance and mystery will remain in the alpine search.

The silver-frosted Saxifrage are now at their best, sending forth their long flower plumes, that fall over the cool grey rocks like the spray from a fountain; and Erinus alpinus is never so happy as in its self-found home in the chink of an old wall, blown there by the wind.

July 1.—June has departed, but she has left us her Roses. They are climbing over the trellis in all the abandonment of luxuriant growth, and the golden coppery hue of the Tea Roses, with their bronzy leaves, makes a beautiful background for other flowers. To-day it is the dark purple blue Larkspurs that are blossoming in front of the Roses, and show like church spires against an evening sky from which the flush has faded and only the golden light remains. While other flowers faint and tire in the strong sunshine these tall Delphiniums become more lovely every day. Clustered together in groups the fresh and plentiful foliage seems to protect the ground beneath from the scorching heat. But, fair as

they are with the yellow Roses for background, still fairer are they beside the old Rose Céleste. Here the Larkspurs of cerulean blue are the very sky itself in all its azure depth, and the Roses are like the fleecy clouds at sunset, that have caught the last rays of light as they float across the sky. Lilies are late with us, the white Martagon being the only one in bloom. Growing beside the Spanish Iris "Thunderbolt," the tall Lily stems, bearing each from thirty to forty blossoms, mingle well with the dark Iris, which from the rainy spring is also tall and strong. This clouded Iris is of more vigorous habit than the type. Lifted and divided every few years, when the foliage has died away, and well decayed manure dug deeply into the ground before replanting, it has a bold and noble aspect, and the colouring is most unique. Beautifully as the flowers group themselves out-of-doors, it is pleasant sometimes to place those together indoors in a vase that one has not seen hitherto side by side. Before me at this moment, is a vase of clear Bohemian glass, and in it some soft lilac sprays of the tree Lupin, with a few gold and crimson single Gaillardias scattered through, and it is a picture fair to see.

Among rosy blossoms, none is prettier at present than the Oxalis floribunda; it appears to revel in the sunshine, never flagging under the most scorching rays, and tossing its bright flowers out on every side, until they form a complete wreath. The rosy Erigeron is another sun-worshipper; it is literally enveloped in a pink haze of Daisy-like blossoms. When the summer flowering is past, it sends up fresh heads of bloom late in autumn; even in the dark days of November it is lingering still, looking cheerfully upward with its eye of gold to bid us be of good courage. Then it is that we prize it most, for, with the flicker and sparkle of a thousand blossoms round us, winter seems far, far away. L. A. L.

New Garden Plants.

DENDROBIUM PERCANTHUM, n. sp.*

A new member of the antennate Stachyobia division. Never have I seen a Dendrobium with such a lip, just comparable to that of Epidendrum glaucum, Lindl. (!). Hence it is the type of a new group. The stems are very strong, shining like a Bamboo. The numerous racemes bear flowers equal to those of Dendrobium macrostachyum, but of a much stronger texture. Sepals triangular. Chin blunt. Tepals linear, longer, retrorse. Lip ligulate, trifid at the apex in a most singular manner for a Dendrobium. Side-laciniae blunt rhomboid, central lobe ovate, apiculate. Five keels run from the base to the top, where they split in the mid-lacinia into even branches, so that one might believe that at some places there were but three keels, the lateral ones being contiguous. Sepals and petals of a sulphurous colour. Lip white, mid-lacinia and borders of the upper part yellow, keels brown, partly purple. This was kindly sent to me by Mons. Lucien Linden. It was gathered by the Lindenian collectors, H. G. Rehb. f. [Name from the Greek perkanos, black-spotted? Ed.]

VANDA LINDENI, n. sp.†

This Vanda stands very near to Vanda hastifera, which was for a long time only known from one

* *Dendrobium percanthum*, n. sp.—(Stachyobia antennata percantia): caule elongato valido nitido calanum gryphium crasso inferne sulcato; racemis superne crebris multo floris; locustis minutis; ovario pedicellate gracilibus; mento obtusangulo; sepalis triangularibus; tepalis linearibus longioribus retrorsis, labello ligulato apice dilatato trifido, lacinia laterali-bus semiorbiforme rotundatis, lacinia mediana ovata apiculata carnis quinque per longitudinem nunc valde approximata laterali-bus in disco laciniae mediae bifidis; columna trigona, superne dilatata, androcinio pluridentato. Ins. Molucc., A. Linden. H. G. Rehb. f.

† *Vanda Lindenii*, n. sp.—Aff. *Vandae hastiferae*: racemo laxitiori, plurifloro; sepalis tepalique cuneato oblongis ovatis acutis undulatis, labello lacinia laterali-bus rhombeis quadratis

plant in the hands of Director J. Linden père. No one imagined at that time that M. Auguste Linden would discover, and that Mons. le Directeur Lucien Linden would grow its nearest ally. It is dedicated to Mons. Auguste Linden. We are not accustomed to see the name Linden in connection with Asiatic plants.

The old *Vanda hastifera*, Rchb. f., has flat sepals and petals, light green, with dark blackish spots. The lip is tinted with dark and light mauve, and the central lacinia is hastate at the base, and at its top stand two varnished tumours, which might make a cynophile think of a double-nosed dog. A nice sketch in colours, prepared by the sagacious Sanderian traveller, I believe at Singapore, gives evidence of the plant having the same colours in Asia as it had in 1872 at Brussels. I have a fine Asiatic specimen from this. My young friend, told me the Malayan name signified "water branch." The fresh species has a rich raceme of flowers as large as those of *Vanda concolor*. Its predominant feature is given by the much undulated cuneate oblong blunt acute sepals and petals, which are light yellow, with much red in the disc and on the outside. The side laciniae of the lip are nearly square, or a little rhombic, whitish-yellow, with some black-purple spots at the upper margin. The mid-lacinia is of a most remarkable structure. It may be called triangular-ancipitous, going out into a sharp angle under two tumours at the apex, sulcate beneath, with a linear velvety ascending auricle at each side of the base, with three furrows over the disc and hairs of the shortest kind at the base. Of course it is very fleshy, whitish-yellow, with four purple lines over disc, purple spots on the two dog's nose tumours, and burnt sienna colour at the top under those tumours; spur conical, burnt sienna coloured at apex, hairy inside. Column yellow, burnt sienna-coloured at the base. It is of Sondatic origin. H. G. Rehb. f.

ODONTOGLOSSUM RIGIDUM, Lindl.

This appears to be a very uncommon plant in our collections, so that it has even been mistaken for *Odontoglossum aureum*. It has strong ovoid hard, rather dark bulbs, and linear ligulate acute leaves. A long sheathed peduncle bears a stately wide, more or less zigzag branched panicle. The flowers stand on long green stalked ovaries. Sepals and petals oblong-acute, the lateral sepals now free, now more or less connate at the base, often with a green keel on each side outwards, excepting this canary-bird yellow. The long stalk of the lip runs out into a square or nearly square obtusangled blade, subcordate at the base, with an apiculus in the centre in front. There is some bidentate or tricrenate callosity at the very base of the blade, just where it touches the stalk of the lip. The lip is of a fine chrome-yellow, thus giving an excellent contrast to the lighter sepals and petals. The trigonal column is green at the base, yellow at the top, and has very remarkable deflexed ligulate wings, with more or less prominent teeth. Its nearest allies are *Odontoglossum cochleatum*, Rchb. f. (*Oncidium cochleatum*, Lindl.), *Odontoglossum crocatum*, Lindl., Rchb. f.; *O. mystacinum*, Rchb. f., B. Zeit.; *O. aureum*, Rchb. f. (*Oncidium aureum*, Lindl.); *Odontoglossum festatum*, Lindl., Rchb. f.; *O. hemichrysium*, Rchb. f.; finally, *O. bicolor*, Lindl. The latter has never been seen, neither by Dr. Lindley nor by me, it having been described from one of Taffalla's pictures, copied at Lima by poor Matthews. My wild-grown specimens of *O. rigidum* are from Hartweg, Jameson and Mandon.

It was but quite recently that I had fresh flowers, I have to thank cordially for them Mr. Sillem, Laurie Park, Sydenham, who sent it, grown by Mr. Billiard; Mr. O. Wrigley, Bury, Lancashire, grown by Mr. Swan; and for very fine bulb, leaves, and inflorescence, Mr. W. Lee, Downsidge, Leatherhead. No one sends fresher materials than Mr. Lee, but there are numerous senders who think it is quite enough to have the flowers put loosely in a box, when they arrive shrivelled, withered, broken to pieces, and, the anthers and pollen apparatus of various species mixed. I remember more than a quarter of a century ago Mr. Walter Fitch, the excellent artist, told me he was disgusted at getting flowers not packed separately in paper. H. G. Rehb. f.

erectis, lacinia mediana triangula carnosae antice deorsum triangula ancipiti, superne gibberibus hemisphaericis duobus collateralibus, medio per discum quadrilobata, basin versus velutina, utrinque basi auriculari ascendenti lineari velutina concava, calcaris conica nitens velutino, labello dimidiato aequalino; columna clavata. H. G. Rehb. f.

H A A R L E M.

It is oftentimes a matter for wonder why those who are in quest of pleasure or health feel bound to take their run upon the Continent during the autumn. If any consideration for flowers comes in it should be absolutely decisive against such a course. Not to say that the spring flowers are for the most part the best in any land, it is still to be remembered that there is a freshness about the meadow or hillside which only can be met with in the earlier months of the year, and nurseries and botanic gardens have not that used-up appearance at that time which they are sure to present in the fall. The nurseries of Belgium and Holland had for a long time been in my thoughts, and at last I found myself in the merry month of May en route for Haarlem itself. The stay at Ghent was but a short one, and the visit to Van Houtte's splendid collection of plants was necessarily very brief. "*C'est magnifique!*" was the encomium of the innkeeper with whom I was staying, and his words may be accepted as truth. The only fault to be found with it was, that it was in many respects over my head. Large glasshouses full from end to end of Orchids in the finest condition, others that were devoted to Palms, to Indian Rhododendrons, to rare Ferns, and especially one that might be called a temperate-house, and where a great many New Holland plants had been gathered together, were interesting to run through, and were very reminding of Kew. I took down the names of a few greenhouse plants in which I mean to invest, and I am sure they may be recommended. The names are these:—*Boronia polygalifolia*, *Kennedia ferruginea*, *Lithospermum fruticosum*, and *Cantua dependens*. The *Kennedia* was exceedingly pretty, and apparently of a very free growth. The *Lithospermum* is doubtless very well known, but blue flowers are always acceptable, and when I saw it in such beauty I wondered that we make so little use of it for decorative purposes in England. I have grown *Cantua dependens* for some time, and at last I gave it up in despair, because it seemed absolutely to refuse to blossom with me. I expect from what I saw in this nursery that, after all, it only requires sufficient age. Comparatively small plants, but whose stems showed that they had long ago passed their minority, were well covered with bloom. No one can look on *Cantua dependens* doing well, and in its full glory, without wishing to have it, and the mental note that I made about this fine thing was, that it must be tried again, but with greater patience than before.

In Van Houtte's garden there is a department for everything: herbaceous plants in the open ground were rather backward this year, and *Hyacinths*, *Tulips*, and such-like have their head-quarters at Haarlem, to which place it was best to repair for them. For an hour or more before Haarlem was reached an Egyptian plague seemed to be upon us all. Dust entered the railway carriages through every window was closed, and sand, sand, sand, seemed to be everywhere. Soon long parallelograms of the brightest possible colours were stretching out on the right hand and the left, and bulb gardens declared themselves, where *Tulips* were all ablaze by thousands and tens of thousands.

The best gardens that I visited were those of Messrs. Roezen, Krelage, and De Graaf (at Leyden). M. de Graaf was unfortunately on a visit to England, but I think his wife put me in the way of seeing all that there was to be seen; and nothing could exceed the courtesy of M. Roezen and of M. Krelage. They gave me much of their time, and added to the interest of the visit in every way.

I have several times seen the question raised, Why cannot *Hyacinths* and *Tulips* become articles of commerce in England as they are on the Continent? Are there not large tracts of land which are as good for this purpose in our own country as those on the Continent? I dare say an affirmative answer might be given to this question, but it would not settle the matter. Later on it was talked to Herr Max Leichtlin about this very point, and his reply to my question went down to the very roots of the business. He simply uttered the word "experience," and experience gives the explanation of all things. A Dutchman has been familiar with the mysteries of bulb growing from his youth, and there is no trouble which he is unwilling to take regarding it, and there are no minutiae which he considers to be too small to attend to. M. Roezen showed me in one of the fields through which we were passing, a barrowful of sick *Hyacinths* which

had been condemned, and were presently to be thrown away; but whoever could have picked out those sick bulbs from their fellows who were doing well but one whose eye had been trained to it by long years of practice, and who could "spot" spot in a moment? I saw what he referred to when I took the *Hyacinths* into my hands and handle them carefully, but as to marching through several acres of bulbs and condemning the worthless ones at first sight, it would have been easier to fly; and yet apparently common labourers were doing this without any effort at all. I have often heard the question raised in England if bulbs like manure or not? and unless my memory is deceptive, the answer is often returned in the negative. The highest authority that we have for *Lilies*, I think, has said that with the single exception of *Lilium giganteum*, no *Lily* is in his opinion ever benefited by manure. It may be so, but it is not the practice of Holland. Sand and manure—manure and sand are the alpha and omega of all things. It should be said that of course the manure is in a very decomposed state, but a Dutchman relies on it implicitly, and the fields are enriched not only in the first instance, when they are recovered from some barren waste, but again and again, so that fertility may be impaired. A bulb, it is true, does not like to lie in manure—it should be cushioned in sand, and the roots should push downwards into the rich provision from which they get vigour and life. This tends also to keep them from being ever burnt up in the summer. It is when the rootlets have nothing proper to feed upon that they come too much to the surface, and they cannot then stand the burning rays of the sun.

An emphasis should be put on the thorough decomposition of the manure, but it cannot be bad practice to use it in this way when such good results flow from it. Not to speak of *Tulips* and *Hyacinths*, I saw fields and fields of *Lilies*, which were perfectly innocent of shade, and yet doing quite well after this fashion.

It was most interesting to be initiated into the ways by which *Hyacinths* are mostly increased. Two methods are commonly used. A threefold incision from the base upwards may be made in the bulb, or the bottom of it may be scooped out altogether in the form of a cup. In the latter case, the shape of the bulbs will be best, and they come in quantities about the size of small Peas, and have to be grown on and on for a very long time. *Hyacinth* growers seem to recognise three distinct sizes for the market, of which the best and the costliest are for the most part sent to England. It takes six years before such bulbs are sent out, and they are during that period shifted several times from one kind of soil to another. In addition to all this, it would almost require a lifetime to have the properties—such, for instance, as their lending themselves easily to be forced, their readiness to multiply, &c.—of an innumerable army of *Hyacinths*, *Tulips*, and *Anemones* at one's fingers-ends. M. Roezen estimated his *Anemones* alone at a million.

It would baffle all computation to give the slightest idea of the number of *Narciss*, *Tulips*, *Hyacinths*, and of all sorts and kinds of things which are grown by him. But truly it was a gorgeous sight to gaze on the morning of a cloudless day on those great breadths of colour. Can anything in point of mere colour go beyond a *Tulip* field when every petal is thrown back to the sun, and they seem to be drinking in his rays. It is questionable whether anything could make a more vivid impression on the visual organs than they do; when looked at for any length of time they become quite dazzling. I feel as though I had never seen red or yellow before until I went to Holland.

It is not my province to enter here into the different qualities of bycismes, of bizarres, and of breeders—these are Eleusian mysteries with which a professional florist is alone competent to deal; but some few names may be roughly given of flowers which struck me most at the time, and which I jotted down that I might act upon them later on. *Brutus* is a glorious yellow flower, with scarlet streaks on it. *Cerise Gris-de-lin* speaks for itself in point of colour. *Couleur Cardinal* and *Couleur Ponceau* are both very fine. *De Kaiser* is of dark scarlet hue, very large, and strikes one at once. *Joost van den Vondel* must on no account be omitted, for it is the most beautiful of all the white *Tulips*. *Pottebakker*, scarlet (*Verboom*), is very attractive. *Proserpine* excels in form. *Princess Beatrice* is a good double white that has yet to make her appearance in catalogues. *White Swan* will always hold her own, and with *Ophir d'Or*, *Rex rubrorum*, *Tournesol*, *Violet Supérieur* (the four last

are doubles), the list comes to an end of those which made their way into my notebook. I daresay there may be many others as good or better than these, but for the excellence of those named above I can answer. *Hyacinths* had been for some time over in M. Roezen's fields, but *Narciss* were still lingering when I paid him a visit. Most of them are like household words just now in England; but *Narcissus poeticus* *Vernaensis* is very distinct, and I was glad to make its acquaintance. Of course what is said of one collection of *Tulips* or *Hyacinths* may be pretty well said of another. It cannot be denied that there is a good deal of sameness in Holland, but it is a sameness that can well be put up with—it is not everywhere to be seen. I especially noticed that while florists' *Tulips* and *Hyacinths* seemed to be—if it may be so said—the great staple of the land, very many other things were evidently in favour as well, which are far too numerous to be named. M. Krelage's list of bulbs is simply bewildering. He very kindly pointed out to me some good things as he took me through one garden after another. *Leucojum pulchellum* major and *L. vernum* fl.-pl., are both very good, and the latter is somewhat scarce. I greatly admired *Tulipa Ostrowskiana* (from Dr. Regel), and another called *savayensis* *syvestris*, which differs from the type in being red, is very pretty indeed. T. Greigt was in fine form with M. Krelage, and some large beds full of dwarf *Iris*—*I. pumila cinerea*, *I. lutea*, and *I. sulphurea*—were extremely effective. Cape bulbs must be well worth seeing in many places a little later on. At M. de Graaf's nursery at Leyden, *Narcissus Kaiser Wilhelm* seemed to me to be by far the largest *Narcissus* blossom I have ever seen; and Maria de Graaf and Cecilia de Graaf were very nice specimens of the garden varieties of *moschatum*. But what variety drew me most at that garden was a large patch of *Gladiolus Watsonianus*; it was very fine indeed, and doing well in one of the frames. *Lilium Thompsoni*, *Brodiaea Hudelei*, and many other things might well have a word of praise, but the truth is it is exceedingly difficult to select, to know where to begin and where to end, where so much is so good.

I left Holland after a sojourn of a week there with many regrets. It need not here be said, that the country is unlike anything else, and has great features of interest. Flowers are not its only attraction, and a visit to the picture gallery at Amsterdam, and organ recitals at Haarlem, filled up many hours that could be taken from the main object in view. *A Wanderer*.

"HORTUS FLORIDUS."

So much interest was excited by the letters published some time since, concerning this bibliographical curiosity, that we are pleased to insert the following notes that have been obligingly furnished in a letter to Canon Ellacombe, at his request, by Mr. Krelage, who has added some comments on the very complete copy of the English edition in the possession of Canon Ellacombe.

The complete edition of the English *Hortus Floridus*, 1615 (oblong folio), as far as can be ascertained, consists of the following parts:—

1. Twenty-eight pages text (sheet A-G) containing—*a*, the English title, "A Garden of Flowers," &c., 1 page; *b*, "The Booke to his Readers," x page; *c*, "To the Reader Salute," 1 page; *d*, "The first booke," containing a very lively and true description of the flowers of the spring, 9 pages; *e*, "The second booke," &c., 4 pages; *f*, "The third booke," &c., 6 pages; *g*, "The fourth and last booke," &c.; and *h*, "The Translator to the Readers or Practitioners," 4 pages; *i*, a piece of poetry, signed T. W., 1 page.
2. Engraved Latin general title, with the portraits of Dodonæus and Clusius, marked "A.D. 1614. Extant Arnhemii apud Joannem Janssonium. Biblioph. ibid."
3. Engraved frontispiece (a garden with a lady and a gentleman looking over a balustrade) to the first book.
4. Fifty-three plates (the first book), marked *a*, *b*, &c., 43–54; or, 1–52 and 54; pl. 42 = pl. 52. In the copies in which pl. 42 is omitted, pl. 52 is always to be found; if a copy possesses pl. 42, pl. 52 is omitted. Of the greater part of the plates two editions exist: 1, one with insects; 2, one without insects on or near the flowers. In the English copy in Mr. Krelage's library is to be found, bound after pl. 54, an unnumbered plate showing an instrument for transplanting *Tulips*.
5. Engraved frontispiece (garden, like 3) to the second book.

* Mr. Franken's remarks agree with my opinion on this point.
† In three of Mr. Krelage's copies this frontispiece is the same as that under 8 and not under 3.

6. Twenty plates (the second book). The first edition of the Latin translation consists of 19 plates; the second edition of 20 plates.

7. Engraving representing Flora, with cornucopia, leaning against an Orange tree, with Cyclamen, Sunflower, and on a coat on the right hand, the epigram:—

"Flora naturæ referens vices,
Exhibet blandas vias, rosasque,
Quicquid et blandas Arabes remittunt.
Spargit odorem. A. B."

8. Engraved frontispiece to the third book (garden, without lady and gentleman, and with other flowers in the beds).

9. Twenty-seven plates (the third book). Pl. 1—25, and two supplementary plates, viz., 13—14 and 25. The description of these supplementary plates is to be found in the English text, under Nos. 13, 14, and 25.

10. Engraved frontispiece to the fourth book (= under 8).

11. Twelve plates (the fourth book), marked 10—12D. Remark on Books I. to IV.—There exist different engravings of almost all the plates of these four books, differing but very slightly; for example, sometimes plates are numbered, sometimes not, &c. As for the English text, it is perhaps preferable to bring it in the book before the plates, as the signature of the sheets is not interrupted. A. to G.

12. Title to the second principal part: "Cognosce," &c.

13. One hundred and twenty plates on 61 folios without text. (Second principal part).*

14. At the reverse side of plate 120, in a typographic ornament, the words: "Finis coronat opus."

REMARKS ON MR. ELLACOMBE'S COPY.

4. As to the omission of the text of plates 42 to 54 Miltitz in his *Bibl. Bot.*, Berol., 1829, remarks:—"I. Booke, textus fol. 5. tab. æm. 47. ut in priori editione (viz., the Latin edition), et preterea tab. 43—54 Tuliparum, quarum vero nulla in textu mentio." Pritzel, in his *Thesaurus*, has copied the above passage. Th. J. T. Arnold says that "these plates (42 (3)—54) were published at a later date than the others, when the English and Dutch text had already been published." In the Latin edition the text of these plates is printed in verso of the plates. Miltitz seems not to have seen plate 42 (nor has Mr. Ellacombe); but it is the same as plate 52; it figures—*Tulipa Adriani Bilis lutea rubris flammis elegans ornata*, and *Tulipa Nob. viri Johani Seulen abli rubris maculis puncta*, vide "Franken, Les Van de Passe."

6. As to Mr. Ellacombe's question about plates 18 and 20, these represent 19 (which is also missing in my English copy, but which I possess in my Latin editions): *Caryophyllus fol. punctato*, and *Cariophyllus flore sanguineo*; and *Caryophyllus flore niveo*, 20, *Cariophyllus maximus col. carneo*, *Cariophyllus maximus variegatus*.

7. This page seems not to be found in Mr. Ellacombe's copy.

9. In Mr. Ellacombe's copy the two supplementary plates seem not to be found.

12. The Latin general title, "Alterā pars Horti floridi," &c., is not to be found in the English edition, neither are there found the four special Latin titles preceding the four books of the first part.

13. Plate 27—28 represents *Primula veris* and *Pyrus*.

REFERENCES TO THE LITERATURE OF "HORTI FLORIDI." ENGLISH EDITION.

Monographs.

Cr. *Passeus* "Hortus Floridus" door Th. J. T. Arnold, published in *Bibliographische Advertaria*, ii. No. 6, the *Haye*, Mart. Nyhoff, 1875; and *Bibliographische Advertaria*, iii. No. 4, the *Haye*, Mart. Nyhoff, 1876. Mr. Arnold gives a description of a complete Latin copy, not without some slight inaccuracies, but not of the English editions, which he probably never saw.

L'Œuvre grave des Van de Passe, décrit par D. Franken, DZ. Amsterdam: Fred. Muller & Co., 1881, p. 265, No. 1346. In this excellent work very interesting notes are given on the history and works of the family De Passe. The author distinguishes six editions:—"i. Les planches publiées séparément sans numero, avant les terrains, d'où sortent les plantes et avant les insectes (Cabinet des Estampes à Paris). ii. Sans texte (description des plantes) mais avec l'introduction en Hollandais, la planche de l'instrument pour dépoter les oignons en fleur, les terrains, &c. iii. Avec le texte Latin. iv. Avec le texte Anglais. v. Avec un texte (?) toujours avec un titre en Hollandais. vi. Avec un texte (?) toujours avec un titre Français." Probably v. is the same as ii.

About edition iv. is said:—"iv. Avec le texte Anglais.

* Mr. Franken supposes that the plates of the second principal part are engraved by an unknown German artist; certainly they are not engraved by one of the De Passes.

Je ne fais que citer cette édition: je n'ai jamais vu d'exemplaire.

From all this it may be concluded that the English edition is the rarest.

The English edition is mentioned:—

1. *Bibl. Bot.*, a. J. F. Segurio digestus accessit *Bibl. Bot.* Bualdi, &c., 1749, p. 134. (i. Index librorum rei herbarie). "Translated out of the Nederlandsch original into English, 1675, m. 4, icon. 127."

2. *Bibl. Bot.*, auctore A. von Haller, tome i., p. 415, § 432. *Tiguri* apud Orell, &c., 1771. Von Haller copies Segur. Inexact.

3. F. A. Miltitz, *Bibl. Bot.*, Berolini, 1829, p. 82. Exact description of the English edition.

4. *Manuel du Libraire*; par J. C. Brunet: 3d edition, tome iii. A. Bruxelles, 1821. "Il y a une édition d'Utrecht, 1615, in fol. obl., texte Anglais à laquelle on a ajouté les pl. 42—54 pour les peintures." Incorrect note.

5. *Thesaurus Lit. Bot. Cur.*, G. A. Pritzel. Lips, Brockhaus, 1857, No. 7795. Gives the English title and copies Miltitz.

6. *Guide to the Literature of Botany*, Jackson, 1881; § 12, early modern, p. 27. Mentions the first words of the English edition.

It may be observed that Gardel and Pater d'Ardene mentioned this work, and had a discussion about the existence of the Latin edition.

Tournefort, in his *Institutiones rei Herbarie*, tome i., p. 43. Paris, 1700, mentions:—

Editions 1614 et 1617 (Latin ed.).

Gardel, *Histoire des Plantes qui naissent aux environs d'Aix*, &c., 1745, fol., p. xxxii. *Explication des Noms des auteurs botanistes. Icones Crispini Pascaei*, 1687 [?].

"Quoique M. de Tournefort nous donne le titre de ce livre en Latin, l'ouvrage est pourtant en François. Je ne crois pas qu'il ait jamais été traduit en Latin [!] ce livre qui est en longa forma n'étant qu'un recueil de fleurs dont l'auteur en a donné d'excellentes figures. . . ." (Then he gives the French title). "L'on trouve au frontispice de cette même édition le titre Latin suivant fort différent de celui de M. de Tournefort: *Hortus Floridus*, &c. Je ne sçai si M. de Tournefort a eu en main une autre édition que celle que j'ai puisé l'a dit faite à Arnheim en 1607, la mienne est d'Utrecht en 1614."

D'Ardene, P. de l'Oratoire, in his *Traité des Revolutions*, 3d edition, Avignon, 1763, p. 7; and in his *Traité de Tulipa*, Avignon, 1765, pp. 20, 79, mentions the *Hortus Floridus*, and differs in his opinion on the existence of the Latin edition with Gardel. He possesses, too, the second principal part of the work.

Lastly we may refer to the different articles in the *Gardeners' Chronicle*, 1885, ii., viz., pp. 346, 362, 395, 439, and 469.

J. H. Kvetlage, Haarlem, Holland.

THE HIMALAYAN HEMLOCK SPRUCE, TSUGA BRUNONIANA.

I FIRST met with this graceful tree (fig. 14) on the banks of the Tambur River, in Eastern Nepal, in November, 1848, and have described it in my *Journal* as a beautiful species, forming a stately blunt pyramid, with branches spreading like the Cedar, but not so stiff, and drooping gracefully on all sides; and its surrounding scenery as grand as any depicted in pictures by Salvator Rosa; a river roaring in sheets of foam, sombre woods, crags of gneiss rocks, and tier upon tier of lofty mountains flanked and crested with groves of black Firs (*Abies Webbiana*), terminating in snow-sprinkled rocky peaks. Here one individual was measured, and found to be 20 feet in girth, at about 5 feet from the ground, and its concomitant vegetation was of many Rhododendrons (especially arboreum, Hodgsoni, Falconeri, and barbatum), *Leycesteria formosa*, *Thalictrum*, *Roses*, *Thistles*, *Alder*, *Oaks*, *Birch*, *Magnolias*, *Camellias*, *Euryas*, *Laurels*, *Barberries*, *Holly*, *Anemones*, *Strawberries*, *Raspberries*, an alpine Bamboo, and many other genera of the temperate and sub-alpine regions of the Himalaya. On another occasion, in the Lachen valley of Sikkim, I measured a Spruce that was 28 feet in girth and 120 feet in height. Nor were these very exceptional dimensions, though they greatly exceed what prevails in the Darjeeling district of Sikkim, for Mr. Gamble in his list of the trees, shrubs, and large climbers of that region, gives 60 to 80 feet as the average stature of this tree and 10 to 15 feet as the average girth at 4 feet from the ground.

The Himalayan Hemlock Spruce does not extend westward beyond Kumaon, where, according to Madden, it attains a height of 70 to 80 feet, and yields an inferior timber; eastwards it extends into Bhotan, where Griffith met with it at 6500 to 9000

feet, which is a considerably lower elevation than it affects in Sikkim, where its inferior level is about 8000 feet, and its superior 10,000 feet. The wood in Sikkim is little used, not being durable, but the bark is much employed for roofing.

In a geographical point of view the occurrence of a Tsuga in the Himalaya is interesting, as affording an evidence of the affinity of the flora with that of Japan and North America. The latter country, and especially its north-west territories, are the headquarters of the genus. On the sierras of California, Oregon, and British Columbia, three species are found—*T. Mertensiana*, *T. Pattoniana*, and *T. Hookeriana*; in Eastern America there is only one, *T. canadensis*, the type of the genus. One, *T. Sieboldii*, occurs in Japan, between which country and the Himalayas none have as yet been found, though it is most probable that one or more species will be found in the mountains of Western China. And this reminds me that the central region of the Himalayas, including Kumaon, Nepal, and Sikkim, is the most interesting on the globe as the meeting point of the types of many floras, which advance no further in any direction. Genera of the Malayan archipelago reach its hot humid valleys, but there they end. On its drier outer ranges, types of the Deccan flora reach their northern limit. In its temperate and sub-alpine regions are intermixed in profusion orders and tribes characteristic severally of Europe, Dahuria, China, Japan, and both eastern and western North America: whilst in its alpine and sub-alpine regions are representatives in numbers of the floras of Scandinavia, the Altai, Siberia, and the Arctic zone.

T. Brunoniana is a tender plant in most parts of England. At Kew it has been killed, and I have seen no good specimens nearer London than on a south slope near Leith Hill, and then only in a very sheltered and well watered valley. All the other species of the genus do well at Kew. J. D. Hooker.

THE COLONIAL EXHIBITION.

No. VI.

Fiji.—The products of these islands occupy a comparatively small space, and though there is but little of absolute novelty among them there are, nevertheless, some of considerable interest. The Cocoa-nut and its products, as might be supposed, is fully represented, as well as Candle-nuts (*Aleurites moluccanus*), the oil of which is used for illuminating purposes; and *Dilodius*, the kernels of *Calophyllum inophyllum*, from which an abundance of oil is obtained having a high reputation for the cure of rheumatism. Tapa cloths are also abundant, the entrances to the court being hung with curtains of this material, which, as our readers will know, is the beaten out bark of the Paper Mulberry (*Broussonetia papyrifera*). Amongst the many valuable woods that are found in the Fiji islands the "Visa" and the Sandal-wood will attract most notice, for here is shown a canoe cut out of a solid "Vesi" trunk. The tree which furnishes it is a leguminous one (*Azizia bijuga*), and the wood is heavy, close and even grained, and of an intensely dark brown colour. The natives use it not only for canoes but also for pillars for houses, bowls in which to serve kava, war clubs, &c. The Sandal-wood (*Santalum yasi*) was, it is said, "at one time plentiful in various parts of Fiji; but in the early stage of settlement its destruction must have been most indiscriminate."

Under the name of Bandina Boxwood some blocks are shown of a remarkably hard wood, which appeared upon examination to be suitable for engraving purposes. It is, however, of a dark brown colour, which, it seems, unfits it for the better kind of work. Upon submitting a sample of this wood to an expert, he reported that the wood has no special claim in consequence of its dark colour. This, he says, considerably reduces the value, as it could only compete with inferior Box, which is at present supplied in sufficient quantity. He explains this objection by saying that "cutting upon wood is like drawing upon paper; if it is tinted, there must be a limit to the density of the tint, or your drawing will be absorbed by the tint upon which it is drawn. An engraver would have difficulty in observing his progress while doing his work." The plant producing this Bandina Boxwood is at present unknown, but it is stated that should it prove useful it could be had in any quantity up to two feet in diameter from Fiji, and the other outlying groups of islands in the Pacific.

Some fine masses of Kava root (*Piper methysticum*) are shown, also powdered Kava root. This, it will be remembered, is the source from whence the Fijian beverage called kava is made by masticating the root and ejecting and fermenting the saliva. It is known to have diuretic properties, and has latterly attracted some notice for its medicinal value in this country. Quite recently, indeed within the last few weeks, a spirit prepared from Kava root has appeared on sale at the refreshment bars in the Exhibition. It is

constant use that chiefs and people alike owe their robust health, in spite of the depressing influence of their tropical climate. This primitive and unsophisticated liquor regulates the action of the internal organs; it possesses remarkable soothing properties; it is a health stimulant, an excellent brain-feeder, a wonderful restorer of faded energies and of exhausted nerve-power. It is a preventive to gout and rheumatism. To those engaged in heavy intellectual labour it gives renewed energy. It is a veritable Elixir of

largely cultivated, and reaches its greatest perfection in the "Colo," or highland provinces of Viti Leon, the largest island of the group. All sorts of Tobacco seed have been grown, including Virginia and Latakia. The natives smoke their tobacco rolled up into "saluka" or cigarettes, the wrapper used being the dry leaf of the Plantain. Connoisseurs are very particular in the choice of their wrappers, and will only use the leaves of certain sorts of Plantains. Tobacco is an important iota of native life. Without it and kava no important discussion can be conducted.

NEW ZEALAND.

Amongst the products of the vegetable kingdom in this court timber and its manufactures, in the form principally of elaborate cabinet-work, holds a prominent place. Here we see some of the most beautiful pieces of mottled Kauri (*Dammara australis*) imaginable, certainly the most ornamental wood of the colony, also fine specimens of Honeysuckle (*Knightia excelsa*), besides which there is a good series of well named building timbers. A fairly good show is also made of Kauri gum, the resin from the tree mentioned above, which is dug up in large quantities and sometimes in enormous lumps, and used for varnish making. None of the lumps shown, however, in the Exhibition equal in size those we occasionally see in commerce in this country. Some of the specimens are curious, and will attract attention on account of their dark colour and admixture with coal. It is stated that this dark coloured gum was much in demand some time since, when the fashion prevailed for dark wood furniture, as the polish or varnish prepared from it greatly helped to deepen the colour. A small specimen of Kauri wood is shown with the resin naturally deposited on it—indeed almost covered with it—showing the abundance with which it is formed in the trunk of the tree.

The botanical visitor to the New Zealand court will not fail to note the fine mass of *Raoulia eximia*, the Composite plant which the colonists call Vegetable Sheep, in consequence of its forming large shaggy looking tufts on the mountains, which in the distance are readily mistaken for sheep.

CAPE OF GOOD HOPE.

Geographically considered New Zealand and the Cape are not near neighbours, but at Kensington a few seconds take us from one country to the other. The Cape collection will be remembered for its diamond washing and polishing, and for its ostrich feathers, and foremost amongst its vegetable products for its fine collection of woods and dried medicinal plants, and not less for its excellent *Official Handbook and Catalogue of Exhibits*. In the former the "Sketch of the Flora of South Africa," by Mr. Harry Bolus, F.L.S., already commented on in these pages, contains a great deal of valuable and interesting matter. The following description of the Karroo region will be read with interest:—"During periods of drought nothing can be imagined more desolate and mournful than the appearance of the vegetation; the soil is rarely covered, bare patches of greater or less extent intervening between shrubs and bushes. These are frequently blackened by drought as if they had been killed by fire. The largest, and indeed, almost the only trees are those of the *Acacia leonida* (Dorru-boom), which line the banks of the dry river beds as with a fringe; and occasionally on the higher mountain sides a few other trees of shrubby habit occur. For the most part the shrubs are scattered, and range from 5 to 8 feet in height, with intervening shrublets, 1 to 2 feet. Yet, after copious rains, all will be changed within a week or two, as if by magic. Many of the apparently dead bushes put forth bright green leaves; the shrublets are covered with flowers often before leaves can be seen; bulbous plants which may not have flowered for several years previously, send up their scapes with incredible rapidity, and annual flowering bulbs and grasses are everywhere seen where formerly all was bare and barren. Namaqualand, perhaps, exhibits this phenomenon to the most striking extent. I was amazed on visiting that desert country after the rains of June to July, 1883, to see tracts, hundreds of acres in extent, covered with sheets of living fire or glowing purple, visible from several miles' distance, caused by the beautiful Composite in flower; and nothing is more singular than to see this luxuriance intermingled with the black or white branches of dead shrubs, killed by previous droughts, standing like ghostly intruders on a scene of merriment and joy. These charming displays



FIG. 14.—*TSUGA BRUNONIANA*: HIMALAYAN HEMLOCK SPRUCE. (SEE P. 72.)

(From a drawing made in Nepal by Sir Joseph Hooker.)

a colourless liquid and is sold in square, white glass, capsuled bottles, with labels fully describing its virtues. It is called Yagona, the finest Kava Schnapps, or aromatic gin, and its value is set forth as follows:—"The active principle of this agreeable and splendid beverage is prepared from the root of the *Piper methysticum*, a species of Pepper. The root is called Yagona by the natives of Fiji, and from it they make their national drink, which is diuretic rather than intoxicating. Yagona has been the Royal drink of the Fijian and Samoan chiefs from time immemorial, and it is to its

Life. As a diuretic it is unrivalled, and it imparts a purity to the blood."

If the general use of the "Yagona" should be the only result of the Exhibition, it will finally have fulfilled a great mission!

A little *Handbook to Fiji and Catalogue of the Exhibits* has been issued under the authority of the Executive Commissioner, the Hon. James E. Mason, M.L.C., and this contains some interesting facts on the culture of the Cocoa-nut, Cinchona, Coffee, Cotton, Sugar, Tea, Tobacco, &c. Of the latter we are told that though it flourishes in all the islands of Fiji, it is most

pass away all too rapidly, and in a month or two little that is beautiful remains."

Mr. Bolus gives an enumeration of the plants found in this region which belong to very different natural orders, and remarks that the predominating feature of the region is the peculiar adaptation of its vegetable life to meet the severe conditions of the dry and hot climate and soil. Some idea of the appearance of the plants may be obtained from those which are used to give a character to the scenery surrounding the stuffed ostriches, sheep, and goats in the case immediately to the left on entering the court.

In the catalogue referred to is an excellent list of medicinal plants and their uses, and also a valuable descriptive list of the woods. Of the Kamassi or Kynsa Boxwood (*Gonioma Kamassi*) we learn that until recently it was cut indiscriminately with other woods for fencing poles, but the discovery of its value as a substitute for true Boxwood has led to its stricter preservation. It has been reported upon by a London firm of wood engravers as "suitable for the finest mechanical engraving, such as machinery of all descriptions also adapted for ordinary engraving purposes." Further trials, it is anticipated, will lead to an export trade in this wood, which, by some, is considered superior to East London Boxwood, recently described as *Buxus Macowani*.

The concrete juice of *Euphorbia*, which has of late years been used in the preparation of a paint for coating ships' bottoms to prevent them fouling, is described as being sometimes used in King William's Town to destroy corns, and as a blister, and it is also used by thieves to obliterate the mark on stolen stock; when the juice is rubbed on the animal's hide it turns the hair white. By rubbing their flanks against the stiff *Cactus*-like branches, horses often acquire white streaks on their coats, the hair becoming blanched where the *Euphorbia* juice has acted.

It may be as well here to correct a slight error that occurred in the notes last week under New South Wales, where, referring to the so't down which clothes the bases of the leaf-stalks of *Macrozamia spiralis*, the word pulse occurs where it should be *Pulu*.

ST. JOHN'S FLOWER, FRUIT, AND VEGETABLE MARKET, LIVERPOOL.

VISITORS to the late show of the Royal Horticultural Society at Liverpool of a marketing turn of mind, doubtless paid a visit to St. John's Flower Market, situated in the heart of the city, and near to Lewis' vast emporium—the Liverpool Whitley.

The writer of these remarks spent a short time in the market on a Saturday night, and the impression left (comparing it with Covent Garden Market) was that the Liverpudlians are slightly ahead of us in this important respect—while Covent Garden is closed as a market after a few hours in the early morning, and is therefore practically in the hands of the traders, in Liverpool—at any rate, on the great wage night—an all-important night—the most humble folk can go direct to the market and purchase at market prices what they wish in the flower, fruit, and vegetable line—in such a centre as Liverpool a great advantage. That the boon is appreciated was seen in the vast crowd promening up and down the various avenues in spite of the difficulties of locomotion. And then what a Babel of voices!—the vendors recommending their different wares in lusty, earnest, and at times hardly intelligible sounds.

It would be invidious, perhaps, to single out any of the numerous flower-stalls, yet in a necessarily hurried run through, those of Messrs. Fishlock Brothers, Mrs. Fenn, and the Liverpool Horticultural Company struck me as deserving of special commendatory notice. In each of these were to be found thoroughly representative displays of the flowers in season—bright and attractive exhibitions.

Liverpudlians seem to be "great" in wreath-making—some charming examples being on view—models of chaste and elegant arrangement. Water Lilies appeared to be specially abundant.

A few remarks by way of conclusion on the building itself, for which I am indebted to a local work, may not be out of place here.

The market was commenced in 1820, from the designs of Mr. John Foster, Corporation Surveyor, and was opened in 1823, when the market was finally

removed from Castle Street. In point of convenience and adaptation to its purpose the market possesses one great advantage—that of simplicity—a right-angled parallelogram, surrounded by streets on the four sides, and intersected by avenues, longitudinally and transversely. It is simply a large area protected from the weather. The size of covered area is 18½ yards by 45 yards, including not short of 2 acres, imparting a certain dignity to the erection.

To architectural merit it can hardly lay claim, the heavy carpentering of the roof, and the narrow space covered by each span, giving a feeling of lowness and almost gloom. Much allowance, however, must be made for the time when it was erected: sixty years have done much in the way of iron roofs, clear glass, and bold spans.

What a noble effect would be produced by a similar area, spanned by a roof similar to that of Lime Street Railway Station, and covered wholly or partially with glass!

The opening of the market did much towards improving the immediate neighbourhood, which until that time had been a noted locality, occupied principally by rope walks without any thoroughfares. B.

FRUIT AND FLOWER GROWING FOR MARKET.

THE vast quantities of Grapes, Strawberries, and Peaches grown by Mr. Ladds at his several places—Bexley Heath, Dartford Heath, and Swanley—in years past, will be quite put in the shade by this year's crop, especially at the two last-named places.

At Bexley Heath, where all the Vines are now arrived at a full bearing state, there is a fine show of fruit. The oldest Vines, Alicante and Lady Downe's, occupying a house 300 feet by 25 feet wide, notwithstanding the extraordinary weight of fruit they have borne annually for nine years, do not seem to be in any way weakened thereby, as the crop so far appears to be quite equal to that they have produced before. The two houses of Gros Colmar, each 150 feet by 25, are wonderfully strong, carrying a splendid lot of bunches, as also are the Muscats with which another house is filled. The same applies to the adjoining house devoted to Alicante. The three houses, each 300 feet by 24, in the furthest part of the grounds, which last year were fruited the full length of the rods, are again bearing an immense crop, as even as if the bunches had been tied on by hand.

At Dartford Heath, in the four houses, each 130 feet long, first planted with Peaches, the trees now fill the space allotted to them, and are carrying a promising crop, averaging about 150 fruit each. Eighteen more houses, of similar size, have here been planted with Peaches: in two or three of these a large number of kinds have been put in with a view to test what varieties will best answer for market to come in at the time they are required. Here, and at Swanley, there have this season been 120,000 Strawberries grown in pots. Little forcing is attempted, the crop being regulated so as to come in to give a succession during the time that intervenes between those that are forced and the outdoor fruit. At the time I saw them (the beginning of June) the earlier portion of the crop was over, but the quantities that were ripe and coming on were such that a mere description conveys little idea of. Something like a score of the long houses at Dartford Heath were filled with them. The pots in all cases are stood on the floors. So placed in these low light houses, the growth, made slowly with only a little more protection, is in no way behind that which is made by forced plants elevated close to the glass in the ordinary way. In addition to the houses already named, there is a block of three spans, each 25 feet wide and 325 feet long; there are no divisional walls, the centre gutters being supported on brick piers. This represents a Strawberry bed considerably over half an acre, such as there can be little doubt in saying was never seen under glass before. Growers of pot Strawberries will not have forgotten the difficulty there was last summer through the prolonged dry weather in getting runners, and with the quantities that Mr. Ladds requires the difficulty was increased. In September I saw the runners in the course of being taken up and potted, and what with the lateness of the time, and the small size of the runners, the prospects of their yielding a crop did not look very bright; yet it is hardly possible that anything could have done better than these little plants. The most remarkable

thing about them was, that, although not showing more possibly than two-thirds the number of fruit that big plants will produce, there was a much larger quantity of large ones than usually seen, which is just what the market growers require, as small fruit make little money, and with a stock of such magnitude as grown here, thinning is out of the question. The three spans mentioned were last year planted with Gros Colmar Vines, which, as often occurs under Mr. Ladds' course of cultivation, did not make much headway the first season on account of some other crop having to be considered before them. Last year the whole space was covered with Tomatoes, the treatment required by which, in the matter of comparatively little root moisture, interfered much with the growth of the Vines. This year they will be encouraged to make all the growth possible. Six more houses, each 300 feet long and several 100 feet, were being built, which will fill up all the available space here.

At Swanley, in the ten houses, each 200 feet long by 17 feet wide, planted two years last spring with Black Hamburgs, each Vine has two rods. Last year they were allowed to carry six or seven branches to a rod, this year they have twenty to each rod, forty to a Vine; they will average about a pound each; they were just about stoning. If these Grapes colour, Grape-growers will begin to ask what weight of fruit Vines can be made to carry before they are over-cropped. Mr. Ladds has no misgivings on the subject, though no one knows better than he does that if the crop is deficient in this respect, coming in at the time that these will, their value will be much reduced. The strength of the Vines is such as leaves no indication that the fruit they bore last year had any adverse influence on them, and the shoots they have made this year are as strong as could be wished for. Nothing short of the extraordinary extent to which they are fed could sustain young Vines when cropped in this way. Two houses of Alicante, and three of Gros Colmar, planted at the same time, were carrying similar crops. In five houses planted with Muscats late last year, the Vines are going on well. Five others, planted at the same time last summer with Gros Colmar, are in a like condition. In the big house here, 650 feet long, containing Gros Colmar, each Vine having two rods, the rods confined to two bunches each, the Vines are in grand condition, and look as if they would gain strength enough to bear their full length next year.

In addition to the pot Strawberries grown here and at Dartford Heath many houses were filled with plants taken up from the open ground about the beginning of March and planted in rows. Quantities of fruit have been produced by these, the average of the crop being something like two-thirds that which the pot plants have yielded.

As will be easily understood, the Grape thinning is no small matter, and involves an immense amount of labour that brooks no delay. The work is got at as soon as the Vines are fairly out of bloom. Women alone are now engaged in the operation at Mr. Ladds' place; for a considerable time over fifty were so employed. For such portion of the Vines as cannot be reached standing on the floor of the houses movable stages are used consisting of four upright pieces of timber with movable platforms that can be raised or lowered as required. These are each large enough to accommodate two women who can sit or kneel at their work as they feel inclined, in this way doing it with much more comfort than when standing in the usual manner. Not only is Grape thinning being now done by women, but they are also employed in flower-gathering, packing, and other light work.

Turning to plants, ten 200 feet long houses at Swanley were planted with *Maréchal Niel* Roses, and, so far as the size of the plants would admit, have this spring borne a good crop of flowers. Ten similar houses contain *Gloire de Dijon*.

Winter-flowering Heaths are being grown in quantity, as well as *Genistas*, of which about 20,000 are coming on.

Carnation Gloire de Nancy, the favourite perpetual flowering white variety, is represented by immense numbers.

Twenty-thousand *Manetti* stocks in pots, plunged out-of-doors, were in course of being budded, mostly with *Niphetos*, the buds to remain dormant; two buds are put in each just above the collar on opposite sides of the stem.

In the plant department at Bexley Heath the centre bed of one of the wide 300 feet long houses

was occupied by African Taberoseas as thick as the plants could stand, presenting a sight of these sweet-scented flowers such as I have not before seen anything to approach; many of the bulbs had from three to four spikes each; some that I counted had as many as sixty flowers on the spikes springing from a single bulb. Three dozen flowers to a bulb would be a moderate estimate of the crop.

The principal *Gardenia-house*, a double spin, 300 feet long by 35 wide, contains a splendid lot of plants, all in pots, dense and bushy. Planting out was tried for some years; pots are preferred. In another house occupied by smaller stock of these plants there are numbers of examples in 48-sized pots, bearing as many as a dozen buds and flowers each. Here, as by most of the other market growers, *Général Jacquemint* is the principal high-coloured Rose that is forced. The plants are grown on so as to get stout and strong before they are used. In the spring, after the crop of flowers is gathered the plants are turned out-of-doors, and headed right down close to the bottom. Being full of vigorous roots they break strongly; about four shoots are retained to each plant, which, with attention and liberal treatment, get strong before the end of the season. Instead of making away with the old stock of *Niphetos*, and other Tea varieties that have been forced for a series of years, they are now headed down to within some 9 or 10 inches of the collar, and the stocks plunged out-of-doors. Plants that have been so treated were pushing up shoots as thick as one's finger.

Hydrangea paniculata grandiflora is grown in immense quantities; there is no hardy forced plant that is a greater favourite in the market than this. T. B.

CHICK-HOUSES.

In the *Gardeners' Chronicle* of August 15, 1885, p. 219, a correspondent, writing under the name of Bhandari, Dastypore, says, "I must take exception to an assertion in the *Gardeners' Chronicle* of June 20, in which the writer of the notes claims to be the originator of the chick-house, and must protest against the claim. 'Chick-houses' better known as 'Betel-houses,' have been used for ages in India for the cultivation of the *Pan-leaf*." While thanking the writer for his information, I would refer him to p. 734 of the *Gardeners' Chronicle* of June 7, 1884. I think I wrote plainly enough there for anybody. This is what I said:—"In 1871 I went to the Royal Botanic Garden, near Calcutta. I saw there that the then Curator, Mr. Scott, had been successful in growing Orchids and Ferns under a grass roof, such as is used by natives for growing the *Pan Vine*, a species of *Piper*. On returning to Lucknow I conceived the idea of trying a modification of what I saw in Calcutta, suited to a climate where a hot dry wind usually raged between March 15 and June 15—sometimes even later. In the horticultural garden I erected a house covered on all sides and top with 'chicks' of reeds, called 'Senthia,' that is, the dry stems of the *Saccharum moonja*. A 'chick' is a blind made either of these reeds or of strips of Bamboo, more or less thin, and fitted to doors and windows of Indian bungalows," &c.

Could any one have shown more plainly how the idea of a chick-house grew out of the idea of the *Pan Vine-house*, partially adapted to the Calcutta climate (whether by Dr. Anderson or his assistant, Mr. Scott, matters little), and then finally modified to suit a climate totally different from that of Calcutta?

The correspondent from Dastypore further states that had "those assertions been published in India they would have been passed unchallenged." Now, how does he think that the success of the Lucknow chick-house got abroad, so that one can hardly go anywhere without seeing a chick-house? I will inform him. My usual annual report, in which the success of the chick-house was mentioned, was published in the Oudh Government *Gazette* of the period, which was distributed to all officials in India. Whether the modified idea was reflected back to the Calcutta Botanic Garden, whence its original came, or not, I do not know; but this I know, the present palatial plant-house in the Royal Botanic Garden at Seepore was erected after the success of the Lucknow chick-house was published, and during the tenure of the present director, Dr. King. It is made of iron supports, covered with wire netting, to which are tied the leaves of a long grass, chick-fashion.

The correspondent from Dastypore rather objects to

chick-house, and would prefer "Betel-house." To call a house made solely of chicks a "chick-house" is as little absurd as to call a house made of glass a glasshouse. To call a house which has no Betel in it a "Betel-house" would be as if a glasshouse, in which Orchids are grown, were called a Tomato-house because on some former occasion Tomatoes may have been grown there. The chick-house goes by that name all over the North-west Provinces and Oudh.

As I originated the chick-house (not the Betel-house), I did not see why I should say that some one else did it. I gave the history of the growth of the idea both chronologically and morphologically, and I think that was enough. E. Bonavia, M.D.

Orchid Notes and Gleanings.

ANGRE.CUM SEQUIPEDALE.

AT Rosefield, Sevenoaks, this Orchid has been grown successfully four years in a Cattleya-house, nor is this the first time that I have seen and heard of it growing well in the temperature of a Cattleya-house; in fact, this remarkable Orchid is not at all difficult to grow if it be kept free from thrips, which prove to be a very troublesome pest when once allowed to get into the centre of the plants, and difficult to dislodge. The plants require plenty of water when making their growth, but much less when at rest in winter. In the same house the Japanese *A. falcatus* was in flower, and in good health. The flowers of this species, which are very small, and of the purest white, are produced in a cooler temperature than those of any of the others. The end of June or in July is the proper season for flowering.

In the cool house Mr. Cooke has made a good hit with *Disa grandiflora*; he has placed it near the glass at the end of the house, where the draught of the wind from the opening of the door would frequently reach the plants. They receive a plentiful supply of water at the roots. J. D.

DENDROBIUM DEAREI.

The more one has an opportunity of seeing this new species, more especially when the variety is good, and the spike one of good length, the more it seems to me we shall admire it. On an exhibition stage a large plant has somewhat of a reedy look, the long bulb being rather against its effectiveness, but in the Orchid-house, where we can get near to it and admire the flowers whilst overlooking the growth its purity and freshness, and its long-lasting qualities combine in my opinion to make this one of the most interesting and useful *Dendrobiums* of recent introduction. I enclose a flower cut from a plant now flowering with us which is just 3 inches across. The variety sent is much the best we have of several now in flower, though all are very pretty.

CÆLOGYNE PANDURATA.

This curious Orchid does very well with us here, as you will see by the spike I enclose. We have a large specimen with seven spikes, bearing ten, eleven, and twelve flowers. Whilst lacking in the gorgeousness of many other plants, it certainly has a peculiar beauty of its own. The long drooping flower-spikes, bearing pale green flowers 3 to 4 inches across, with a lip of the same colour, strangely marked with black lines on the upper part, spotted with black on the centre crest, and a large black blotch on the front or lower part of the lip, are certainly markings not to be found on any other species in the manner we have them here. The lengthened lip adds also to its distinctness.

CATTELEYA GASKELLIANA, VARIETY.

This very distinct and beautiful form is at present flowering very nicely with us here. The plant was imported about two years ago and is now in bloom for the first time. As you will notice, it is very perfect in outline. On the plant the flowers stand up very erect, and have no inclination to fall over as is often the case with this species. The flower is 7½ inches across. Sepals and petals light mauve, lip of the same colour, with beautifully crisped edges. The throat is of a lemon-yellow, whilst a band of clear white separates the mauve colour of the lip from the open throat. As a variety we have never seen anything

like it, and, needless to say, we think very highly of it. W. Swan, Howick House, Preston.

CATTELEYA LABIATA VAR. MOSSIE, Lindl.

Mr. Vanner, of Chislehurst, has been so kind as to send me a fine flower of *Cattleya Trianae* with side-sepals bearing each an orange-coloured central-stripe, Mr. W. Swan has just flowered at Mr. E. Wrigley's, Howick House, Preston, Lancashire, such a *Cattleya Mossie* from a recently imported plant, and the just-named gentleman favoured me kindly with the fine flower. It has a most remarkable character, as on one side near the orange streak there are a few of those broken mauve lines which are characteristic of the *Mossie* lip; hence the flower has the tendency to form three lips in the way I ventured to call *trilabella diccyla*, the three lips belonging to the different whorls of the flower. This explained at once to my great satisfaction Mr. Vanner's fine *Trianae* flowers. H. G. Rehb. f.

AGANISIA TRICOLOR.

A singular and beautiful species with creeping annulate rhizome, elongate-ovoid pseudobulbs, each bearing a single oblanceolate leaf. The flowers are borne in loose racemes, each flower about 2 inches across, flatish, with obovate-acute whitish segments tipped with yellow; petals of similar size and form, but bluish in colour; lip with a prominent orange callus near the base, disc saddle-shaped, purplish-brown. This, according to the figure and description given by Mr. N. E. Brown, is a very beautiful novelty to which the attention of collectors should be directed. It is a native of the Amazon district, and is figured in the last number of *Lindley*, t. 45.

TABERNÆMONTANA CORONARIA AND OTHER SPECIES.

THIS plant, greatly resembling the *Gardenia*, is very ornamental in appearance, and from a like resemblance is often called Cape Jasmine. It is well deserving a place in every collection of plants, and if a small house or pit can be devoted to the plants so much the better, as they will then repay the cultivator for his pains. Their pure white flowers and delicate sweetness render them especially adapted for bouquets and buttonholes and other uses. There can be no objection to their use in large quantities, as the scent is very delicate. The plants can also be used when in full bloom for house decoration, standing the exposure and dry air of the dwelling very well. They also make good subjects for exhibition purposes. If only wanted for cut blooms they should, if possible, be planted out in pits or in beds in the stove, where a high temperature is kept up; if treated in this way the plants will flower for nine months in the year. A compost consisting of a mixture of loam and peat in equal parts, with a liberal addition of silver-sand and a little well-decomposed manure, suits them. Bottom-heat is not essential to their good culture, and I have found that the blooms will last longer, and there will be a more continuous supply of them, without it.

A little more atmospheric heat is required when the plants are making their growth; when the growth is completed a cooler temperature may be given, applying more heat when they are wanted to flower. After blooming they should be pruned in slightly, and be potted on starting. Propagate by cutting off half-ripened wood, which roots freely if plunged in bottom-heat under a bell-glass. The double variety, *Tabernaemontana coronaria flore-pleno*, is far the best; *T. cymosa* is also good, and well deserves to have more attention paid to it. *T. grandiflora* is somewhat rare in collections, and produces its flowers in August and September, and the season of flowering may be prolonged until the other varieties come in for the winter supply. A. Evans, Haslemere.

LAXTON'S "NOBLE" STRAWBERRY.—This variety precedes *Excelsior* by from seven to ten days. The plant is a vigorous grower and fertile; fruits large, of a deep crimson colour, in appearance like *Keen's* Seedling. The flavour has a slight acidity, reminding one of *Elton Pine*, and this season it is poor in flavour, possibly from the deficiency of sunshine. It is a seedling from *Forman's Excelsior*.

ORANGE FUNGUS OF ROSES:

COLEOSPORIUM PINGUE, LÉV.

UNDER the name of *Coleosporium pingue*, the "orange fungus" or "red rust" of gardeners has been familiarly known to botanists for at least twenty-eight years. Before that time it was called *Uredo rose*, *U. pinguis*, *U. effusa*, and no doubt other names. In different stages of growth the fungus differs, in colour, from pale sulphury-yellow, through vermilion to black, and in each of these stages it has received different names, the names (for variety) being at times interchanged. During late years, with the progress, or supposed progress, of discovery, other names have been given to the "orange fungus" of Roses, and to make "confusion worse confounded" the old name of *Coleosporium pingue* has of late been obliterated and left out of text-books, even as a synonym. It is not even indexed by Dr. Winter in Rabenhorst's *Kryptogamenflora*. "Orange fungus" has long been known in this country as one condition of a fungus named *Phragmidium mucronatum* or *Aregma mucronatum*, but if the index of Dr. Winter's volume is referred to, neither of these names will be found. The followers of Dr. Winter in this country of course imitate their chief, so that to all but advanced botanists "orange fungus" has no botanical name at all, and cannot be found under old and familiar Latin names in the more advanced books. When gardeners write of Vine mildew they call it the *Oidium*, when of the Potato fungus, the *Peronospora*, but when they write of "orange fungus" they simply call it "orange fungus," because they dare not venture on a botanical name. One cannot be surprised at gardeners turning away with disgust from the wordy verbiage of modern text-books. The newer mycological priests are so intent on the utter destruction of the older beliefs that they will not even print the familiar old names as synonyms as slight indications of what former priests taught us but a very few years ago!

"Orange fungus" of Roses has been especially unfortunate in the treatment it has received from botanists, not only in the different names it has received and the total obliteration of its most familiar names, but especially in the definition of its characters. The characters of the different stages of growth of this fungus have been so altered, "emended" and "cooked," that it is quite safe to say the fungus has almost every character of which a fungus is capable of gracefully bearing. It has as many and as few characters as names, and advanced teachers are always cutting off or squeezing in new characters to make it fit into some pet theory. The theory is never modified to suit the fungus, this would show fallibility on the part of the teachers; poor feeble Nature is clipped, and squeezed, and added to and inflated, as the case may be, so that a wretched fungus may be driven by hook or by crook into one of the labyrinths of a cut and dried theory. Mr. Berkeley, in writing of all the British species of the genus *Coleosporium*, says, "We cannot find distinctive characters."

I will endeavour to explain in words as simple as possible the nature of "orange-fungus." It exists in three forms, which gradually run into each other on the leaves and stems of Roses, and these forms gradually vary in colour according to the season of the year. It is very seldom that all three forms are found on one Rose bush or on one Rose leaf, but on rare occasions all three conditions may be found growing together, as illustrated in fig. 15.

In its first stage of growth the fungus is sulphury or creamy-yellow. In this condition, as at A, fig. 15, it has long been known as *Lecythea rose*; in its midsummer stage it is brilliant cinnabar-red, or vermilion, in colour, as at B; this is the familiar *Coleosporium pingue*, or "orange fungus" stage. At length it is jet black, as at C, and this is the old and equally familiar *Phragmidium* or *Aregma mucronatum* condition.

I quite agree with the majority of observers who conclude that the three forms belong to one fungus, although some botanists think, or once thought, differently; for instance, Le Maout and Decaisne say the third form is a "parasite" on the second, and that a similar parasitism is of "frequent occurrence."

If the sulphur-coloured *Lecythea* is taken first, and a fragment of a pustule enlarged in section under the microscope 400 diameters, it will be seen as in fig. 16. The spores are at first smooth, then almost invisibly spinulose, they are nearly colourless, and are filled with irregular masses of protoplasm, as

shown at D; round the entire margin of each pustule is a fringe of elongated bodies, shown at E, termed paraphyses—these paraphyses are probably abortive attempts of Nature at the production of the stalked spores.

The teachers who obliterate the old landmarks and suppress names wish it to be believed that the three stages of growth in "orange fungus" agree with *Æcidium*, *Uredo*, and *Puccinia*; the teachers are in this case at their wits' end for an *Æcidium*, so the *Lecythea* stage is squeezed in as a gingerbread *Æcidium* condition. To an outsider it is remarkably



FIG. 15.—ROSE LEAF, NATURAL SIZE, WITH "ORANGE FUNGUS" IN DIFFERENT STAGES OF GROWTH.

unlike an *Æcidium*, and is as remarkably like an immature *Uredo* (it is described under *Uredo* in some books); the paraphyses, E, too, are like *Puccinia*, and unlike *Æcidium*; but we are coolly told that in the instance before us the presumed *Æcidium* and *Uredo* stages are "not to be easily distinguished." The eye of faith is required. A large amount of faith is requisite in the proselyte who accepts the sulphur-coloured condition of "orange fungus" as a poor relation of the *Æcidium* of Barberry-blight. To me it is no *Æcidium* but a mere early condition of the next or *Uredo* stage of growth—the suppressed *Coleo-*



FIG. 16.—EARLY CONDITION OF "ORANGE FUNGUS" OF ROSES (*LECYTHEA ROSEA*): ENLARGED 400 DIAM.

sporium stage. The name of the first condition—*Lecythea rosea*—has of course been suppressed.

Sometimes *Lecythea* is accompanied by so-called spermatogonia and spermatia; the names are meant to indicate a sexual function; if sexual, the result must be a resting-spore condition; but *Lecythea* spores are not resting-spores; the resting-spores are produced in the last, or black stage of the fungus.

A section through a fragment of the *Coleosporium* or "orange fungus" condition is shown enlarged 400 diameters in fig. 17. Here the spores have become much deeper in colour, the wall of the spore is thicker and somewhat more echinulate than in *Lecythea*, and the protoplasm is coarsely granular. Perhaps the fungus before us is not a "good" *Coleosporium*,

especially when viewed in the light of the fact that teachers are always "emending" fungus characters to exclude "shady" species that interfere with theories, and so are not wanted; and to bring in other "shady" growths that happen to be badly wanted, to give dubious support to a theory. As no new name has of late been invented for "orange fungus," let gardeners stick to the old one and still call it *Coleosporium pingue*, although it is at the risk of some superfluous mycologist one day telling a learner that he cannot "apprehend" what he means, and that the name is not to be found in the indexes, even as a synonym.

We now come to the black or *Phragmidium* mucronatum stage, as shown, enlarged 400 diameters, in fig. 18. *P. mucronatum* has also now been professionally wiped out, and a new name substituted in *P. suborticatum*; rightly or wrongly I know not, and do not care—life is too short for one to be always hunting down fungus names; it is sufficient to say that the old *P. mucronatum* (like the *Coleosporium*) does not now even exist as a synonym. The name has been stamped clean out of existence by a school of youthful and over zealous teachers, so that no trace can be discovered unless fragments are carefully and laboriously sought for and put together for printing in the *Gardeners' Chronicle*. All gardeners who look at the three handsome compound spores, taken from a fragment of a black *Phragmidium* pustule, well, I think, agree that they are very handsome, well grown fellows. It almost seems a pity to advise the destruction of them by fire. An immature example is shown at fig. 18 F, and the peculiar manner in which the outer of the two membranes of the stem breaks away from the base, is shown at G.

The *Phragmidium* is essentially the resting-spore condition of the fungus, and it is by the black *Phragmidium*, which rests in decaying Rose leaves and stems all through the winter, that the *Lecythea* and *Coleosporium* stages are reproduced each summer.

The *Coleosporium* is the genuine "red rust" fungus which potentially agrees with the "red rust" or *Uredo* of corn. It produces a vast number of bright red spores, which constantly reproduce the *Coleosporium*, but the "orange fungus" or "red rust" would utterly perish each year were it not for the black resting spores of the *Phragmidium*, every segment of which will after a six months' rest germinate and produce sporidia, which sporidia give rise to the sulphur *Lecythea* and orange *Coleosporium* of early summer. It follows, therefore, that when Roses are badly affected with "orange fungus," as they are this year, that the spring (as the wet spring we have passed through) was favourable for the germination of the black *Phragmidium* spores which were produced on Roses last year. These *Phragmidium* spores rested till the advent of the abundant warm showers of the spring, when they germinated, and by their sporidia gave rise to "orange fungus."

Red-rust should be looked for each year in its inconspicuous sulphury stage, and failing this, at the first appearance of the orange stage. If all the "orange fungus" could be destroyed no black *Phragmidium* resting-spores would be produced. If the *Phragmidium* could be utterly destroyed any one autumn, no *Lecythea* or *Coleosporium* could appear in the summer. Mr. Berkeley, in writing of "orange fungus," has said:—"It is so very common that the affection is quite beyond any remedy. Every hedge will diffuse the fungus if you could for a moment drive it out of the garden." Mr. G. Baker, Vice-President of the National Rose Society, says, in the *Rosarian's Year-book* for 1882, that "orange fungus" chiefly attacks the "lower leaves of the smooth-wooded class of Rose plants, such as Victor Verdier, Comtesse d'Oxford, Hippolyte Jamin, and the like; but it is worthy of remark that neither Madame Clemence Joigneux, William Warden, or Edward Morren, and those of the same character of foliage, &c., are seldom subject to these forms of fungoid disease." If gardeners would send the names of a few Roses that appear to be generally or always free from "orange fungus," the list might lead to good results and further useful observation. Mr. Baker publishes a good suggestion for the prevention of the annual reappearance of this pest in gardens. He says, "This can be attempted by raking off all loose materials and as much of the soil as possible, and burning them. At the same time," he says, "give the ground a good dressing of quicklime. The burnt

soil and other matters can be returned to the Rose, greatly improved by the change they have undergone." The raking and burning, and the application of quicklime, necessarily destroys the resting-spores of the Phragmidium. Mr. Baker says, "At pruning time carefully collect everything cut from the plants and destroy it; then give the plants—stems and branches, stakes and ties, if any—a good coating of the following mixture, applied with a suitable brush:—Quicklime and soot, mixed to the consistency of paint, in a pailful of which add half a pound of sublimated sulphur, and a small handful of coarse salt; stir and mix well together before applying. The object being to destroy the resting-spores of this troublesome fungus. I have tried washes of all kinds, carefully syringing and brushing over the leaves with various compounds, but with little success; and in some instances finding the remedies even more fatal than the disease. I have most faith in an infusion of Hellebore root, 4 oz. to half a gallon of water, then add half a drachm of the bichloride of mercury (first dissolve the mercury in a little spirit), and lastly, add half a gallon of lime-water. I have certainly seen good results from this application, though I must also admit it has sometimes failed." Mr. Baker's plans, therefore, are reasonable attempts at destroying the resting-spores on and in the ground in the late autumn by raking and burning, and by the application of quicklime; destroying any resting-spores on the old stems, branches, and stakes, in the autumn, by a corrosive wash; and by an application of another wash in the summer, which is supposed to make the surface of the stems and foliage unsuitable for the germination of the spores in the "orange fungus" or Coleosporium stage. The washes of course cannot reach the interior of the stems and leaves where the mycelium or spawn of the fungus vegetates.

It is essential to remember that in every stage of growth "orange fungus," or "red rust," vegetates inside the leaves and stems of the Rose, when it is well advanced in growth inside it bursts the membranes of the Rose and litters its spores outside. The "red rust" spores germinate quickly and spread the mischief at once, whilst the black spores produced in late autumn rest in the dead refuse of Rose bushes, on or in the ground, and germinate in the spring after six months' rest.

The effects of "orange fungus" are well known. When the pest attacks the plants very early in the summer, as in the present year, the leaves drop and the branches become naked and disfigured. The wood does not ripen, and so being in a bad state it dies in the winter, and the bushes consequently get into a weak and unsatisfactory state, or sometimes die in the next spring.

"Red rust" is not confined to garden Roses, it may be found in its various stages of growth on the Dog Rose, *R. canina*, and *R. collina*, Sweet Brier, *R. rubiginosa*, the wild *R. arvensis*; *R. pimpinellifolia*, *R. cinnamomea*, *R. turbinata*, *R. rubrifolia*, *R. alba*, *R. tomentosa*, *R. gallica*, *R. centifolia*, and others.

A closely allied fungus to the Coleosporium and Phragmidium before us is a parasite extremely common on Brambles; this is Phragmidium bulbosum. Every boy or girl who has gathered Blackberries in the autumn, must have observed the profuse production of black resting-spores of this species on the underside of the leaves of Blackberry bushes. The familiar old name of this fungus—viz., *P. bulbosum*—has (like all the others) been quite wiped out: but as it does not just now specially concern us what has been done with it, or how the old species has been transformed, we will leave it, merely pointing out the fact that the name, like every other name mentioned in this article, does not appear in the newer indices.

Baron Thümen has written on the diseases of Roses, and I will conclude this brief paper with a quotation from him, so that gardeners may take note. Speaking of "orange fungus" he says, "This disease is of less consequence than other Rose diseases. [1] It is due," he says, "to a fungus named *Cæoma* [name not in latest published indices], which rarely appears on the leaves. [1] It forms cushion-like projections, of an orange-red colour—the *Æcidium*." [1] Other authorities teach that the sulphury Lecythis is the unhappy *Æcidium*. In conclusion Baron Thümen says the disease is usually not very fatal, but when fatal it is better to burn the plants! Gardeners, take notice—don't preserve the dead plants. *W. G. Smith, Dunstable.*

Foreign Correspondence.

ORANGE CULTURE IN SAN FRANCISCO.

In a recent Government report on the products of San Francisco, it is stated that there are about 12,000 acres planted in Orange trees in Los Angeles County now bearing fruit, and several thousand acres in



FIG. 17.—"ORANGE FUNGUS" OF ROSES. ITS TYPICAL AND MIDSUMMER CONDITION (COLEOSPORIUM PINGRE): ENLARGED 400 DIAM.

young trees, which will begin to bear fruit in from two to five years' time. In San Bernardino County the Orange crop has, at intervals of from three to four years, been greatly damaged by frost. At less frequent intervals the same trouble has been experienced in this county.

Oranges are being shipped from Mexico to the Eastern States. Should the reciprocity treaty come into effect, the consequences will be very serious to

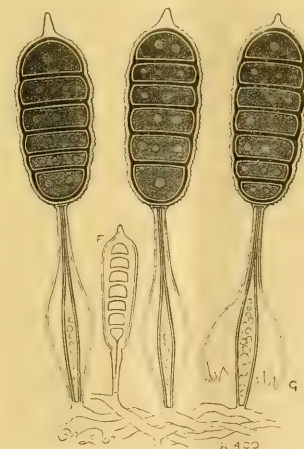


FIG. 18.—"ORANGE FUNGUS" OF ROSES. THE AUTUMN AND WINTER, OR RESTING-SPORE CONDITION (PHRAGMIDIUM NUCRONATUM = P. SUBCORIATUM): ENLARGED 400 DIAM.

Orange growers here. The present duty is sufficient to protect Californian Orange growers from competition with the cheaply-produced Mexican article. As the Mexican Oranges are of better quality their admission free of duty would cripple the industry here.

The "white scale" is still doing immense damage to the Orange trees. Some of the oldest Orange orchards in the country are being topped and pruned to such an extent that they will not bear any fruit for several years. In some cases the trees are being cut down. No cheap effectual remedy has as yet been

discovered to destroy the insect; it is stated, however, that another insect has appeared which preys on the "white scale," and is not injurious to the Orange tree.

TREE PLANTING IN HONG KONG.

It seems that the authorities in the Hong Kong Botanical and Afforestation Department are planting trees on a very large scale, for we notice in the report for 1885 the following figures:—*Pinus sinensis*, 342,302; *Eucalyptus* (fourteen species), 16,408. In addition to the above number of *Pinus sinensis* trees planted, there were now in sites as many as 204,838. Other trees, which are not so well known to us here, were also planted in considerable quantities.

The soil is rather variable, and the failures chiefly occur on the steep slopes, where the grass is scanty. Where the ground is covered with a fibrous carpet of grass roots the rain, as it rushes down the slopes, is absorbed in sufficient quantities to saturate the soil and render it suitable for the reception and subsequent development of the young tree; but where the ground has been denuded of its herbage by the irrepressible grass-cutter with his blunt sickle, which does not cut but uproots the grass, the young tree is sorely handicapped in the struggle for existence.

The fourteen species of *Eucalyptus* were raised in various quantities. Each species was planted in a clump, and marked with a ticket so as to identify the different kinds, and note their relative adaptability to the soil and climate of Hong Kong. This comparison has been very interesting, and will be valuable in enabling to select the most suitable kinds in future. The three species that are conspicuously superior to the others, and which may be considered an unqualified success, are *E. robusta*, *citriodora*, and *tereticornis*. The next in order are *marginata*, *platyphylla*, *corymbosa*, *resinifera*, and *hemastoma*. These five kinds have not done so well on the exposed hills near the Military Sanitarium as the three first-mentioned kinds, but they have succeeded very well at Sökonpö, where the position is more sheltered; and the reporter has no doubt that they will succeed in many of the unexposed parts of the island. Other four species, namely, *Stuartiana*, *siderophloia*, *microcarpa*, and *maculata*, have grown moderately well. The percentage of deaths is small, but the growth is slow and weakly. They evidently required a richer soil than the above mentioned sorts. The two species that have been least successful are *pitularis* and *hemephloia*. A large proportion of both kinds have died, and those that have survived have not a promising appearance.

It is also stated in the report that 10,000 young Camphor trees were raised during the season in Kowloon nursery, and will be planted out as soon as the weather is suitable. Preparations were made in the nursery at Sökonpö for raising a similar quantity of Camphors next summer, but Camphor seeds are very scarce this year, and the price has risen 400 per cent. It has therefore been decided to sow the ground with Pine seeds instead.

VITIS MARTINII.

The Superintendent in the report of the Botanical and Afforestation Department of Hong Kong, 1885, states that this "new tuberous rooted Vine from Cochinchina fruited this year in Hong Kong for the first time. The seeds were procured from the Botanic Gardens, Saigon, in 1883. The seedlings were planted out the same summer and made several shoots, each of which died down in the winter. They began to make fresh shoots about the middle of April, 1884, and grew well during the summer, but showed no inclination to flower; and again died down in the winter. Last summer they started vigorously, and showed flower about the end of May. Many of the bunches, however, failed to develop fruit, owing apparently to imperfect fertilisation, but there was a good average crop of bunches on the canes irrespective of the failures. The fruit was ripe in October, many of the bunches weighing 1 lb. each. The berries, when ripe, are jet black, and rather under the average size of ordinary Grapes. The seeds are large in proportion to the size of the berry. The flavour is a peculiar blending of sweetness and acidity, very pleasant, but tending, in my case, to leave a curious smarting sensation on the tongue; others might not find this peculiarity at all objectionable. The flavour might be altered, as is well known, by varying the mode of cultivation, but the size of the seeds is likely to prevent the Grape becoming popular

as a table fruit; it may, however, be very well adapted for a wine producer. A number of seedlings of this Vine were distributed amongst residents of the Colony, but I learn that none of these plants have fruited. A few remarks as to the mode of cultivation may therefore be useful. The tubers should be planted at a distance of 12 feet apart in well manured soil, taking care to keep the manure near the surface, as the tubers take a horizontal direction and do not penetrate the soil to any great depth. When the shoots appear in the spring it is well to cut off all the weak ones, leaving only four strong canes; these should be trained along a trellis or a wall, as the case might be, leaving a width of 3 feet between the canes. All the lateral bunches should be pruned back to within one bud of the main rod, except those laterals that show bunches; but it will be found that very few bunches will be developed on the lateral shoots, most of the bunches springing directly from the main rods; but in the case of a bunch springing from a lateral branch the branch should be stopped at the second bud above the bunch. The laterals might be allowed to grow till they are 2 feet long. It will then be seen if they are likely to throw out bunches or not. If not, prune them back as described, and also pinch back all subsequent growth as it appears. It may be found necessary to thin out the leaves to allow the sun to get at the bunches, but in doing this great care should be taken not to break or otherwise injure the leaf directly above the bunch. If this leaf happens to be accidentally removed the bunch below it will ripen immaturely and soon shrivel up. It is an advantage to thin out the bunches, leaving a space of 15 or 18 inches between them. It is also advantageous to thin the berries, leaving hardly one-half of the original quantity on each bunch; but I am afraid this process would prove impracticable if the Vine were extensively grown, owing to the labour it would entail. After the fruit is gathered the Vines require no further attention till spring. By way of experiment one lot of plants was allowed to grow at will. Some of them threw up as many as a dozen suckers, and produced laterals in profusion, but they all failed to flower. Another lot was transplanted into well-manured ground just as the crowns began to push in the spring; they, too, failed to flower, and presented rather a sickly appearance during the summer.

"The Horticultural Press has already suggested that this Vine should receive the attention of Vine-growers in the wine-producing countries of Europe where the Phylloxera has denuded the vineyards of the old class of Vines. There being no Phylloxera in Hong Kong, I cannot say whether the dreaded insect would spare this Vine; but in view of the wonderful improvements that have been and can be brought about by skilful and persistent cultivation, it is not unreasonable to surmise that this new Vine may ultimately become a wine producer. It is easily cultivated, and seems to be well adapted for a tropical climate, or a climate in which the resting season is comparatively cold and the growing season hot."

THE PENTSTEMON.

I MAY say in answer to "Soixante" that before writing the article alluded to last week, I had added to my practical knowledge by carefully searching the old authorities and examining the coloured plates published during the present century. I suppose one ought to take nothing for granted, but I had also written some years ago about the Pentstemon in the *Gardeners' Chronicle*, and stated that *P. gentianoides* was the parent of most of the garden varieties. My remarks are in vol. xii., n.s., p. 589, and are as follows:—"Probably *P. gentianoides* is the parent of most of the fine varieties at present in cultivation, although it is not improbable that some of the varieties with large broadly-opened flowers owe their most valued characteristics to that beautiful late flowering species, *P. cobaea*."

At p. 754 of vol. xxv. I wrote on the supposition that *P. gentianoides* was the reputed parent of the garden varieties. It is merely a suggestion on my part that other species may have become intermingled with them. I have before me Mr. Fitch's double-page plate of *P. gentianoides* in *Bot. Mag.* (t. 3661), and that of a very much poorer form of the same species in *Bot. Reg.*, t. 3, 1838. Dr. Lindley and Sir W. J. Hooker were both agreed as to the name *P. gentianoides*. The *Bot. Mag.* specimen flowered

in the Glasgow Botanic Garden; Lindley's specimen was procured from Mr. Groom, of Walworth. I have not paid any personal attention to hybridising species or varieties of Pentstemons, nor does "Soixante" seem to be any better informed. I find *P. Hartwegii* was introduced in 1825 and *P. gentianoides* in 1846. The last-named cannot, therefore, be Lindley's plant. One cannot do everything; but I have often wished I had time to spare for crossing some of the distinct species and varieties of this genus. Some of them are very lovely, and continue in flower after many things are destroyed by the autumn frosts. *F. Douglas.*



PRUNING.

No better time than the present could be chosen for general forest pruning, for correcting rival leaders on standard trees, removing overgrown branches from the rides, and cutting back overhanging boughs from rides and drives. This latter should receive particular attention and be regularly attended to at stated intervals, as few things are more unpleasant to foot or other passengers than branches protruding into the walks and drives, and probably surcharged with rain. Where it is not considered advisable to remove branches altogether from trees and shrubs, terminal pruning, pricking or disbudbing may be resorted to with favourable results. Prune closely off with a saw all broken and twisted dead or dying twigs and branches, and look over the lawn trees to see that none have died out, and if so, have such removed at once either by stubbing or felling in the usual way.

Pruning in the nursery should likewise receive attention just now, all contending shoots and ungainly side branches being removed or cut into shape. By so doing a great amount of trouble is saved hereafter, but unfortunately this is an operation that is too often neglected even in the majority of nurseries.

CUTTING WEEDS.

Thistles, Nettles, Dock, and any other rank weeds should be cut from amongst young trees, while plantation margins and waste ground will be all the better for an overhaul, as by cutting over the weeds before seeding time their future development is retarded in a considerable degree. Farmers too often perhaps give utterance to by no means complimentary language regarding the seeding of woodland weeds on their fields, but in nine cases out of ten, at least in this district, the fault is their own, for uncultivated field corners, head-ribs, and stackways—not to speak of the parks and cultivated grounds—are anything but creditable to a Welsh farmer; but we may be born in a stable and yet not be a horse—so it might have been more truthful, at least conveyed a more truthful meaning, had we substituted "a farmer in Wales" for a "Welsh farmer."

Where Grass abounds in recently formed woods a sharp look-out will require to be kept, as it is apt to encroach too much on the young plants and be rather a nuisance than an advantage.

NURSERY WORK.

Weeds are, owing to the dripping season here, unusually abundant, and every opportunity should be taken advantage of to get rid of as large a number as possible. Hoeing during dry sunny weather is undoubtedly the speediest and best method of getting rid of them; but where this cannot be engaged in from thickness of the plants in the bed or other reasons, hand-weeding is a good but rather expensive substitute.

Seed beds will, during dry weather, require attention in the way of watering—work that is best performed in the cool of the evening, or the last thing before the men leave off work at night. Weeding of seed beds may be done during damp weather, as there is then less chance of the young plants getting loosened or otherwise injured when extracting the weeds. Young hardwoods and Pines may now be looked over and pruned into shape, by the cutting away of all rampant side shoots and contending leaders. The ties and clay around grafts must receive attention, the former by being loosened where the

scion has taken, and the latter by being kept moist and free from cracks.

The pink Hawthorn and Horse Chestnut may now be budded upon the last year's shoots, taking care to bud upon stock that are somewhat in advance of those from which the buds are taken. This is a simple and at the same time inexpensive way of introducing contrast and beauty to our woodland glades and margins.

All vegetable refuse in the nursery should be collected in a heap or heaps, and turned over occasionally, so that fermentation may go on equally over the masses. In the case of weeds this is particularly desirable, so that their germinative properties may be completely destroyed, and to hasten and insure this the admixture of a small quantity of lime is to be highly recommended.

Seedling Rhododendrons may still be planted in lines, care being taken to lift the plants with good balls, keep quite damp until planted, and afterwards shade by means of Spruce branches for a few days until a start to growth is made.

Wind-swayed Pines and Firs in the nursery breaks should be tramped up at once, and in doing so rather incline the tree's head to than from the point where the prevailing winds of the district blow.

Do not rain stones into the holes formed by the trees while rocking about, for this is a highly injurious practice, and one that, unfortunately, is by far too often performed, but stamp the surrounding soil firmly into all crevices, and level the surface with a spade. If left unnoticed, wind-swaying plants soon become unhealthy, and assume a yellow, withered appearance previous to dying outright, this being caused by ingress of air at the roots, as well as by the straining and mangling to which such are subjected. *A. D. Webster, Penrhyn Castle, North Wales.*

The Rockery.

THE season has been very suitable for all the various kinds of plants growing in this department. The heavy rains in the early part of the summer greatly assisted them in making good growth. The drought, at present, is rather telling on the Ferns, especially *Oncoloba sensibilis*, *Struthiopteris germanica*, and *Adiantum pedatum*, giving them a browned appearance; all other varieties withstand the dry weather very well. The rockery is now in its full beauty, the large clumps of *Spiraea japonica* are one mass of their white flowers, the little wild Thyme and *Marjoram* clothing the rocks, and the various varieties of *Sedums* and *Echeverias*, are all in full bloom, also *Erica scoparia stricta*, *Palaeo frondosa* and *P. setacea* are in purple, *Oenothera arvensis*, and the small white Campanulas, and rock Pinks, all tending to enhance the beauty and variety of this, in my opinion, one of the most interesting branches of horticulture, as there is always something to attract the attention, even in the depth of winter. *Veronica rupestris formosa*, of which I have large clumps interspersed amongst the rockwork, are literally covered with their tiny blue flowers. The *Helianthemums* are just out of bloom, but the *Lysimachias* are at present supplying quantities of their yellow flowers. *Gaultheria Shallon* and *G. procumbens* are also in full bloom; these are very suitable subjects associated with rockwork. With us *G. Shallon* grows on the sandstone rock without any soil, and sets its fruit freely. *Rhododendrons*, self-sown, grow in the same way. The named varieties of *Pyrethrums* and *Lychnis* are very suitable for this garden, and are most useful to cut for decoration. I now give the names of a few Conifers that have been planted here many years, and which seem most suitable on the rockery:—*Taxus adpressa*, *Picea excelsa compacta*, *c. clauseniana*, and *Irish Yews*; these all occupy the high places in the rockery. *Picea excelsa pumila*, *c. pygmaea*, *c. parvifolia*, *Abies* *c. Hudsoni*, and *Juniperus prostrata*, are distributed about in the intermediate and lower places, and are all very suitable to this purpose. I find it a good plan to overhaul the rockwork about every fourth year, taking up all the small plants, dividing them where necessary, turning out the old soil, and putting in fresh material—a mixture of loam and leaf-soil and peat—where required. I generally do this in September and October, so that the plants get settled again before winter really sets in. *Edward Ward, Hewell Gardens, Bromsgrove.*

The Flower Garden.

WATERING THE BEDS.

WATERING of plants will call for a large amount of attention during hot weather. This is work that is best delayed as long as possible in the daytime—the later the better; and should a cloudy day arrive advantage should be taken of it. Positive injury is done by dribbling water over the beds, for no sooner does the sun shine than all is again rapidly evaporated. If all the beds cannot be watered at once the better plan is to give one or two beds a thorough drenching in the evening, and next morning, the first thing, to give these beds a careful stirring with a hoe or rake. The fine soil being thereby mixed with a large portion of air makes a capital non-conductor, and moisture will remain in the soil for the benefit of the plants. If we could but produce an atmosphere corresponding to that which is present during a fall of rain, how easy would our task become! Shading is a method which can be resorted to when there are only a few beds, but where there are many of them it is out of the question, and there is nothing for it but artificial watering.

BEDDING PLANTS

should have well filled the spaces allotted to them, but this is far from being actually the case. Many of them have made but little progress in growth, the late very hot weather disposing them to flowering—a disadvantage when the display is not required till the middle or end of August. Most of the flower-heads might be removed, and the plants would then be disposed to make growth. Now is a suitable time for making notes on, and correcting errors in, the arrangement of the beds. Carnations will require abundance of water to keep them in good health. If shading in some shape can be placed over the beds so as to shade them when they are coming into bloom, the flowers will be much finer, and their season of blooming will be much prolonged.

LAWNS.

These have begun to feel the effects of the drought, but the late rains will have improved their appearance. The rooting out of Dandelions, Plantains, and other weeds, should be proceeded with whenever opportunity offers. If the centre be cut out, and a teaspoonful of salt placed on the orifice, they will give little further trouble. *W. M. Baillie Linton Ho.*

PLANTS AND THEIR CULTURE.

THE GREENHOUSE.

THOSE who are fond of variegated or fine-foliage plants will find the variegated Yuccas a most suitable class, including *Y. variegata*, *Y. quadricolor*, *Y. Stokesii*, and many others. These plants are best potted in rich loam with plenty of sand. *Aralia Sieboldii* variegata, *A. argentea* var., *A. aurea* var., are useful plants, with ample foliage, distinct in habit, that will stand a great deal of rough usage. The New Zealand Flax, *Agapanthus umbellatus* variegatus, *Hydrangea argentea* variegatus, *H. aurea* variegatus, are both handsome and useful. The *Aspidistra lurida* and the variegated variety are always beautiful. The different sorts of *Abutilon* Darwinii, *A. tessellatum*, *A. Thompsoni*, and *A. Sellowianum* marmoratum, are very useful. *Myrtus communis* variegatus is another which is very telling in decoration work, and for cutting. All the above-mentioned plants are easily grown and may be placed for a great part of the year in structures where flowering plants of freer growth would suffer.

PLANT PITS

must now be well looked after. To keep the plants in them in good order, turning them round to get them nicely balanced is very essential. Poinsettias, *Euphorbia Jacquinifolia*, *Aphehandaras*, *Justicias*, and *Gardenias* of sorts, *Libonia penrosensis*, *Impatiens* Sultanii, and others, *Bromeliads*, *Celosias* and *Balsams*, which have filled their pots with roots, will be benefited by having a regular supply of manure-water. *Gloxinias* and *Achimenes* must be kept well shaded

when opening their bloom, otherwise they last but a short time and their flowers will not be nearly so bright.

PROPAGATION

should be pushed on now as fast as possible with all the double Primulas, as these are the most useful of plants for the autumn and winter months. Any *Drazenas* which it is desired to increase may be propagated by taking off the tops of the plants, which will root freely at this time of year if placed in jars of water in a moist stove, potting them off as soon as a good quantity of roots have been formed. Shift on all plants of *Solanums*, such as *Williams' Little Gem* and *S. Princess of Wales*; these make charming little plants during the dull months. Keep the syringe at work freely in the plant pits during hot weather, especially where cement or impervious stone is used for the walls. Keep *Gardenias*, *Ixoras*, and *Tabernaemontanas*, which have recently been cut down, quite close and in a moist atmosphere until they break freely. *A. Evans, Lythe Hill, Haslemere.*

FRUITS UNDER GLASS.

MELONS.

So far, the weather this season has been most favourable to the production of Melons of first-rate quality, and during its continuance fire-heat may be dispensed with. But in the event of a change to dull weather ensuing, the water in the pipes should be sufficiently heated to raise the day temperature to 75°, and to prevent that of the night from falling below 70° or 65°. Especially is it advisable that this should be done during dull weather in houses in which the plants are either in flower or their fruits are approaching maturity, because, in consequence of a more buoyant atmosphere than could otherwise be maintained being commanded, a quicker and better "set," as well as more highly flavoured fruit, are secured. However, when the character of the weather is such as to render fire-heat unnecessary, the amount of atmospheric moisture in the houses in the afternoon should be somewhat reduced in quantity. Melons swelling their fruits should, prior to being watered, have a dressing of manure laid on the surface of the bed, keeping it an inch or two away from the stems of the plants, which will, with proper treatment, bring about the best possible results.

PITS AND FRAMES.

Late plantings in pits and frames will now be coming into flower. For this reason, with a view to securing a good set, the sashes should be drawn off for a few hours—say from 11 A.M. to 2 P.M.—on sunny days, and the blossoms fertilised when the pollen is dry, until the desired number to form the crop be obtained. Three or four fruits—according to the condition as regards strength of the individual plants and the size to which the varieties grown attain to—will be an ample crop for each plant to ripen. Remove all superfluous fruits as soon as it can be seen which are going to swell, and those left for the crop should, as a matter of course, be the most even as regards size, and be distributed as regularly as possible over the bins, and after they have attained to the size of a full-grown *Magnum Bonum* Plum, be elevated above the foliage on inverted flower-pots. The thinning and stopping of the shoots should be attended to, two or three times a week, and not be left, as is not unfrequently the case, until barrow-loads of shoots are removed at one time, to the detriment of the crop. At the beginning of next week a sufficient number of seeds of those two excellent varieties *Blenheim* and *Orange of Hero* of Lockinge should be sown, to furnish plants for supplying Melons in November and December.

VINERIES.

The semi-tropical weather which we have experienced during the last three or four weeks having rendered fire-heat unnecessary in vineries at night, therefore a diminution should be made in the distribution of atmospheric moisture in houses in which the Vines are swelling their crops, otherwise mildew will be likely to put in an appearance, though there need be no apprehension felt in this direction in the case of Vines from which the crop has been taken, and among the leaves of which there is a free circulation of air day and night. These should be thoroughly

syringed every afternoon with clear water, and like Vines in every stage of growth, should be kept well supplied with water at the roots.

GRAPES AND SPIDERS.

House spiders are quite as troublesome to Grape-growers as they are to housemaids, and they are certainly much more injurious if allowed to locate themselves in the vineries, as affecting the appearance of it, may be, otherwise faultless bunches, by partially enveloping the berries in their webs to the detriment of the bloom, than their presence, however objectionable, would be in the interior of the town and country mansion. Therefore, at the time, and particularly during the summer months, should spiders be tolerated in vineries; they should be hunted daily, and their webs broken up, great care being required in removing these with a camel-hair pencil from the bunches of Grapes, or berries, not to rub the latter, as in that case the work would be better left alone; the spiders may be removed from the interior of the bunches by the aid and careful use of a pointed stick and a pair of Grape scissors. *H. W. Ward, Longford Castle.*

The Kitchen Garden.

SEEDS TO SOW.

Turnips.—During this month, and up to the second week in August, these should be sown largely, as upon these sowings will depend the supply for winter and spring consumption; moderately firm, light, rich soil suits them best, and the surface before sowing should be rendered fine and workable by forking, raking, &c.; afterwards sow in shallow drills 1 foot apart for the small varieties, and from 15 to 18 inches for the larger growing ones; among the latter *Veitch's Red Globe* and *Green-top White Stone* are about the best for the purpose. Thinning out the young plants should be done as early as possible, and before they become in any way overworked and weakly. Sow also, about the middle of the month, for a good supply, some fine early Cabbage, such as *Ellam's Early*, or *Wheeler's Imperial*, for early spring use, and a fortnight later a more general one, a portion of which will be available for planting out in October and November, and which will also constitute the main supply for the following spring and summer.

Onions.—A small sowing of *White Lisbon* now, in drills 1 foot apart, in a sheltered position, but the main autumn sowing of *Giant Rocca*, &c., had better be deferred until the middle of August. An additional sowing of *Early Horn* Carrot, if desired, may still be made on a warm border.

Lettuce.—Sow Cabbage varieties now in beds in warmer situations, also Brown-seeded, Bath, and *White Cos*, for coming into use in late autumn and winter; likewise *Batavian* and green curled *Endive*, *Kadishees*, *Mustard* and *Cress*, and other requirements for salads.

Leeks.—Where extra fine specimens of these are required, trenches should be prepared for them very similar to those used for planting *Celery*, that is 1 foot wide, and when ready for planting 9 inches deep; the soil at the bottom of the trench, after being thoroughly loosened and broken up, should be enriched by the addition of some well decomposed manure, and the plants placed 9 inches apart in the rows. During the growing season occasional applications of artificial manure, will be highly beneficial; earthing-up should be deferred as long as practicable. Planting on the level, for all ordinary purposes is the best and most profitable method. A plot of ground that has been manured for a previous crop will be the best; holes should be made with a dibber in lines 1 foot apart and 9 inches deep, and the plants dropped into them, soil sufficient to cover the roots only being placed in the holes at the time of planting. Good strong plants will be necessary for planting in this manner, and the holes should be widened at the ground level, and the soil made firm by twisting the dibber a few times round on the inside.

GENERAL WORK.

Plant out late Broccoli, autumn Cauliflower, Kale, &c., and fill up any spare corners and vacancies with Savoys, Cabbage, Coleworts, &c., and attend to the earthing-up, mulching, and watering of growing crops, staking of late Peas, &c. Clear the ground of early Potatoes, in readiness for succession crops, and if not quite ripe the tubers should be allowed to remain on the ground for a few hours to set the skin, and afterwards removed to a cool shed, and lightly covered over. Cauliflowers should be looked through daily, and as soon as the heads show have the leaves broken down over them, to keep them white and tender. Where it is necessary and needful to retard some for a few days, they should be cut off close to the ground, or pulled up by the roots, and placed in water in a cool cellar or shed. *John Austen, Willey Court.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, July 20	Sale of Imported Orchids, Palm Seeds, &c., at Protheroe & Morris' Rooms.
WEDNESDAY, July 21	Bedford Agricultural Society's Show at Luton. Newcastle-on-Tyne Horticultural Society's summer show (three days). Sale of a Collection of Established Orchids, Move Plants, &c., at Stevens' Rooms. Gleanings sale of the Collection of Move and Greenhouse Plants at Farre Down Park, Tooting, by Protheroe & Morris. Graham Horticultural Society's Summer show.
THURSDAY, July 22	Salisbury and District Rose Show. Sale of Imported Orchids from Mr. F. Vander, at Stevens' Rooms.
FRIDAY, July 23	Sale of Imported Orchids, at Protheroe & Morris' Rooms.

UP to the present time we have heard comparatively little of the POTATO DISEASE this year, but the weather of the last week has been favourable to the growth of the fungus, and we may confidently expect to hear shortly of its appearance in various localities. Probably we shall hear less of it than in some preceding years, for the excellent reason that, for the last year or two, the climatal conditions have not been favourable to its development, and that now, when, as it would seem, these conditions are more favourable, there is less fungus to develop, and that, in consequence, we shall have fewer lamentations. This is only saying in other words that the Potato disease is, to a large extent, an affair of weather, and this is true. Unfortunately it is also true that a large number of persons—the vast majority, indeed— Influenced by this fact, are content to sit with their hands before them and do nothing. “We cannot,” say they, “alter the weather, and therefore we must put up with the loss.” Is this a fair—is it a reasonable inference? We do not think it is. True, we cannot alter the weather. We cannot alter the course of the seasons, but the seasons themselves tell us—if we would but read the lesson aright—that the pest is controllable, and that it is our own fault if we allow it to go unchecked. All the time so-called “practical men,” who really are the wildest of theorists, go on talking about things they do not understand—electricity, degeneration of the Potato plant, and the like—so long may we expect their lucubrations to be barren of results.

The truth is, the investigation of the nature and course of the Potato disease is, in all essential points, beyond the powers of untrained observers, and is only to be profitably undertaken by specialists. A man unaccustomed to the use of the microscope, one who is not familiarly acquainted with the nature and mode of growth of fungi in general, and of those in particular which affect the Potato (for there are many), is, for all he may think to the contrary, a visionary theorist. He may pride himself on being a practical man—and on certain points of practice he may be all that his own fancy or the verdict of his neighbours paints him to be—but even from his own standpoint he must be adjudged a failure, if he neglects those practical means which science has laid before him of combating the disease. He either deliberately ignores them, or he has formed the opinion that it is better worth his while to let things go than to adopt such measures as are clearly open to him. This may be so. Abstract science is one thing, fiscal regulations, rent and taxes, the price of labour, foreign competition, form another and very complex whole. It may be that the grower is right when things are looked at from this point of view, but he can only be right for the immediate present. It may be better to let things go for the moment; it must be better to stamp out the Potato disease in the future! Can it be done? Not absolutely, we fear; but that it can be done to a useful extent is, as we think, taught us by the lessons of the weather. The weather has held it in check for the last year or two, doubtless far more efficiently than we could

do, but nevertheless it has shown us that it can be checked. In the meantime what have we done? Have we put our shoulders to the wheel? Have we done a single thing on our parts to follow up the lead Nature has given us? During these years of relative exemption has any one man destroyed a diseased Potato when he has seen it? Not a bit of it. We take little or no heed whether we plant healthy or diseased seed-tubers. When disease of the haulm makes its appearance, we leave it to rot in the garden or the field; so that the fungus may disperse itself to the fullest possible extent; we throw the diseased haulms on the dung-heap, we use it as packing for Potatoes that come to market; we give the diseased tubers to cattle and to pigs, and we scatter the manure broadcast. If we wished to do it, could we possibly ensure any better means of securing the diffusion of the Potato disease than those which we adopt? We have allowed ourselves to become fatalists, to act as though half a loaf were not better than none.

The Potato disease is due to the attacks of a parasitic fungus which passes a large proportion of its life within the substance of the plant, where we cannot get at it with any application that would not also kill the plant. Under favourable conditions the fungus comes to the surface, and gives off millions upon millions of spores wafted readily by the slightest breeze, and ready to sprout upon the leaf or haulm when there is sufficient moisture. With such an enemy—endowed with the faculty of propagation by various other means which we need not here detail—is there any reasonable chance that we could by any possibility control its diffusion? The answer to this question is surely given in the narration we have above given as to what we do not do. Over and over again we have seen—we have seen them on the day we are writing—one or two diseased haulms in a cottage garden or slip, the rest perfectly healthy; but the diseased haulm is left, and that one is more than sufficient to infect the whole neighbourhood, and if weather be favourable to it, it will do so. That one should be destroyed by fire the instant it is recognised, and its successors should be treated in the same way. We shall be told of course that the plan is not practicable on a large scale; nor is it, but is that any reason why it should not be adopted on a small scale?

We are confident that many a small crop on a labourer's plot—many a crop on which the amateur depends for the supply of his own household—might be saved by the destruction of diseased haulm the instant it is seen. In field culture this destruction of isolated plants could not, it is true, be carried out, but at least the haulms might be destroyed *en masse*, if not by fire, which is difficult, by vitriol, by soaking in sulphate of copper or potassium sulphide, or other chemical, by avoiding throwing diseased haulm or tubers on the muck heap, and by never in any case giving tubers known to be diseased to the pigs.

— PHYTEUMA COMOSUM. — Our illustration (fig. 19), taken from a drawing of Mr. SENDTNER's, shows how this singular and beautiful plant grows “*chez soi*.” A rocky cliff to root in, with plenty of soil therein, limestone debris by preference, copious moisture, as there is pretty sure to be in such a situation, and full exposure to the sun—these appear to be the requisites. The plant is allied to the Campanulas and Lobelias, and has deep blue flowers borne in close heads, with oblong deeply-toothed leaves. The flowers themselves consist of five petals, united into a tube at the tips, but balloon-shaped below, where the five petals are separate one from another, so as to leave interspaces between, through which presumably insects enter the flower, and carrying off the pollen from the included stamens would deposit it on the projecting stigma of some other

flower. The plant is a native of the Austrian Alps, and was introduced into cultivation by Mr. GEORGE MAW.

— NOMENCLATURE. — At the Floral Committee on Tuesday the new rule was acted on in one or two instances; thus the committee refused to recognise the name *Odontoglossum macranthum* Southgate, and certificated the plant as *G. macranthum*, Southgate's variety. This was done because no authority was cited for the name Southgate, beyond the exhibitor's fancy. The name has not been published, and no description or illustration has been given, as would be implied by the employment of a Latin name; and a Latin name without description or illustration goes for nothing. The adoption of an English name at once shows the true nature of the plant, and avoids confusion by preventing the possibility of confusing it with a botanically recognised plant. Of course there is nothing to prevent Mr. SOUTHGATE calling his plant Southgate, if he so pleases, but the Royal Horticultural Society should not recognise the name except under the circumstances we have mentioned. No hardship is inflicted on any one by such a course, and something is done towards simplification of nomenclature and the avoidance of confusion.—It having been ascertained that the *Doronicum* certificated at the recent meeting of the Royal Horticultural Society as *D. daytonense* had been previously described and figured (*Gard. Chron.*, vol. xx., p. 296) as *D. plantaginum* var. *excelsum*, the name *daytonense*, on the proposition of Dr. MASTERS, expunged from the record, and the correct name inserted in its place.

— EREMOSTACHYS. — Dr. REGEL has lately published a monograph of the species of this genus, thirty-nine in number. These species are herbaceous perennial Labiates, many of them of an ornamental character. The monograph is of a purely botanical character, and is illustrated with several outline illustrations.

— “ENGLISH BOTANY.” — With the eighty-ninth number the new edition of *English Botany*, edited by Dr. BOSWELL, is brought to a close. The present part is almost entirely taken up with the index, which is very copious. A preface informs us that, owing to the ill-health of Mr. BOSWELL, the completion of the work was entrusted to Mr. N. E. BROWN. All concerned may be congratulated on the termination of a work of such magnitude and sustained excellence.

— FRENCH NURSERYMEN AND SEEDSMEN. — We learn from the *Revue de l'Horticulture Belge* that a society has been established in France to protect and develop the interests of the horticultural trade. The discussion of fiscal regulations and legislative reforms, so far as they concern horticulture, is one of the objects of the society, as well as the establishment of a central committee to afford information calculated to prevent the losses in the horticultural trade.

— FLOWERING OF AGAVE FILIFERA. — An object of popular as well as scientific interest has suddenly and unexpectedly appeared in the grounds of the Edinburgh Exhibition this week, in the shape of a very fine specimen of this plant throwing up an enormous flower-stem. The plant forms one of the collection of Messrs. IRELAND & THOMSON. The stem was first observed on Monday last, when it was only just issuing from the crown of leaves, and such is the rapidity of growth, that in three days it has attained a height of 24 feet. The stem at the base is about 3 inches in diameter, and is densely clothed with long acutely lanceolate fringed scales of a grey-green colour. It is now protected from injury by a wire guard, and we may hope to see it develop its inflorescence to perfection.

— HOLLIES. — Some beautiful examples of these were noticed at the Royal Horticultural Society's Show at Liverpool, the production of the Elvaston Nurseries of Messrs. BARKON & SONS. Evidently the soil of this nursery suits them admirably, the colouring of the different kinds being clear and well defined. Of kinds we noted *nobilis*, a fine broad-leaved kind; a pendulous variety of *argentea*, very pretty; *ovata*, *nana aurea*, *versicolor*, *medio picta*, *laurifolia*, and *Gold and Silver Queen*.



FIG. 19.—PHYTEUMA COMOSUM AT HOME : FLOWERS LIGHT PURPLE. (SEE P. 80.)

— **DOUBLE FLOWERS AND VARIEGATED LEAVES.**—Some years since the late Professor MORKEN advanced the notion that double flowers did not co-exist with variegated foliage. Many exceptions were, however, soon pointed out, and some were shown on Tuesday last at the Royal Horticultural Society, in the shape of silver leaved Pelargoniums with double flowers.

— **MR. RIVELS' POT FRUIT TREES AT LIVERPOOL.**—It appears that, although we made mention of the beauty and vigour of Mr. RIVELS' pot trees at Liverpool, we omitted to mention that a Gold Medal was awarded them. In repairing the omission, we may say that the trees amply deserved the recognition they received.

— **INHERITANCE, OR OTHERWISE, OF COLOUR.**—We hear of people ready, from peculiarities of appreciation, to say black is white, and *vice versa*, and some sort of oblique countenance is given to such a proceeding by the fact that black does not always reproduce black, nor white succeed to white. An instance of this was afforded the other day at Kensington, where a new white Grape was shown with oval berries, and stated to be a seedling from Black Monukka. No foliage was shown, nor was there a bunch of the parent with foliage for comparison, as there should have been.

— **CASSIA LIGNEA AND THE CHINAMEN.**—According to the report of the Superintendent of the Afforestation Department of Hong Kong for 1885, there is a great difficulty in growing this tree, as the following extract from the report will show:—"The plantations of *Cassia lignea* that were made on the hills north of Aberdeen would probably have been in a thriving condition by this time but for the persistence of the Chinese in breaking off the leaves and branches of the plants. They appear to attach some importance to the plant as a medicine, and despite the vigilance of the forest guards, they succeed in keeping the plants in an almost leafless condition. Even in the Botanic Gardens, where the plants are protected by iron tree-guards and wire netting, they have killed several plants by persistently defoliating them and wrenching off the branches."

— **PULTENEA ROSEA**—writes Baron FERDINAND VON MÜLLER—is one of the most local of all plants in existence, being absolutely restricted to the summit of Mount William, in the Australian Grampians, at about 5000 feet. This is also the exclusive native locality of *Eucalyptus alpinus*. If plants strong enough for experiment are available, they might be tried in mild places of England as outdoor plants, inasmuch as this *Pultenea* has to endure in its native haunts a sub-alpine climate, and is subjected to frosts of more or less severity through several months in the year. In places like Arran in Scotland, the Devonshire coast, and the Channel Islands, it ought to prove perfectly hardy.

— **MALESIA.**—The last numbers of Signor BECCARI's publication relating to the flora of the Indian Archipelago contains the continuation of the lengthy catalogue of "piante ospitricie," or plants selected as habitations by ants, including not only the curious *Hymenophyllum* and other Rubiaceae, in which large gall-like swellings occur on the plants, and which become the residence of ants, but also of various Asclepiads, Dischidias, Nepenthes, Ferns, Palms, &c. The third volume opens with a monograph of the species of *Nepenthes* of which thirty-three species are admitted, as well as eighteen hybrids. A list of the Ferns and Lycopods of Borneo and New Guinea follows, and the commencement of a paper on "Asiatic Palms" is given. Excellent lithographic illustrations of new or interesting species are given.

— **"LINDENIA."**—Among the plants figured in recent numbers are:—

Cypripedium Laverucianum var. *Hyanum*, t. 42.—A variety with the mottled leaves of *C. Laverucianum* or *C. Dayanum*, with the upper sepal white with green veins; petals narrow, ciliate, green; lip pouch-shaped, green.

Dendrobium striatipes, t. 43.—A very curious *Dendrobium*, described by Professor Reichenbach in our columns, vol. xxv., p. 266. The flowers have white lanceolate sepals, the whitish lateral petals are much

longer, narrower, erect, and twisted; the lip with two lateral erect lobes and a spade-shaped flat central lobe, all white, with violet venation. The plant is a native of the Sonda Isles. The flowers are produced in great abundance.

Cattleya speciosissima var. *Malouana*.—A form with large flowers, sepals and petals magenta-coloured, lip trumpet-shaped, with an expanded two-lobed limb, rosy-lilac, mottled and streaked with reddish-purple, and with a white throat blotched with orange.

— **EXTRAORDINARY TITHES.**—A meeting of Hop and fruit growers from the counties of Kent, Sussex, and Surrey was held a few days since at the Bridge House Hotel, to consider the recent Act for the abolition of extraordinary tithes. Mr. T. H. BOLTON, late M.P. for North St. Pancras, who is President of the Anti-Extraordinary Tithe Association, occupied the chair, and explained the provisions of the Act which he had carried through the last Parliament, and suggested the course that would be probably adopted, settling the amount of compensation to be paid. He thought that it would be desirable that persons interested, both as landowners and tenants, should co-operate together to avoid unnecessary complications and difficulty in working out the Act, and to insure the fixing of a reasonable scale of compensation. A long discussion ensued upon the provisions of the Act, which was generally approved. It was resolved, pending the carrying out of the Act, that as far as the association could influence the individual action of Hop growers and others the distress sales should be suspended. A vote of thanks was given to Mr. BOLTON for his services to the Hop, fruit, and market gardeners in obtaining the Act.

— **STATICE SUWOROWI.**—Like many other things that hail from the same quarter of the world, this showy and highly desirable annual is bothered with a difficultly spellable and very unpronounceable name. It varies considerably, both as to size and showiness, under slightly different courses of treatment, but seems to have no difficulty attached to it if grown in a cool place. It is a native of Western Turkestan, and should accordingly, if the best possible results are to be attained, be grown in an unheated house or frame, even at the expense of treating it as a biennial, when it will form a strong crown with large, little divided leaves, and flower splendidly in early summer. A group of flowering specimens in the Caps-house at Kew, and another in the rockery, exhibit much-branched flowering stems, from 2 to 2½ feet in height. The divisions of the inflorescence are spicate, finger-like, tapering, often of considerable length, and densely furnished with rosy-pink flowers of medium size, having the calyx striped with a darker colour. A figure of the plant in REGER's *Gartenflora* gives a poor idea of the real beauty of this species; while another in the *Gardeners' Chronicle*, September 29, 1883, p. 393, gives a more favourable impression of the likely dimensions and showiness of the plant. Very different is the case with *S. leptostachya*, another annual species flowering in the herbaceous ground, with slenderly divided leaves, and slender spikes of inconspicuous, though pretty, pale-coloured, miniature flowers.

— **DRACONTIUM CARDERI.**—We are indebted to Mr. F. MOORE, the Curator of the Glasnevin Botanic Garden, for a specimen of the spathe and spadix of this handsome Aroid. *D. Carderi* is one of those Aroids which, from a tuberous stock, throw up a single leaf-stalk bearing a much-divided blade. The spathe before us is borne on an erect cylindrical stalk, purplish-brown, spotted with white, and with a few small prickles scattered over its surface. The spathe itself is about a foot long, concave-lanceolate acuminate, convolute near the base, bright velvety-green outside, dull purple within, but yellow near the base. The spadix is about 1½ inch long, cylindric obtuse, dull purple, covered over the whole surface with purple flowers, having the whole conformation of the genus. The plant is a native of Colombia, and was figured in the *Botanical Magazine*, t. 6523.

— **GHEENT HORTICULTURAL SOCIETY.**—At a meeting held on the 5th inst. the following awards were made:—First-class Certificates: To Mr. Alex. Dallièrre, for *Pernettya illicina nigra* major, and *P. l. fructo albo*; to Mr. Aug. van Geert, for *Hoplostylon robustum variegatum*; to Mr. Desmet-Davivier, for *Anthurium Scherzerianum* var. *sanguineum*; to Messrs. Vervae & Co., for *Cœlogyne Massangeana*; and to Mr. Linden, Director of the Compagnie Continentale d'Horticulture, for *Alcaesia Augustiana*, *A. marmorata*, *Phrynium variegatum*, *Alcaesia nigricans*, *Sagœnia mammosilla*, *Alcaesia gigas*, and for *Amayrillus Bonguerotti*. Cultural Certificate: To Mr. J. Hye-Leyssen, for *Cypripedium superbiens*. Commendations for Novelty: To Mr. Desmet-Davivier, for *Anthurium Scherzerianum* Brilliant; to Messrs. Vervae & Co., for *Odonoglossum Alexandræ* var. *fastuosum*; and to Mr. Linden, Director of the Compagnie Continentale d'Horticulture, for *Dracœna Madame Lucien Linden*, *D. Comte de Grunne*, *Alcaesia Macedoana*, *Pandanus Kerchovi*, and for *Dracœna Mr. James Bray*. Commendations for Culture: To Mr. Alex. Dallièrre, for *Todea superba*; to Mr. Linden, Director of the Compagnie Continentale d'Horticulture, for *Darlingtonia californica*.

— **FLOWERS IN SEASON.**—If Covent Garden and editors carrying on their business adjacent thereto cannot, except at too rare intervals, visit the flower-gardens and shrubberies of our island, it is fitting that in this case the mountain should go to MAHOMET! On this principle Mr. BURBIDGE, the Curator of the Botanic Gardens, Trinity College, Dublin, obligingly sends us a boxful of flowers, which act as reminders to tell us what is in bloom, and to testify to the way things are grown in the Home-Rule counties.

Trapaolium polyphyllum, with its glaucous palmate foliage and wealth of yellow flowers.

Aster cabulicus.—A tall species, with short-stalked, lanceolate leaves, slightly serrated, and hoary on the lower surfaces. The flower-heads are individually small (about half an inch across), but disposed in corymbs, the ray-florets pale lilac.

Chrysanthemum leucanthemum, the Ox-eye Daisy, with the outer white florets not strap-shaped as usual, but tubular and irregularly lobed as in a *Centaurea*; as if to compensate for their irregularity, their size is much smaller than usual. This is a variety which will please the botanist, but lovers of *Marguerites* will not be so appreciative. Will Mr. BURBIDGE tell us if it is constant from seed?

Astrantia carnolica is an improvement upon the common form, in having larger bracts tinted with rose.

Eupatorium fruticosum is a half shrubby Umbellifer with thick, leathery, entire leaves, very unlike those of Umbellifers in general. The plant, we may add, does well in towns, and is striking even if not beautiful.

Anemones in July are what we did not dream of some time ago, but in the Emerald Isle they seem to be able to make *Anemones* bloom for half the year.

Silene ciliata is after the pattern of our common *S. inflata*, but has foliage more like that of a *Calcœlaria*.

Double Crimson Sweet William may be recommended for general adoption as a border plant.

Centaurea platyfolia is remarkable for its globular flower-heads the size of a Cherry, and consisting of overlapping silvery scales.

C. macrocephala is the handsomest of its class, with large flower-heads as large as a mid-sized Apple or bigger, with curious brown jagged bracts, and a head of bright yellow flowers.

Lathyrus tuberosus, a species with wiry branches, obovate leaflets, and racemes of small lilac-rose flowers.

Achillea Millefolium is a useful plant for lawns and banks. Sheep do not object to it, every one says how pretty it is, both in flower and foliage. The deep rosy variety may sometimes be found wild, and is well worth growing.

Accna argentea is like our common Burnet, but has glaucous foliage.

From Mr. SMITH, of Newry, come the following notes with illustrative specimens:—

Abelia triflora, now finely in bloom here. As a distinct free-growing, and free-flowering shrub it occupies a high position.

Calcœlaria Sindairii, from New Zealand, is very distinct in shape from the better-known *C. violacea*, though the spotting and general appearance of the flower is much the same. Grown in a mass along with *Mask* and large-flowered *Mimulus*, in a damp and half shady spot, it is very good.

Veronica Chathamica is a most distinct rockwork shrub, mimicking as it does in flower-spike and foliage some of the large-leaved group, though its stems are quite prostrate.

Triteleia laxa, in a mass and grown as strong as the specimen I send, is often mistaken in the distance for *Agapanthus*; the latter frequently does not grow 2 feet high or bear forty flowers on a stem.

Deutzia candidissima, fl., is perhaps the best white-flowered hardy shrub we have, and it would be hard indeed to imagine anything finer than it is just now. A mass of huge arching, 5 to 6 feet long, flower-laden branches, bending to the ground with the weight of their full double pure white blossoms.

Escallonia leucantha is distinct and good on a wall; it is of moderate growth, and shows no tendency to outgrow the space allotted to it, as many of its near relatives do.

Philadelphus parviflorus.—This, though about the smallest flowered of the group, is free in growth and free blooming, and is, moreover, the sweetest of all. Its delicious perfume approaches more nearly to that of *Boronia megastigma* than any other flower I know.

Bockia astarietis, as a cool greenhouse flowering shrub would be not easily surpassed. A specimen planted out here, and about 6 feet high, is now a dense mass of pendent flower-laden spray. It is in bloom nearly the year through.

Dianthus Accident.—This is a "come by chance" in a bed of seedling *D. barbatus*, and is probably a natural hybrid. However that may be it is a very charming perennial, bright, beautiful, and continuous blooming. [It looks like a cross between a Sweet William and a garden Pink. Ed.]

—SCOTCH HORTICULTURAL ASSOCIATION.—

The ordinary monthly meeting was held on Tuesday, July 6, in the Society's rooms, 5, St. Andrew Square, Edinburgh.—Mr. ALEX. MILNE, President, in the chair. The President read a paper from Mr. DEAN, Ealing, on "The Primrose." After referring to the earlier history of the Primrose, he described the various varieties he cultivates himself. He was awarded a vote of thanks for the paper. The following were the exhibits:—Dr. PATERSON, Bridge of Allan, a collection of Orchids; Messrs. DICKSONS & CO., nurserymen, Edinburgh, a collection of single and double Delphiniums and of *Crinum Moorianum*. Mr. RUSHTON, Clarewood Garden, sport from *Pelargonium Beauty of Oton*, which is identical with *Baltic*; Mr. MCILLAN, Edge Hill, a variegated double white *Pelargonium*, which received a Certificate; also a bunch of *Chrysanthemum segetum*; Mr. MORRIS, Hay Lodge, a collection of hardy cut flowers; Messrs. METHVEN & SON, nurserymen, Edinburgh, *Passiflora Constantia* Elliot. The meeting closed with a vote of thanks to the exhibitors.

—CAMBRIDGE BOTANIC GARDEN.—

The most important operation, according to the annual report, has been that of planting the unique and remarkable specimen of *Aloe plicatilis* in a new tub, which, on account of the weight of the specimen and its exceptional liability to be injured, was one of considerable anxiety. It was, however, safely accomplished without the breakage of a leaf, or any disturbance of soil that was not intended. Extra good drainage was secured by means of drain-tiles, which were so arranged that the specimen may at any future time be lifted without difficulty by means of bars passed through them. The labelling of trees, shrubs, and other plants in the garden, has had a large share of attention. 7400 labels of all kinds have been used. 1120 labels, of a form noticed in the arboretum at Oxford, have been used for trees and shrubs, and it appears satisfactory; it has the upper part turned over so that the name is protected from falling dirt and drip without being in any degree hidden from view and is fixed in its place by means of copper wire. The use of zinc as a material for labels continues to be satisfactory, and several inquiries have been made about the system of making and writing that has been adopted. Labour provided by the special grant has been chiefly devoted to the continuation of thinning the belt of trees and laying down the ground with grass. In addition to this 400 yards of the path between the Pantom Street gate and the Trumpington Road gate have been re-made. Among the principal plants of scientific interest that have flowered are *Callisia insignis*; *Clematis Davidiana*, illustrated in the *Gardeners' Chronicle*; *Crotalaria laburnifolia*, drawn for the *Botanical Magazine*, and not before known as a native of Africa, whence the seeds came; *Dioon edule*, of which the cone, a female, is preserved in the Museum; *Eucumis zambesica*, n. sp.; *Iris*

Eulefeldi, drawn for the *Botanical Magazine*; *Iris kumaonensis*; *Iris Leichlinii*, *Iris Milesii*, *Iris reticulata* var. *sophemensis*; *Myosotidium nobile*, a plant of difficult culture and great rarity; *Opuntia camanchica*; and *Xanthoceras sorbifolia*, drawn for the *Botanical Magazine*. *Thladiantha dubia* was of interest in fruit, the female plant being rare. About 1319 plants and 1047 packets of seeds have been received. Contributions have been received from various Botanic Gardens, and a return has been made to most of them. Many interesting and rare plants have been received, among which may be mentioned *Amasonia punicea*, *Anemone Fannini*, a remarkable species from South Africa; *Dracunculus creticus*, *Drosera Burkei*, *Galactodendron utile*, the Cow tree of South America; *Gymnogramma Pearcei*, several new species and varieties of *Iris* from Professor Foster, *Paulinia sorbilis*, the Guarana; new *Primulas*, *Sisyrinchium filifolium*, the Pale Maiden of the Falkland Islands; *Streptocarpus*, n. sp., with red flowers; *Utricularia lufida*. In exchange about 763 plants and 1358 packets of seeds have been distributed. A number of plants have been very successfully forwarded to the Botanic Gardens, Georgetown, Demerara, and it may be interesting to state that *Nelumbium luteum* has become established there, having in a few months covered a large piece of water, producing thousands of leaves. *Vitis pterophora* has also made an immense growth.

—*THYSANOTUS MULTIFLORUS*.—At a hasty glance this curious Liliaceous plant is rather misleading as to its real affinity, on account of the absence of three out of six stamens. Other species also exhibit this peculiarity in a more or less perfect manner, and were for that reason grouped under *Thysanella*. The various other members of the genus are characterized by very unequal perianth segments, the outer being narrow and entire, while the three of the inner series are broad, overlapping those of the outer series, and finely fimbriated or fringed. This is well exemplified in the species under notice, the flowers of which are violet-purple, numerous produced in an umbel terminating a leafless scape, that rises sufficiently high to carry the flowers clear of the foliage. Like many other highly attractive flowers they are very ephemeral in their duration, in this instance expanding in the morning and closing up again early in the afternoon. A few only of an umbel expand at once, so that a succession is kept up for a considerable time by one umbel, and a good sized plant or rather group of plants, such as that flowering in the Cape-house at Kew, is even more effective and more lasting. The leaves are radical, numerous produced narrowly linear, and remind one of an *Allium*, *Milla* or *Tulbaghia*, but have a semi-rigid or leathery character, another peculiar feature of a dry and arid climate, such as that of Australia, to which it belongs. Nineteen species are known, only one of which is found out of the above country.

—*SENECIO SQUALIDUS*.—Every Oxford man must be familiar with, and well nigh every visitor to the famous University town must have been struck with the abundance and beauty of this plant on the old walls of the city. According to Mr. DRUCE's excellent flora, the first notice of the plant in its present situation was in the preface to *SIBTHORP'S Flora*, 1790, but how long before that, it had been established there is no evidence to show. *DILLENIUS* sent seeds of it to *LINNEUS*, but whether from the garden or the college walls is not stated. Our present concern with it is as a decorative plant, and for the rockwork we know of no plant more effective over a long period than this curiously misnamed plant. One caution we must however give, viz., that, wherever planted, let it be in dry poor soil. Under opposite conditions, it grows rankly, and loses half its beauty. We have used it with great effect in a flower bed, taking care that the bed was thoroughly drained, and that water was only sparingly given. Under such circumstances compactness of habit is ensured, and continuity of bloom during many months. Transplantation by means of seedling plants, is better than propagation by seed.

—PUBLICATION RECEIVED.—*How I Managed and Improved my Estate*. Reprinted from the *St. James' Gazette*. (London: G. BELL & SONS, York Street, Covent Garden.)

—GARDENING APPOINTMENT.—Mr. ANDREW ARMSTRONG, late Gardener to R. S. DUNBAR, Esq., Eagle Cliff, Greenhithe, has been engaged as Gardener to Mrs. CORBETT, Ember Court, Thames Ditton, Surrey.

THE ORCHID HOUSES.

CATTLEYAS.

IN all Orchid collections that are divided into three sections there is almost sure to be what is termed the Cattleya-house. But we find (as others no doubt do) that some Cattleyas do not grow well, flower freely, and keep in good health for many years if all are grown in the one Cattleya-house. Take, for instance, *C. speciosissima*: include all varieties of this grand Cattleya, and it will, I think, hold its own against any other species. We have had flowers as large as any *Cattleya gigas* I have ever heard of, and shades of colour that would please any Orchid fancier; and another point in its favour is that with proper treatment it will flower twice in the year. We grow this Cattleya at the south end and east side of an East Indian-house; they have but little shading, only running the blinds down when the sun is very powerful, and as they are all grouped together they can be managed without injuring the more tender plants in the house. *C. amethystoglossa* receives the same treatment. This plant I have seen standing in the Cattleya-house and not show the least sign of growing, while other species would finish up their growth and flower well. *C. Eldorado* is a very pleasing variety, and flowers at a time when most of the others are past. It is not a giant among Cattleyas, but it is very interesting. When several plants are grown it will be seen that the flowers vary much in their shades of colour, from the variety *crocata*, which I consider to be the best of the whites, and from the dark purple *ornata*. This species did not give satisfaction when grown with *C. Mossiae* and *C. Trianae*, &c. On entering the Cattleya-house here, at the north end, close to the boilers, is about 12 feet divided from the main house, which forms a sort of lobby; this has brick sides and wall at the end. Over the slate stages at the sides (which have an opening at the back to let the warm air rise) is placed, about 6 inches above the other stage, and close back to the wall, a temporary stage of corrugated iron; this is covered with shingle, and a little live sphagnum is shaken over it, which soon grew, and formed a moist bed; here *C. Eldorado* grows and flowers well.

Cattleya *Dowiana* and its variety *aurea* are still among the grandest of Orchids, and one which the hybridist will not easily improve by crossing, as other colours do not blend well with the gold. I hope some day to see one with pure white sepals and petals. This Cattleya, if not well attended to, will, after five or six years from the time of being imported, begin to languish. If grown in the East Indian-house it should be in a light position under the top ventilator, so that the growths might make up with plenty of fibre in them, otherwise if grown in a close atmosphere and heavily shaded the plants will look green and healthy, and should the growths not rot off, the following spring will be a trying time for it, as it will probably turn yellow, and then it will take some coaxing to bring it round again. But take an imported plant of the same appearance and give it warm treatment and it will grow freely, while the former would make a very weak start. We grow this Cattleya at present in two ways, some are suspended in baskets over the *C. Eldorados*, where the temperature at night is a few degrees higher when the fires are going, and there is more moisture in the air; and another lot is grown in pots on the stage at the warmest end and on the west side of a large division where a general collection of Cattleyas and *Lælias* are grown. Hence they get much of the afternoon sun, a rather light shading being used. The latter plants appear to be doing rather better than those hanging from the roof. Amongst them we find *C. Dowiana aurea* is the best grower. Now is a busy time for potting and top-dressing the various species, viz., *Cattleya Mossiae*, *C. Mendeli*, *C. Skinneri*, *C. Lawrenceana*, and *Lælia purpurata*. Any plant that it is necessary to pot is attended to when the growth has started about half an inch, but some Cattleyas, such as *Mossiae*, sometimes begin to root freely before the buds begin to break. These can be potted as soon as the flowers are over. Top-dressing can be done at any time, taking care not to disturb the roots more than can be avoided.

As the flowers of *Odonoglossum vexillarium* fade and new growth commences the plants must be potted, and those in which the compost has become

sour must be shaken free of it, cutting away any dead roots; then half fill the pots with new crocks for drainage, and pot the plants in two parts each and one of sphagnum, adding a few pieces of broken pot-herds. If the weather should be hot and dry it will help the plants much if extra shading be put on after potting, keeping the house damp, and also round about the pots and on the surface, but do not water the plants for a time. *C. Woolford, Downside.*

SUMMER PINCHING OF THE SHOOTS OF FRUIT TREES.

FOR the better elucidation of the directions as to the summer pruning of Pears and Plums given in our Notices to Correspondents, we give a figure (fig. 20) showing how summer shoots can be made to form fruit-spurs without the wasteful method of wholesale cutting back of young shoots so often practised by gardeners.

The block is one which illustrated an article on this subject in the *Gardeners' Chronicle* for July 10, 1847. Since that time the art of making fruit trees fruitful after this manner has been successfully taught by the late Mr. T. Rivers, M. De Breuil, and others. Mr. Cappe says, in describing the method, he commenced to pinch the young shoots nearest the leader (this would apply to young trees in course of being formed, but is equally applicable to branches of old trees) as soon as they are from $\frac{1}{2}$ to 4 inches long, as seen at *a*, *a*; he then let all the other shoots go on until they were of a certain length, when he pinches them at *b*, *b*. This severe pinching will sometimes cause the shoots to die off, and to convert the existing spurs into shoots. In general, however, the young shoots after they have been pinched will remain stationary, with only one or two leaves on them, and, in the year following the operation, will form fruit spurs. Under certain circumstances, when the trees are of a very vigorous growth, they will break again, so that they will require to be pinched a second or third time, as will be observed at *c*, *c*, *f*, *f*, and *g*. When it was found that the tree had too much sap, Mr. Cappe allowed those branches that had been pinched a second or third time to remain untouched at the winter pruning, and he only cut them in after they had produced some shoots, by that means preventing some of the branches taking too great a development. The branches *h*, *h*, illustrate the case, and they will be cut off at *i*, *i*. The pinching of the shoots on a leader differs a little from that practised upon the lateral branches. Supposing fig. 20 to be a leader of a pyramid, instead of pinching the shoots *a*, *a*, as they are represented, he let them grow to the length of *b*, *b*, before he pinched them, this being necessary to secure wood for the next winter pruning.

HOME CORRESPONDENCE.

Rose-coloured Wild Primrose, and Primrose erraticisms.—May I be permitted to revert to a note of mine which appeared in the *Gardeners' Chronicle* of the 5th ult., p. 649, regarding a plant of the above description, which I found growing wild near Fochabers? At the time I referred to it I considered it an unusual departure from the usual yellow colour of our uncultivated native Primrose, and I was under the impression that any departure from either its specific form or colour only occurred, and that rarely, in the Southern Counties of England. The editorial note appended to my inquiry for information, so far undeceived me on this point, and I have now confirmatory evidence that the aberrant colouring in question is not the result, or, at least, the sole result, when occurring, of a comparatively warmer temperature. A lady friend, on seeing my plant in bloom, informed me that some years ago a forester or keeper brought her several Primroses of the same colour, which he had gathered in a still more northern district—on the estate of Skibo, Sutherlandshire. These she carefully preserved, and has cultivated ever since. She subsequently sent me one of the plants, which I found identical in all respects with the one I submitted to you. I am in hope of being able to ripen the seed of one or other of these, and to raise plants therefrom, so as to ascertain if any or all of the produce will come true, and adhere to the abnormal colour, or revert to what is supposed to be the permanent colour of the species. On the whole, I suppose it may be held that the farther north we go the Primrose has a lessened tendency to diverge.

Apogon of my last remark, I am reminded that the recent National Primula Conference, and also the selection of late years of the Primrose as a political party emblem, will both be the means of bringing our sweet, modest, and favourite flower from its retiring and haunts into public favour, and a notoriety only hitherto accorded to its more pretensions and well-to-do relatives, the cultivated and highly-prized show Auricula and Polyanthus. On that account I may be allowed to refer to a circumstance connected with its habit of growth which I have never been able to clear up. As our American cousins would say, I was "raised" in a dry sandy district where Primrose wildings were unknown. On coming (nearly fifty years ago) to reside in another north country village, I was delighted by seeing this attractive flower growing abundantly along the banks of a neighbouring river. On becoming aware of my partiality for these "earliest nurslings of the spring," an intelligent villager told me he had introduced them into his garden and cultivated them for more than a quarter of a century for borders to the footpaths in same. On showing them to me, I observed that they differed from those growing by the river side, inasmuch as each flower of the latter was borne on a single flower-stalk or scape, while those of the first mentioned were on pedicels, more or less umbellate (as I afterwards became aware), like the other four or five recognised indigenous British species of the same genus, none of which grew in or near the district referred to. My friend, however, assured me that they had all under cultivation, and several years after their removal, assumed this form of inflorescence. His garden, I may remark, was favourably situated and sheltered, had rich and suitable alluvial soil, and he treated his plants generously with manure, which might have been the exciting cause of the change. At the time I suggested that the plants he showed me might possibly have been self-sown from, and had gradually supplanted, those he had transplanted from the river side. He, however, was confident that they were the original plants, and had all, without exception, undergone the structural change referred to. Their umbelliferous uniformity did certainly support both his statement and theory, more than it did my supposition, for all my subsequent enquiries I never forgot, though I have never been able to verify, or, I may say, disprove the theory held by my old observant and long since deceased friend. I have cultivated and raised from seed all our aboriginal species (at present, from an unsuccessful attempt to hybridise *farinosa* and *scotica* with each other, I have obtained, and now in flower, vigorous and true seedlings of both the originals), but I have never found an undoubted form of vulgaris which had once assumed its recognised form of flower afterwards appropriate that of any of its congeners, or the reverse, and what one might consider the retrograde process take place with them. I am not overlooking the well known fugitive character of many of the Primulae, and that not only the garden forms and varieties, but that (excluding *farinosa* and *scotica*) our indigenous species merge into forms peculiar to each other when produced from seed, both under cultivation and when produced under their natural conditions. I am also aware that if the several single-bearing flower-scapes of vulgaris are traced downward they are found to terminate and unite in the crown stock of the plant, and that their union there might be held to constitute, as it were, a sessile umbel. Such being the case, if we were to suppose the crown of the root or the part of union were stimulated by a high or changed mode of cultivation into elongation, it would practically become the peduncle, while the scapes thereby upheaved and borne on it would in like manner become the pedicels of an umbel. In conclusion, and no doubt somewhat in antagonism to this supposition, let me add that I had opportunities of traversing during eighteen summers the main island of the Shetland group, where by "peerie" rivulets, and in rock-sheltered nooks along its wind-swept coasts, *P. vulgaris* (the "Mayflower" of the Shetlanders) grows abundantly, and enlivens the silent and otherwise often flowerless scene they grace with their presence. On these occasions I never failed to keep a watchful eye on, when passing, my favourites, but among these I never detected the least change or tendency to change, either in their form or colouring. The cool and moist climate, the (over the year) equable temperature, and the unstimulating soil, may account for the sameness and uniformity of form I met with. Opportunities for similar observations in the Channel Islands might have favoured opposite conclusions. Some of your better informed readers may remove my uncertainty, and enlighten me on the interesting if perplexing questions I have referred to. *J. G.*

Hellianthemum rosmarinifolium.—I think there is a slight mistake in the name. The aboriginal *C. M. Owen* speaks of it as having "small white flowers," whereas the true *H. rosmarinifolium* has white yellow flowers, and has leaves clothed with white tomentum; and, besides, it is an upright, not

a spreading shrub. The one mentioned by *C. M. Owen* I have no doubt is *H. umbellatum*, which is a sub-prostrate shrub, with dark green leaves, and has small but very pretty white flowers, which are borne in umbels—hence the specific name. It has a wide geographical range, being found in considerable quantity through Central and Southern France; while *H. rosmarinifolium* is, I believe, confined to the sea coast—at least, I have always found it in such positions. Both the above may be seen in the York Nurseries, Holgate, York. *R. Polter.*

Gladiolus Watsonioides, Baker (see p. 49).—You will find this fully described in the *Journal of the Linnean Society*, vol. xxi., p. 405, and it will appear shortly in the *Botanical Magazine*. It was discovered by Mr. Joseph Watson, and introduced into cultivation by Mr. H. H. Johnston. It is quite distinct from the Cape *Gladiolus Watsonius* of Thunberg, for which the name adopted in my Catalogue ("Systema Iridacearum," *Journ. Linn. Soc.*, vol. xvi., p. 161) is Homoglossum revolutum. Like many other of the Cape bulbs this latter has received a great many different names. You will find no less than eight cited in my paper. The Cape plant has a convolute subulate leaf, like that of *Gladiolus tristis*. The tall plant above all the expansion of its root long, and a third or half an inch broad, and grows twice as tall as the Cape species, and it has longer spathe, a shorter perianth tube and a more unequal perianth limb. *J. G. Baker.*

Secreting Glands of *Oncidium Batemanianum*.—It is contrary to the usual rule for secretory-glands to be developed outside of the flowers, or in any way unconnected with fertilisation in Orchids, but instances occur which have evidently been selected (if selected at all) for some other purpose. The primary function of glands is generally considered to be that of excreting waste products, which may, of course, be utilised by Nature for a secondary purpose. The present instance, however, is one of those peculiar cases where it is difficult to assign a satisfactory reason for their occurrence and use. Outside of, and at the base of each bract, subtending the flowers, is a gland that exudes a good-sized drop of a clear but viscid or sticky liquid. This takes place upon all the inflorescences of the flower, and when it has attained its best—probably when the latter is ripe for fertilisation. Not only does it exhibit a considerable degree of viscosity, but it is possessed of a rich and sugary taste, quite unlike the watery and insipid taste of the nectar usually contained in the nectaries of those flowers furnished with such. This tall-growing species does not seem to enjoy a wide popularity, judging from the fact that there are few published figures of it, and one occurs in Knowles and Knowles's *Orchidaceae*, figured regularly and annually in the colour section of the *Orchid-house* at Kew about this season. *J. F.*

Wollaston's Apospory.—In your issue of Dec. 19, 1885, there is a most interesting account of Mr. S. B. Wollaston's discovery of apospory in connection with *Polystichum angulare* var. *pulcherrimum*, Padley found some twenty years previous in North Devon; I have now much pleasure in announcing the appearance of precisely the same phenomenon (viz., the production of true prothallia from the apices of the pinulets in stead of by the mediation of the spore) upon another and distinct form of *P. pulcherrimum* which was found by Dr. Wills near Chard in Dorsetshire. Mr. Padley's find was observed at the time to bear some abnormal excrescences upon the pinulets, but they were assumed to be a minute kind of cresting. Wills' find, however, has apparently until now produced nothing of the kind, and I believe the phenomenon has been induced by the very close Todea treatment to which I have subjected the plants in my possession with precisely the object I have attained. The prothallia now form in the same beautiful fringe along the inferior edges of the pinna, but are too immature at present to permit me to do more than chronicle their existence. *C. T. Drury, Fernholme, Forest Gate.*

Cocoons found in an Acorn at Cannes.—At your request I have applied to my niece for further particulars respecting these curious seed-like bodies, and now give you her account of the matter, which I think you will say does credit to her power of observation and description [We heartily concur. Ed.]. "Thank you for your letter about the cocoons: I will tell you all I know about them. I picked up, last January, three acorns free from the cup on a road through a deserted garden at Cannes, and brought them home intending to plant them. One was a very large one. When I got back to London, I noticed something rattle inside the shell, and on breaking it open some of the little cocoons fell out. I took them and found them to be small, thin, nearly covered with these little seed-like bodies, which were easily shaken off, and left little white "pits" where they had been, and a network of the

not truthfully express our treatment, as they are not encouraged to grow when in bloom. *J. Ridout.*

Ripe Mistletoe Berries in July.—Your correspondent seems to think that Mistletoe berries in July are something wonderful, but if he had made use of his perceptive faculties he would have seen they were the produce of last year, which had escaped the ravages of birds, probably owing to their immature condition from a late and cold season. I see that several large bunches on some Apple trees in my kitchen garden are now full of berries. I enclose a spray on which are last year's berries, and this year's in course of formation. *F. G. Rogers, Southampton.*

Pinus Lambertiana.—I send you by post a small box containing male and female flowers of *Pinus Lambertiana*, Douglas, sent to me by Mr. Thomson from Kenfield Hall, near Canterbury. The flowering of *P. Lambertiana* in this country has been so rare an occurrence, so far as I am aware, that these flowers seem to me exceptionally interesting, and I cannot help saying what a boon it would be to those who study Conifers in their scientific aspect if you would have them figured in the *Gardeners' Chronicle*, especially as the flowers of other rare species have lately been figured there. Among the rarer species of Conifers that have recently coned at Kenfield are *Abies bracteata*, *A. Pindrow*, and *Pinus Coulteri* (macrocarpa). *A. H. K.* [We shall endeavour to comply with our correspondent's wishes, and with those of others at home and abroad who have written in the same strain, and shall be grateful for specimens. Ed.]

Work on Colour.—If there is such a thing as the science of colour it must be in a very rudimentary or at all events a very chaotic condition. Not only is the general public at sea in the matter of colour description, but even professionals and those whom we should look upon as adepts in colour painting frequently signify fail to give anything like an exact representation of natural colours. This refers to the colours of foliage, fruit, and especially to those of flowers. It is surprising and even to be regretted that a popular work on colour has not been attempted and committed to the patronage of the public. Such a work would indeed be a boon, as expressed by "B." at p. 53; but its real value to the public at large would be difficult to realise if care were taken to inculcate its principles and disseminate its teachings. The primary value would depend upon its being authoritative, and to be accepted as a standard work it should be both exhaustive, definite, and decisive. Why should not instruction in colours be disseminated just as we are instructed or educated in other matters by illustrated books and periodicals innumerable? A recognised and reliable authoritative work of this character would not only greatly assist the artist, professional or adept, but constitute a source of instruction and pleasurable recreation to thousands of amateurs who earned their bread by other means. Take, for instance, the word green, and fathom, if possible, its significance. To simply state that a plant has green leaves gives but a feeble conception of what they are really like, and the same expression as applied to flowers is even more vague. Green (colour) is in reality a class word, including an innumerable variety of shades and tints. Referring to some of the old figures in botanical works, it has been jocularly remarked that the evolution of colour in flowers is often so rapid, that the latter are with difficulty recognisable alongside of the coloured figures of their historic progenitors. How different their prehistoric ancestors must have been! *Darlingtonia californica* is an instance in point, where the figure in the *Botanical Magazine*, t. 5920, has little in common in the matter of colour with living specimens. The sepals are too deeply green, without exhibiting any of their pale purple markings, while the petals exhibit a contrast of yellow and brownish-red that is altogether unnatural and misleading to those who have not seen living specimens. Many of the older botanists paid little attention to colour, and even yet some of them regard it as of minor importance, and dried specimens, especially of the great Orchid family, often do not even afford a clue to the natural colours. For this very reason figures coloured true to Nature would be invaluable; but it often seems an open question whether the artist meant to improve upon Nature, or whether the latter completely eluded or baffled his skill. A figure of *Barkeria Lindleyana* in the *Botanical Magazine*, t. 6098, and another in *Paxton's Magazine of Botany*, xiii., p. 193, agree in most points of structure and with the living plant, but the colour in both instances is altogether discordant with Nature. The second of the two figures quoted exhibits an extraordinary mixture and association of colours. The exterior surface of some of the flowers is of a nearly uniform pale violet-blue or some such indescribable colour, while the same aspect of others is all red except the lower half of the labellum. The apex of the labellum is deep almost blood-red with a large glaring white blotch above the column. All these colours, doubtless



FIG. 20.—SUMMER PINCHING IN THE PEACH. (SEE P. 84.)

inner skin of the acorn. I opened one of the cocoons and found a little white body in it, just as you did at Ely. They did not change in the least (as far as I could see), during the months I kept them before bringing them to you. Neither of the other acorns had any cocoons in them. All the cocoons were found in one acorn. They were embedded in the nut and covered it completely and spread round the acorn." *W. Marshall.*

Odontoglossum vexillarium.—When the plants are in flower they are kept in a cooler and drier house to prolong their beauty. In such a place they continue in perfection from four to six weeks. During that time they make no perceptible growth, but when the flowers decay they make fresh breaks, and are from that time kept growing for the remainder of the year. Mr. Douglas would have preferred the sentence he quoted without the word "nearly." Such would

meant to represent different shading due to the position of the flowers, are too exaggerated and too violent in contrast to be pleasant, to say nothing of natural. That colour varies accordingly as the light is transmitted or reflected, and also upon its intensity, is well exemplified in *Masdevallia Veitchii*, or even better in *Nanodes Medusa*, figured in the *Botanical Magazine*, t. 5723, and reproduced in the *Flore des Serres*, 1771, in both of which the labellum is described as lurid purple. The labellum is elsewhere described as purple or amethyst-purple. A notable feature in the latter figure, although a reproduction, is that the shading is considerably different from the original. The spathe in different individuals of *Anthurium ferriense* must vary considerably in colour (which there is great reason to believe they do), or else the colour is so peculiar that scarcely two writers describe it alike. In Regel's *Gartenflora*, 1884, p. 307, the colour is described as "brilliant rose-carmine," and in the *Gardener's Chronicle*, xxi., p. 185, the spathe is said to be pale rose or pink-rose, and again as a lustrous pink-rose colour, while another writer says a peculiar deep red. These are but a few of the many instances that might be selected to show the necessity of some reliable and standard work on the subject. *J. F.*

Under the above heading, your correspondent "B." raises a question of some importance, and well worthy of consideration. If, as he advocates, some authoritative book were published, describing the different colours, and the shades varying between, what an admirable work for reference it would be. It is in the diversity of the shades that confusion arises, and opinions differ; and this difference of opinion leads to an uncertainty on the part of others. As for instance, among the many things for which we are indebted to the gardening Press, not the least important are the notices of new plants; but if the descriptions are at variance concerning colour, doubt is raised in the minds of those who may be intending purchasers—who have not the opportunity of seeing for themselves, but rely solely upon what they read. Some have been misled by the so-called "blue Primula," yet, on examination, the "blue" proves to be one of the many existing shades hard to describe, being neither one thing nor the other, and which would probably be classed under purple. Surely then, a standard work from a reliable authority, would be the means of elevating all this, and prove highly beneficial to all who consulted its pages. *H.* [Our correspondents must not overlook the personal question. Do any two people really see colour alike? Again, the colour-printing processes now in use often do not at all fairly represent the original drawing, and, moreover generally fade after a short time. *Ed.*]

Reports of Societies.

ROYAL HORTICULTURAL: Tuesday, July 13.

THIS conservatory was enlivened by a beautiful display of hardy herbaceous plants from our suburban nurserymen and others, among which *Roses*, *Gaillardias*, *Lilies*, *Delphiniums* figured largely, and good vegetables and fruit added to the attractions of the show. A few new plants of merit, some *Orchids*, and Australian productions made up the more miscellaneous items of a beautiful and interesting display.

Scientific Committee.

H. Pascoe, Esq., in the chair.—Present: Messrs. *W. G. Smith*, *J. O'Brien*, *G. F. Wilson*, *A. Grote*, *G. Maw*, and *Dr. Masters*.

RHOIODENDRON PONTICUM VAR. MYRTIFOLIUM.

Mr. G. Maw doubted this being a true native of Gibraltar, as stated at the last meeting. At the same time *Mr. Maw* mentioned that *R. ponticum* was wild at Algiers, where it grew in company with *Balanium culeifera*, both cases affording instances of isolation.

CISTUS LADANIFERUS.

Mr. Maw remarked that plants of this with blotched flowers grew in Spain in company with others in which no blotch was perceptible. He had also seen a few instances of blotched and unblotched flowers on the same plant.

DIGITALIS LUTEA AND GRANDIFLORA.

Mr. Maw suggested that these might be dimorphic forms of one and the same species.

DAFFODILS.

Mr. Maw reported on the occasional occurrence of erect-flowered *Daffodils*. He also stated that *N. minimus* of *Botanical Magazine*, t. 6, was identical with *N. minor*, and abundant in Central Spain at high elevations. Drawings of various hybrids were

shown, and the opinion expressed that *N. calathinus* and *N. triandrus* were one and the same species.

MASDEVALLIA DAYANA.

Mr. O'Brien alluded to this interesting species, in which the three sepals cover by their tips, leaving, however, lateral apertures through which insects may enter, as in *M. penetrata*. The peduncles originate from the top of the shoot, and not from the base as in others of the genus. A Botanical Certificate was awarded to the plant.

CATTLEYA LODDIGESII.

A dimorphic flower was shown, on which *Dr. Masters* undertook to report at the next meeting.

FUNGUS ON MANGOS.

Mr. W. G. Smith alluded to a fungus *Capnodium mangiferum*, which he had received from *G. S. Jenman*, Esq., of Demerara. The fungus occurs also in India, but there attacks the leaves only. In Guiana it bursts through the bark of the trees.

MISTLETO IN JULY.

Dr. Masters showed a spray of Mistleto with ripe berries.

SELENIPEDIUM AND UROPEDIUM.

Dr. Masters exhibited a drawing by *Mr. W. G. Smith* of a specimen, received from *Mr. Bull*, interesting as confirming the notion that *Uropedium* is a monstrous state of *Selenipedium*.

FIRE BLIGHT IN PEARS.

Dr. Masters exhibited specimens of this disease received from *Professor Arthur*, of New York Agricultural Station. The disease is attributed to *Bacteria*, and happily has not yet been noticed outside the United States. To the naked eye the young shoots look dry, shrivelled, and black as if scorched by fire. *Mr. Worthington Smith* undertook to report.

Floral Committee.

Present: *G. F. Wilson*, Esq., in the chair; and Messrs. *M. T. Masters*, *H. Bennett*, *W. Bealby*, *H. Heald*, *J. Walker*, *Shirley Hibbert*, *W. Wilks*, *G. Duffield*, *J. Hudson*, *W. Holmes*, *R. Dean*, *C. Noble*, *H. Ballantine*, *J. Dornay*, *J. O'Brien*, *G. Paul*, *J. Douglas*, *A. F. Lendy*, and *E. Hill*.

Mr. W. Bull, King's Road, Chelsea, showed *Impatiens Hawkeri*, described in the *Gardener's Chronicle*, vol. xxv., p. 760. The plants shown were healthy, vigorous, and remarkable for the lively tint of rose of the flower. *Lourea papilio*, a slender habitated plant with a leaf of a light green shade banded transversely with brown, and whose breadth is twice that of its length; *Aphelandra chrysops*, the foliage marked on the lines of main ribs with creamy-white, the flowers and flower-bracts yellow, tipped with pale green—a handsome addition to those already in cultivation. A flower of the common *Aristolochia elegans* was shown; and *Pieris Indens*, a species with large foliage, deeply lobed, of cheerful shade of green, the stipule dark brown, and smooth.

Messrs. *J. Veitch & Sons*, Royal Exotic Nursery, showed a basketful of new hybrid *Gloxinias*, of which *Irma* is a brilliant scarlet; "The floor, rich purple; *Vesta*, white, with a tinge of rose bordering to the tube, and all were of refined tints. From the same establishment was brought *Carnation Mrs. Mason*, a pink self flower, with just a suspicion of yellow amongst the centre petals. A charming collection of *Irish Kempteri*, *Canterbury Bells* (both single and double), and *Ten-week Stock* (*Snowflake*, a pure white flower borne on a stout spike), were likewise exhibited by this firm.

Mr. B. S. Williams, Paradise Nursery, Holloway, showed the rare *Dendrobium Williamsi*; the flowers are ivory-white, round in form, the throat and lip purple, pseudobulbs terete, and stems slender erect; *Sarracenia hybrida*, a dwarf variety, with petchers, either red or green according to age, that are spotted with white near the apex.

Mr. W. Bealby, Rochester, showed an Ivy-leaved *Pelargonium*, *Eden March*, having semi-double pink flowers; and *Delphinium Colbert*, a very robust spike of a metallic hue.

Sir Trevor Lawrence, Bart., Burford Lodge, showed several choice *Orchids*—viz., *Phaius Humboldt*, a new species—sepals and petals of pinkish-purple, crin bright yellow, and lip rose-purple; the flower-stems about 18 inches, and foliage those of the genus generally; *Spanglotis Augustorum*, having a tall stem surmounted with a corymb of white starry blossoms, with the faintest shade of lilac in the centre of each; *Aëides* var. *rosea*, possessing a short drooping spike of rose-coloured blooms.

Mr. R. Dean, Ranelagh Road, Ealing, showed a number of *Canterbury Bells*, of "hose-in-hose" character, in shades of pink, blue, and lilac; *Everlasting Pea*, delicate, pretty, pink and white; *New Giant*, crimson, and *Maive Beauty*, Ten-week Stocks, fine stout spikes of defined colours; *Carnation Effie Deans*, of a cerise colour; and flowers of *Malva moschata*.

Mr. Salter, gr. to *J. Southgate*, Esq., Selborne, Streatham, showed a flower of *Oncidium nigrum*, *Southgate's* variety, and a flower of the type to show difference of marking on the petals; the difference consists in the variety having a large brown patch spread over one-half of the petal from the base upwards.

Mr. White, gr. to *C. Dorman*, Esq., The Fir, Lawrie Park, Sydenham, showed a fine form of *Odontoglossum*

crispum, named *Imperati*; it is a grand flower, with lilac-coloured tints on the lower petals; *O. crispum*, *Mrs. C. Dorman*, a splendid, large, almost pure white, finely frilled flower, of much sub-ance and *Epidendrum velutinum maximum*, a showy, large-flowered variety.

Baron T. Hruby, Peschkau, Bohemia, showed *Odontoglossum crispum Hrubyanum*, with dark purplish spots of a large size over all parts of the flower.

Mr. Nicholas, gr. to *Earl Fortescue*, Castle Hill, showed a spike of *Kennerly's* *coccinea*, evidently cut from a plant possessed of considerable vigour.

Colonel E. T. Berkeley, Sibbertoft, Market Harborough, showed *Phaiopsis speciosa* var. *Imperator*, of much darker tints (bright purple) than the type, showing the advantage of size goes with the latter, which was exhibited alongside.

Some charming varieties of *Papaver rheas* came from *Rev. W. Wilks*, Shirley Vicarage, Croydon; the colours were white, pink, scarlet, and mixtures, of all three, and the flowers were comparatively large.

Mr. Naylor, St. Hilda's Nursery, Harrow, showed a much crested variety of *Pteris serrulata*; the habit is dwarf, and densely bushy.

Mr. Thurstone, nurseryman, Merrievale, Wolverhampton, showed seedling *Finks* with fine markings.

Messrs. *Paul & Son*, Old North Kent, showed a

obtained a Silver Banksian Medal for boxes of cut *Roses* of good quality, in which were some excellent samples of *Madame Alphonse Lavallée*, a *Rose* we do not remember to have observed in good form this season.

Mr. Bunyard, nurseryman, Kent, showed a small collection of cut *Roses*, many of which were of fine quality.

Messrs. *W. Paul & Son*, Waltham Cross, received a Silver-gilt Banksian Medal for a very extensive collection of *Roses* in the cut state, consisting of varieties raised by them, as *Grand Mogul*, a neatly-formed crimson; a seedling from *A. K. Williams*, *Silver Queen*, in the way of *Captain Christy*, but smaller as seen; *Tea Rose*, *The Bride*, *Lady of The Lake*, fine-coloured; *Horace Paul*, medium-sized, bright crimson; and *Garden Favourite* and *C. Dickens* two good bedding varieties. Baskets of various kinds were shown besides those in boxes.

A Silver Banksian Medal was awarded to *R. J. Measures*, Esq., Cambridge Lodge, Camberwell, for a group of miscellaneous *Orchids*, set up with *Ferns*, *Cyclamens*, and other plants for sale.

Amongst the *Orchids* were several of the newer *Cypripediums*, *white Cattleyas*, *Vandas*, *Odontoglossum crispum*, *Laelia xanthina*, &c.

The permanent exhibitions of Messrs. *P. Barr & Sons* and Messrs. *Thos. Ware*, Tottenham, were gay with

hardy plants in season, and *Orchids* in bud, fit prize for hardy plants, and Messrs. *G. Paul* the 2d, both competing groups being rich in rarer kinds of plants.

Mr. W. Chitty, florist, Stamford Hill, showed a bold foliage *Coleus*, named *Prince Albert*. The leaves are dark purple marked with crimson and gold.

Messrs. *J. Carter & Co.*, Holborn, showed their *Silene pendula* compacta, double flowers. It is showy as seen in bunches.

Mr. Gordon, Twickenham, showed a few varieties of

Irish Kempteri, thick petals, and handsome.

Odontoglossum velutinum var. *Hollington*, came from *A. J. Hollington*, Esq., Forty Hill, Enfield.

Messrs. *H. Cannell & Sons*, Swanley, Kent, showed a dark, long-tubed variety of *Fuchsia*, *General Roberts*; yellow *Carnation*, *Pride of Penshurst*; and a number of bedding *Pelargoniums* with variegated foliage and semi-double flowers.

Messrs. *Kelway & Son*, Langport, showed a quantity of cut blooms of *Gaillardias*, *Gladiolus ramosus*, *Peonies*, *Alstroemerias*, *Phloxes*, *Poppies*, &c., and were awarded a Bronze Medal.

FIRST-CLASS CERTIFICATES.

To *Baron Hruby*, for *Odontoglossum crispum Hrubyanum*.

To *Mr. Naylor*, for *Pteris serrulata*, "Naylor's Crested."

To *C. Dorman*, Esq., for *Odontoglossum crispum*, *Mrs. C. Dorman*.

To Messrs. *J. Veitch & Sons*, for *Ten-week Stock*, *Snowflake*.

To *Mr. W. Bealby*, for *Pelargonium peltatum*, *Eden March*.

To *Sir Trevor Lawrence*, Bart., for *Phaius Humboldt*.

To Messrs. *W. Paul & Son*, for *Rose H.P.*, *Grand Mogul*.

To *Mr. T. S. Ware*, for *Papaver nudicaule* miniature.

To *Mr. W. Bull*, for *Aphelandra chrysops*.

To *Mr. W. Bull*, for *Impatiens Hawkeri*.

To *Mr. B. S. Williams*, for *Dendrobium Williamsianum*.

To *J. Southgate*, Esq., for *Oncidium macranthum* *Southgate's* var.

Fruit Committee.

Present: *T. F. Rivers*, Esq., in the chair; and Messrs. *H. J. Veitch*, *W. Paul*, *C. Ross*, *J. Roberts*, *W. Denning*, *W. Warren*, *C. Norman*, *G. Bunyard*, *T. B. Haywood*, *J. Burnett*, *G. T. Miles*, *P. Crowley*, *F. Rutland*, *R. Hogg*.

The Commissioners of the Cape of Good Hope received a Silver Knightian Medal, for a meritorious exhibit of Raisins, with and without stalks, dried Peaches, Figs, and Quinces, Cape Gooseberries in *yrup*, &c.

A large Cockcomb-shaped dark-coloured Strawberry, Waterloo, came from the *Society's* Garden. It is a vigorous grower, cropping well, and is of fairly good quality.

Messrs. *Vicars*, Collyer & Co., Leicester, showed a few fruits of an American *Blackberry*, the name of the

and Captain Christy being a good 2d and 3d in that order.

In the corresponding class for six varieties seven lots were put up. J. P. Budd, Esq., was a good 1st, his Princess of Wales and Marie van Houtte being very good; W. Narroay, Esq., was 2d; and W. J. Grant, Esq., was 3d, all showing creditable blooms.

OPEN CLASSES.

Fourteen stands of twelve single trusses of any Rose were put up.—1st, Messrs. Keynes, Williams & Co, with twelve superb blooms of Reynolds Hole; 2d, Messrs. Curtis, Sandford & Co., with Ulrich Brunner; and 3d, Mr. F. Cant, with Mons. Noman. The last named exhibitor was 1st for a like number of fine blooms of Maréchal Niel; 2d, Mr. B. R. Cant, with the same variety; 3d, W. J. Grant, Esq., with Marie van Houtte. Each exhibitor in this class got placed.

In the class for twelve blooms of any crimson Roses six stands were put up, the 1st prize going to Mr. George Pince, with Reynolds Hole; 2d, Messrs. Keynes, Williams & Co., with Xavier Olibo in fine form; and the 3d to Messrs. Curtis, Sandford & Co., with Marie Baumann.

In the corresponding class for twelve blooms of La France there were seven claimants for honours, all showing good blooms. 1st, W. J. Grant, Esq.; 2d, Mr. F. Cant; and 3d, Messrs. Curtis, Sandford & Co.

The prizes offered for six trusses of any new Rose of 1884 or 1885 brought up three exhibitors, Mr. B. R. Cant securing 1st prize with six perfect blooms of Madame Watteville; 2d, Messrs. Curtis, Sandford & Co., with Benoit Comte; Messrs. George Cooling & Son being a good 3d, with Alphonse Soupet.

LOCAL PRIZES (AMATEURS).

S. P. Budd, Esq., secured the 1st prize and the National Rose Society's Gold Medal for a stand of twenty-four varieties, single trusses; his best blooms were Prince Arthur, Camille Bernardin, and Xavier Olibo; 2d, Mr. J. Jolly.

The Rev. G. E. Gainer had the best stand of twelve distinct varieties, Mr. J. S. Pope the 2d best, and Mr. H. J. Walker the 3d best.

S. P. Budd, Esq., had the best stand of Teas, nine varieties, Princess of Wales being very good in this stand; 2d, Mr. F. Clerk; 3d, Mr. H. J. Walker.

Bouquets of Roses for the hand (open).—1st, Mr. John Mattock; Messrs. Cooling & Sons being a close 2d, with a good arrangement of small neat blooms in variety.

THE NATIONAL ROSE SOCIETY'S SILVER MEDALS.

Two of the National Rose Society's Silver Medals were awarded to the Rev. J. H. Pemberton and Mr. Frank Cant, the former for the best hybrid perpetual, and the latter for the best Tea or Noisette Rose (Souvenir d'Elise Vardon) in the show.

EALING, ACTON, and HANWELL:

July 7.

HELD in the fine pleasure-grounds of E. M. Nelson, Esq., Hanger Hill, Ealing, in beautiful weather, the exhibition was a great success, exceeding all previous ones in extent—this too, in spite of the fact that the Richmond show was somewhat perversely put back a week, thus taking the customary Ealing date. Not only were five huge tents entirely filled with exhibits, but entries were in excess of any previous year's. It is worthy of record that in this locality, where cottage gardens and allotments are so warmly encouraged, not only are twenty-six prizes awarded for the best of these, but that also some twenty-eight classes for cottagers at the show, and these brought no fewer than 473 entries, and of vegetables and fruits alone no less than 743 distinct dishes. A finer display of cottagers' produce cannot be seen at any similar exhibition.

Decorative groups formed a feature—one from Messrs. C. Lee & Sons, Hammersmith, quite excellent all that excellent firm's previous efforts. It was not less than 60 feet in length and proportionately broad, and was throughout edged with nice plants of the Bambusa Fortunei variegata, alternated with small Araucaria excelsa, and behind comprised of large numbers of pot Roses, Hydrangea paniculata, Spirea palmata, &c., in bloom; and Palms, Yuccas, standard Euonymus, Ixias, &c., in great variety. Messrs. Fromow & Sons, Chiswick, sent a neat group.

From Mr. Roberts, gr. to the Messrs. Rothschild, Gunnersbury Park, came a choice lot of plants, including some good Orchids, all admirably set up in a carpet of foliage plants.

Mr. Chadwick, gr. to E. M. Nelson, Esq., Hanger Hill, occupied the centre of one tent with a massive group of conservatory plants, which was of a very effective character; and Mr. Hudson, gr. to H. J. Atkinson, Esq., M.P., Gunnersbury House, also had a pleasing group of elegant foliage plants in great variety.

Mr. Chadwick was the fortunate winner of the 1st prize for the best-arranged large group of plants, one of a very pleasing kind, in which Liliums, Gloxinias, and the striking Pancratiums, told with good effect, a margin of Caladium Bellemey and Selaginella greatly aiding. Mr. A. Wright, Chiswick, was 2d, some good pink Hydrangeas lending colour. Mr. Hudson was 3d, with a pretty but rather thin group; and Mr. Fountain, gr. to Miss Wood, Hanger Hill, 4th.

Ferns are always good here, the best six coming from Mr. Fountain, who had good Davallia Mooreana, Dicksonia antarctica, fine Adiantums in variety. Mr. Smith, gr. to T. Nye, Esq., Ealing, had excellent Davallia elegans, Blechnum brasiliense, &c. Mr. Davis, gr. to H. G. Lake, Esq., Chiswick, had the best four Ferns, and the same exhibitor was 1st for six foliage plants.

Mr. Smith had the best four Caladiums, medium-sized, but well done. Mr. Fontaine coming 2d.

Very fine pyramid Fuchsias, full of growth and bloom, came from Mr. Smith. Mr. Wright, gr. to S. Greenfield, Esq., Hanwell, was 2d with very good plants, Mr. Davis had the best zonal Pelargoniums, good compact plants. The finest plants of Coleus, huge bush forms of Baroness Rothschild, Mrs. Simpson, Ada Sentence. The best Begonias, in bloom, came from Mr. Sutton, gr. to Mrs. Williamson, Ealing, and Mr. Fountain had the 2d best. A remarkable feature was found in the six huge pyramids of mosses sent by Mr. Wright, of Chiswick, each grew 2½ to 3 feet high, and proportionately broad. They were admirably done, and comprised Selaginella Martensii, M. stolonifera, M. variegata, uncinata, Kraussiana, and K. variegata.

CUT ROSES.

The open class for twenty-four trebles was not so well filled as on previous occasions, doubtless owing to the great heat which prevailed. Mr. C. Turner found it an easy task to win the 1st prize; and Mr. Rumsey, Waltham Cross, came 2d. The kinds shown were those so often recapitulated. Mr. Turner's blooms being excellent. This exhibitor also took the 1st prize for twelve Teas in the popular kinds; Mr. Elliot, gr. to Joseph Moore, Esq., Ealing, and Mr. Langdon, Ealing, following with excellent blooms. To another class Mr. Langdon was a good 1st with admirable fresh blooms. Mr. Sutton had the best box of stove Pelargoniums. Mr. Fulford, gr. to J. Boosey, Esq., Acton, the best cut Gloxinias; and Mr. Wright the best box of zonal Pelargoniums.

Good stove and greenhouse flowers came from Mr. Stevens, gr. to F. Taitz, Esq., and Mr. Chadwick, who also had the best hardy flowers. These, with the plants, are but a few mentioned from many, for full details of the exhibits would be impossible.

A handsome wedding bouquet from Mr. J. Morris, Acton, took 1st prize in one class, and Mrs. G. Weedon, Ealing, had the best bouquet of Roses. In the chief class for dinner-table stands, Mrs. Hudson, Gunnersbury, won a silver salver with arrangements hardly up to her usual form. Mrs. Chadwick, Hanger Hill, came 2d, and Miss Dean, 3d, with very pleasing stands. Floral baskets were numerous and pretty, one composed of orange-scarlet Begonias, with foliage was much admired. Mrs. H. B. Smith, Ealing, had two superb bouquets, one having a base of Lilium lancifolium rubrum, dressed with single flowers of Odontoglossum Alexandrinæ, and the other of white, scarlet and rose Carnations; also some beautiful sprays for ladies adornment. From Messrs. J. Veitch & Sons, and C. Lee & Sons, came fine collections of cut Roses.

Fruit and vegetables were abundant and excellent. Mr. Lockie, gr. to Lord Obo Fitzgerald, Oakley Court, Windsor, staged some fine Melons, Beauty of Windsor being of such splendid quality as readily to secure a Certificate of Merit. Of Grapes, Mr. Wilson had the best blacks in fine Hamburgs; Mr. Baird, gr. to C. A. Daw, Esq., Ealing, having good Madresfield Court. Mr. Smith had in white kinds good Muscat of Alexandria, and Mr. Baird, Foster's Seedling. This latter exhibitor had the best collection of fruits. The best Strawberries came from Mr. Galandring, gr. to B. Vingley, Esq., Greenford, whose dishes of Jas. Veitch and Sir J. Paxton were grand. Mr. Wilson took 1st prize for vegetables with an admirable collection.

SIDCUP HORTICULTURAL: July 10.

THE leading feature of this exhibition was Roses, and for a suburban district it had a Rose show of extraordinary dimensions and of unusual interest. Prizes were offered in four classes, open to all-comers, and in that for forty-eight varieties, single trusses, eight lots competed, the exhibitors representing some of the leading trade and amateur growers of the day. The 1st prize was awarded to T. W. Girdleston, Esq., Sunningdale, who set up a magnificent lot of blooms—as good a lot as we are likely to look upon this season, comprising Crown Prince, Victor Verdier,

Jean Ducher, Reynolds Hole, Marie Finger, Charles Lefebvre, Madame Emma Hall, Abel Carrière, Comte Raimbald, Baroness Rothschild, Dr. Sewell, Souvenir de Madame Alfred Vy, Mons. Noman, Prince Arthur, Madame Geo. Schwarz, Marie Baumann, Merville de Lyon, Duke of Teck, Marquise de Castellane, St. Louis of Waltham, Pride of Waltham, Madame A. Dumesnil, Duchesse de Valombrosa, Horace Vermet, Etoile de Lyon, Henri Ledechar, Madame Bravy, Jean Lamy, Souvenir d'Elise Vardon, Thomas Mills, Caroline Kuster, Etienne Levett, Mons. E. Y. Teas, Catherine Mernet, Françoise Michelon, Innocente Pirola, Général Jacqueminot, A. K. Williams, Constantine Treitakoff, a beautiful cerise-rose; Lord Macaulay, the foregoing may be taken as a good &c. The selection of cut Roses for show purposes. 2d, B. R. Cant, nurseryman, Colchester, with a fine lot of blooms, a few of the most striking being Comtesse d'Oxford, Earl of Pembroke, Louis van Houtte, Reynolds Hole, Merville de Lyon, Jules Chretien, bright crimson-red, large and full; Queen of Queens, very fine; Charles Lefebvre, A. K. Williams, Souvenir d'Elise Vardon, Marie Baumann, Etienne Levett, Ulrich Brunner. A fine stand, shown by Messrs. Paul U. Schuch, should have been placed 3d, but a collection from Mr. W. Rumsey, Waltham Cross, was preferred to it, Messrs. Paul & Son receiving an extra prize. A good collection from Mr. F. Cant, Colchester, had to be disqualified through containing two blooms of Madame de Watteville.

In the class for twenty-four varieties Mr. B. R. Cant was placed 1st, with a good lot, comprising Horace Vermet, Marquise de Castellane, Duchesse de Morny, Comtesse d'Oxford, Alfred Colomb, Le Havre, Madame de Watteville (the Colchester soil appears to bring out this Tea-scented variety in fine character), Marchal Niel, Madame Eugene Verdier, A. K. Williams, &c.; 2d, R. E. West, Esq., Reigate; 3d, T. W. Girdleston, Esq. It will thus be seen that the amateurs were more than equal to some of the most noted trade growers.

The best twelve Teas and Noisettes came from Mr. B. R. Cant, who had remarkably fine flowers of Catherine Mernet, Souvenir d'Elise Vardon, Comtesse de Nadailac, Marchal Niel, Souvenir d'un Ami, Etoile de Lyon, Madame de Watteville; 2d, Mr. F. Cant, with a remarkably good lot also; 3d, Messrs. Geo. Bunyard & Co., Maidstone.

T. W. Girdleston, Esq., had the best six trusses of any one variety, staging fine Marie Baumann; 2d, Mr. B. R. Cant, with Ulrich Brunner; 3d, Mr. F. Cant, with Marchal Niel. Several fine lots were exhibited in this class.

In addition to the foregoing prizes many others were offered for the encouragement of amateur Rose culture, and some very good flowers were staged in the classes. Mrs. Fuller, of Bexley, had the best twenty-four, and also the best twelve; Mr. G. T. Ongley, of Eltham, being 2d in both classes. Mr. E. A. Lockhart, Sidcup, had the best six; Mr. S. Hodgkinson, Sidcup, being 2d. Mr. Ongley had the best six. Tea-scented varieties, Mrs. Fuller being 2d.

Special prizes were offered by several of the trade growers: thus Messrs. Geo. Bunyard & Co. offered prizes for twenty-four Roses, twelve H.P.'s and twelve Tea-scented, Mr. G. T. Ongley being 1st; Mr. W. Rumsey, Waltham Cross, offered prizes for the best twelve Roses, and Mr. Ongley again beat all the competitors. Mr. B. R. Cant's special prize for eighteen blooms went to Mr. Fuller of Bexley. Sidcup and Bexley grow good Roses, for Strawberries and other fruits are largely grown there, and what suits the latter, appears to do well for Roses also.

It is not necessary to go into detail in reference to the many classes in the schedule for plants, flowers, &c., but it may be mentioned that the Silver Medal of the Society was awarded to Mr. Thomas Crisp, gr. to Earl Sydney, Froggall, Port of Cray, for a group of plants, including some admirable pot Vines; while a fine group of fruit trees in pots from Messrs. Thomas Rivers & Son, Sawbridgeworth, consisting of Vines, Peaches, Nectarines, Cherries, Apples, &c., was also a large and showy group of plants from Mr. B. S. Williams, Victoria Nurseries, Holloway; one from Messrs. J. Laing & Son, nurserymen, Forest Hill, including some fine Begonias; and one from Messrs. James Carter & Co., Holborn and Forest Hill, containing among other things some excellent Stocks growing in pots, were highly commended.

AYLESBURY FLORAL and HORTICULTURAL: July 8.

THE annual exhibition of this Society took place, as usual, in the Corn Exchange and Meat Market, in the centre of the town; and, though the buildings do not show off the exhibits to the same advantage as tents, they were certainly cooler, besides being so central. It was an exhibition decidedly in advance of that of last year, and, large as the buildings are, they were scarcely roomy enough to take all the exhibits sent for competition.

GROUPS OF PLANTS

were a good feature, and were found round the sides of the Corn Exchange, tables being placed down the centre. Lord Rothschild's special prize was awarded to Mr. Alfred Bradshaw, gr. to Baron F. de Rothschild, Waddesdon, Aylesbury, for a bold group, consisting of specimen Palms, Crotons, Orchids, Caladiums, Ferns, including some fine *Todea superba*, &c.

In competition for the special prizes given by the President, Alfred de Rothschild, Esq., for the best collection of plants arranged for effect, Mr. Gibbs, gr. to Miss Alice de Rothschild, Elythorp, Aylesbury, was placed 1st, having a fine group, comprising Orchids in variety and other flowering plants mingled with Palms, Ferns, &c.; Mr. Shrimpton, gr. to Lady de Rothschild, Aston Clinton, Tring, was 2d, also with a good collection.

Baron F. de Rothschild offered special prizes for the largest and best collection of plants, the 1st prize going to Mr. Gibbs; Messrs. Ingram & Whitfield, florists, Aylesbury, being 2d. The competition in the foregoing class was very great.

There was a class for the best general collection of plants, flowers, and fruit; and Mr. Robins, gr. to E. D. Lee, Esq., Hartwell, Aylesbury, was 1st, fruit being a strong point; Mr. Maggs, gr. to C. Threlfall, Esq., Aylesbury, 2d.

FERNS.

Mr. Shrimpton displayed the best six plants, putting up good specimens of *Dicksonia antarctica*, *Blechnum brasiliense*, *Adiantum formosum*, *A. Farleyense*, *A. cuneatum*, and *Gymnogramma chrysophylla*; 2d, Mr. Beal, gr. to H. Cazenove, Esq., Aylesbury. Mrs. Gunn, Aylesbury, had the best three varieties; H. Gurney, Esq., Aylesbury, being 2d; the latter staged the best three Mosses.

BEGONIAS.

Some excellent tuberous-rooted Begonias were shown by Mr. Wheeler, gr. to F. Parrot, Esq., Aylesbury, and no one visiting country shows can help being struck with the marked improvement in the culture of these during the past few years. Mr. H. Cazenove was 2d.

There were other classes for plants, but those mentioned were the leading features in the plant classes.

CUT FLOWERS.

Roses were a leading feature, and a special prize for twenty-four blooms brought a good competition: Mr. J. Walker, nurseryman, Thame, being 1st, with fine blooms of *Marquise de Castellane*, Reynolds Hole, Comtesse d'Oxford, Charles Lefebvre, Mille Bonnaire, Senateur Vaisse, Prince Camille de Rohan, Marie Van Houtte, Maréchal Niel, &c.; 2d, Mr. Gibbs, Mr. H. Cakbread, gr. to Sir P. Rose, Bart., Rayners Penn, had the best thirty-six varieties, Mr. Robins being 2d. In the class for twelve varieties, Mr. T. Antiss, Brill, Bucks, was 1st; and Mr. C. A. Lippincott, 2d. There were prizes for collections of cut flowers, for florist flowers in six varieties—Carnations and Picotees, &c., but the classes contained nothing worthy of special notice.

The best three pieces for table decoration came from T. B. Barnett, Esq., Aylesbury (Mr. White, gr.), made up mainly with varieties of *Centaurea* minor, and very pretty they were: Mr. Smith, gr. to the Duke of Buckingham, Wootton, Bucks, was 2d.

FRUIT

was fairly well represented. The only exhibitor of twelve dishes in competition for the special prize given by Leopold de Rothschild, Esq., was Mr. Robins, who had Black Prince and Foster's Seedling Grapes, Grosse Mignonne, and Early York Peaches; Lord Napier and Violet Hative Nectarines, Figs, Strawberries, Melon, &c. In the class for two bunches of Grapes, Mr. G. T. Miles, gr. to Lord Carington, Wycombe Abbey, was 1st, with fine samples of Gros Maroc and Muscat of Alexandria. Mr. Cakbread, being with excellent Black Hamburgh, and Foster's Seedling. Mr. Morton, gr. to H. A. P. Cooper, Esq., Aylesbury, had the best three dishes of Strawberries, staging good fruits of Amateur, President and James Veitch. Mr. Cazenove had the best two dishes, staging Empress Eugénie and President. Mr. Cakbread had the best dish of Peaches in Belle Bance, a very fine half-dozen indeed. Mr. Robins being 2d.

VEGETABLES

were extensively and finely shown, and filled a considerable space of tabling. Excellent specimens of these are grown about Aylesbury, but the drought is being felt there, and rain is urgently needed, especially by the main crops of Potatoes.

Tsuga Sieboldii.—A fine specimen of this was shown at Liverpool by Messrs. Barron, of Borrowash. It is like the common Hemlock Spruce, but has bold foliage, and is hardier, starting in spring some two or three weeks after the variety nana.



STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, JULY 14, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRICAL DEVIATIONS FROM GLAISHER'S TABLE 7th Edition.		WIND.	RAINFALL.
	Mean Reading Required to be at 32° Fahr. at 18 years.	Mean Reading at 18 years.	Highest.	Lowest.	Range.	Mean for Day.	Dew Point.	Difference of Sat. = 100.		
July	In.	In.	°	°	°	°	°	°	In.	
8	29.65	-0.16	67.5	59.0	8.5	61.8	0.2	49.6	65	N.N.W. 0.00
9	29.86	+0.05	63.5	51.0	12.5	56.4	-5.7	47.7	73	S.S.W. 0.00
10	30.00	+0.18	66.2	48.0	18.2	57.6	-4.6	48.8	71	S.S.W. 0.00
11	29.99	+0.17	72.8	49.0	23.8	61.0	-1.3	49.6	67	W. S.W. 0.00
12	29.79	-0.03	66.5	57.5	9.0	60.3	-2.1	59.1	95	S.W. 0.24
13	29.73	-0.09	73.0	49.0	24.0	59.9	-3.3	53.3	78	S.W. 0.16
14	29.33	-0.49	69.8	53.0	16.8	56.4	-3.4	47.8	70	S.W. 0.38
Mean	29.76	-0.05	68.5	48.6	19.9	4.0	-2.0	50.7	74	Variable. 0.73

July 8.—Fine day, overcast at times.
 9.—Fine, occasionally overcast.
 10.—Dull.
 11.—Fine day.
 12.—Rain in early morning, and all the afternoon.
 13.—Rain in early morning; fine day; rain between 11 P.M. and midnight.
 14.—Fine and bright in early morning, and at times during the day; heavy rain from 8.45 A.M. to 9 A.M. Strong wind.

LONDON: Atmospheric Pressure.—During the week ending July 10, the reading of the barometer at the level of the sea increased from 30.30 inches at the beginning of the week, to 30.34 inches by 9 A.M. on the 4th, decreased to 30.26 inches by 5 P.M. on the same day, increased to 30.29 inches by 9 A.M. on the 5th, decreased to 29.80 inches by 9 A.M. on the 8th, increased to 30.19 inches by 9 A.M. on the 10th, and was 30.18 inches by the end of the week.

The mean reading of the barometer for the week was 30.09 inches, being 0.17 inch lower than last week, and 0.10 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 86°.8 on the 7th; on the 9th the highest temperature was 63°.5. The mean of the seven high day temperatures was 76°.5.

The lowest temperature was 48°.0, on the 10th; on the 5th, the lowest temperature was 61°.0. The mean of the seven low night temperatures was 56°.2.

The greatest range of temperature in one day was 29°.2, on the 6th; on the 8th the smallest, was 8°.5. The mean of the seven daily ranges was 20°.3.

The mean temperatures were, on the 4th, 71°.7; on the 5th, 71°.0; on the 6th, 69°.2; on the 7th, 69°.3; on the 8th, 61°.8; on the 9th, 56°.4; and on the 10th, 57°.6; of these the first four were above their averages by 1°.4, 9°.5, 7°.6, and 7°.5 respectively, and the rest were below by 0°.2, 5°.7, and 4°.6 respectively.

The mean temperature of the week was 65°.3, being 1°.9 higher than last week, and 3°.5 above the average of the week.

The highest reading of a thermometer with blacked bulb in vacuo placed in the full rays of the sun, was 139°.5 on the 6th. The mean of the seven readings was 122°.8.

Rain.—No rain fell during the week.

ENGLAND: Temperature.—During the week ending July 10, the highest temperatures were 83°.0 at Cambridge, 86°.8 at Blackheath, 83°.5 at Nottingham; the highest at Newcastle was 70°.0, at Liverpool, 72°.0, at Bradford, 78°.6. The general mean was 80°.9.

The lowest temperatures were 40°.0 at Sheffield, 41°.6 at Wolverhampton, 43°.7 at Truro; the lowest at Brighton was 52°.7, at Liverpool 50°.7, at Preston, 50°.7. The general mean was 46°.1.

The greatest ranges were 44°.2 at Cambridge, 43°.7 at Sheffield, 40°.2 at Wolverhampton; the least ranges were 21°.3 at Liverpool, 23°.7 at Newcastle, 26°.0 at Brighton. The general mean was 34°.8.

The mean of the seven high day temperatures was highest at Cambridge 77°.4, at Blackheath 76°.5, at Plymouth 75°.0; and was lowest at Newcastle 65°.5, at Liverpool, 65°.7, at Preston 69°.9. The general mean was 72°.3.

The mean of the seven low night temperatures was highest at Brighton 56°.5, at Blackheath 56°.2, at Plymouth 55°.0, and was lowest at Sheffield 48°.0, at Wolverhampton 50°.2, at Cambridge 51°.2. The general mean was 53°.1.

The mean daily range was greatest at Cambridge 26°.2, at Wolverhampton 23°.9, at Sheffield 22°.6, and was lowest at Liverpool 11°.9, at Newcastle 14°.2, at Preston 15°. The general mean was 19°.2.

The mean temperature was highest at Blackheath 65°.3, at Plymouth and Brighton 63°.1, and was lowest at Newcastle 56°.5, at Sheffield 57°.4, and at Liverpool 57°.9. The general mean was 60°.8.

Rain.—The largest falls were 0.14 inch at Nottingham, 0.11 inch at Leeds, 0.08 inch at Preston; the smallest falls were 0.02 inch at Brighton and Cambridge. No rain fell at Plymouth, Bristol, Blackheath, Wolverhampton, Sheffield, or Liverpool. The general mean fall was 0.04 inch.

SCOTLAND: Temperature.—During the week ending July 10th, the highest temperature was 78°.0, at Aberdeen, at Paisley the highest was 66°.8. The general mean was 72°.1.

The lowest temperature in the week was 37°.5, at Perth; at Leith the lowest temperature was 44°.1. The general mean was 41°.4.

The mean temperature was highest at Perth 58°.5, and lowest at Greenock 55°.8. The general mean was 57°.5.

Rain.—The largest fall was 0.55 inch at Dundee, and the smallest fall was 0.07 inch at Aberdeen. The general mean fall was 0.26 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, July 12, 1886, issued by the Meteorological Office, 116, Victoria Street, London, S.W.—The weather continued fine during the earlier days of the period, but subsequently became cloudy or dull, with a general, but not heavy, fall of rain.

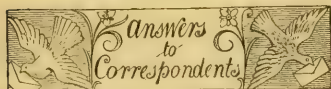
The temperature has equalled the mean in the "Midland Counties," "England, S.," and the "Channel Islands," but in all other districts it has been below it, the deficit ranging from 1° in "Scotland, E.," and "England, S.W." to 3° in "Ireland, N.," and 4° in "Scotland, N." The highest of the maxima, which were registered on the 6th over England and in most parts of Ireland, and on the 11th in Scotland, ranged from 65° in the N. and W. of Scotland to 75° in "England, N.E." and "Ireland, S.," 76° in the "Channel Islands," and to 85° in "England, S.," and 89° in "England, E." The lowest of the minima, which were recorded either on the 9th or 10th, ranged from 33° in "Scotland, N.," 35° in "England, S.W.," 37° in "Scotland, E.," and 38° in "Scotland, W.," to 44° in "England, S.," and to 50° in the "Channel Islands."

Rainfall has been a little more than the mean in the south-west, south, and east of England, and equal to it in the north of Scotland, but in all other parts of the Kingdom it has been less than the normal value.

Bright Sunshine has been more prevalent than it was last week in the north and east of Scotland, but in all other districts a decided decrease is shown—especially in Ireland. The percentages of the possible amount of duration ranged from 20 in "Ireland, N.," and 24 in "Ireland, S.," to 43 in "England, S.," 44 in "Scotland, E.," and "England, S.W.," and to 62 in the "Channel Islands."

Depressions observed.—Some large, but shallow disturbances passed in an easterly direction to the northward of Scotland, and a very few small and shallow subsidaries over our islands, but beyond these no depressions have appeared in our neighbourhood. Light to moderate breezes from between N. and N.W. or N. have been most general over the

United Kingdom, but towards the end of the period the wind on our W. and N.W. coasts backed to the south, and increased considerably in force.



* * OUR TELEGRAPHIC ADDRESS.—Our correspondents are requested to bear in mind that our Registered Telegraphic Address is "GARDCHRON, LONDON. Telegrams (but not letters) thus addressed will reach the Editor or the Publisher without other address being needed.

AGARIC IN MUSHROOM-HOUSE: *R. M. L.* No; the Agaric is neither Agaricus *venosus* nor *A. phalloides*, but a large white variety of *A. cepesipes*, and probably of exotic origin. The first mentioned fungus is a mere variety of the second. *W. G. S.*

BOUVARDIA: *G. Russell.* Unfortunately too common. Cut the plants in hard—the young growth that follows may be healthy. We know neither the cause nor the cure.

CAPE FIBRES: *E. G. H.* Most of these enjoy a warmer temperature than that of a greenhouse, and you could not do better than to pot them at once into pots just large enough to hold the bulb, sinking them to about half their depth in the soil, which should consist of good rich loam mixed with a little dried cow-manure very firm potting, so see that the soil below the bulb is firmed before placing the bulb thereon, and that the soil around it is made firm with the hand. Put the plants by themselves, as they usually abound with mealy-bug and other pests. A pit or frame on a mild hotbed of leaves will suit them, especially if about 6 inches of finely sifted coal-ashes be placed over the surface, into which the pots may be plunged. Give little or no water until signs of growth appear, and afterwards it must be given with great care. A shelf in a stove near the light will suit them during the winter. After treatment will depend on the species and the time the bulbs flower.

CORRECTIONS AND ADDENDA.—Messrs. Sutton & Sons, Reading, received a Gold Medal, and not a Bronze, for their fine display noticed in our report of the Provincial Show of the Royal Horticultural Society at Liverpool. Mr. Laxton's new Strawberry, "Noble," at the same show, was awarded a First-class Certificate.—At p. 56, "Miscellaneous," in report of Tunbridge Wells Show, for Mr. A. H. Webber, Tunbridge Wells, read, Mr. F. Webber, Tonbridge.

FRUIT TREES: *J. F.* After laying-in now what young wood is required on Pears and Plums, the forelight and other wood of the previous year can be cut back to within four buds of the point from which the shoots originated, to be still further shortened according to the habit of fruit bearing of the particular sort at the general pruning. Were it not for the great amount of time required to carry it out, the pinching back of young growths whilst still green and soft would be the better way, as then less of the vigour of the trees would be wasted in wood which at last has to be sacrificed.

FUNGI ON PLANTS: *H. Munro.* 1, on Silver Fir is *Peridermium elatinum*; 2, on leaves of Strawberry is *Oidium balsami*, described in *Illustrated Gardeners' Chronicle*, September 25, 1886—also common on Turnip leaves; 3, on Viola leaf *Æcidium depauperans*, described and illustrated *Gardeners' Chronicle*, September 16, 1876. *W. G. S.*

GENERAL INDEX TO BOTANICAL PLATES: *W. H. T.* Pritzel's *Iconum Botanicorum Index* is the work you want. The supplements bring the work down to 1886. Our index of plants by botanical and horticultural names for garden plants; see our Index for each half-yearly volume.

GRAFTING BLACK HAMBURG AND MADRESFIELD COURT VINES ON ROYAL MUSCADINE: *Old Subscriber.* We do not doubt the capability of this as a stock for either of these, but it would be likely to cause diminution of size in bunch and berry, and might influence the flavour. The experiment is worth trying.

INSECT ON ORCHID: *J. H. G.* The specimens were smashed in the post; send some wrapped in damp blotting-paper, and enclosed in a tin box.

INSECTS: *W. P. & Sons.* It is one of the weevils, which are all very destructive to vegetation. The insects feed during the night, when they may be caught by spreading a sheet beneath the Vines or other plants before dawn, and then going into the houses suddenly with a light; many are thus scared and fall on the sheet: these should be quickly collected and destroyed. During the day the insects hide in chinks and under stones, where they can be destroyed in great numbers by pouring hot-water into their haunts. By following up these methods the creatures can be kept within bounds.

INSECTS IN PEAR TREE BARK: *J. R.* In the spring and early summer the larvæ can be killed in the holes by inserting a piece of wire, or by the application of strong insecticides injected by means of a small syringe into the holes. Where the insects, abound it will be

found a better practice to coat the stems and main branches with a mixture of clay, lime, and soot, to which a little tar or spirits of tar can be added. This is not unsightly, and is distasteful to most living things.

MOSS ON TREES: *W. G. S.* Moss is not injurious when not over-abundant, but it is often a sign of water stagnant in the soil, and of great moisture in the surrounding air. During the winter, when the moss is damp, with powdered quicklime, or white-washing the trees, will rid you of the objectionable parasite.

NAMES OF PLANTS: *A. Young.* The shrub is *Rubus odoratus*, the flower the Parrot Tulip.—*W. J.* A medium-sized flower of *Phalenopsis grandiflora*, sent from *Amabilis*.—*H. M.* The *Thunia* is very like *Marshallia*.—*W. S.* A nice pale form of *Cattleya Gaskelliana*.—*Barr & Son.* *Gladiolus communis*.—*M. & C.* *Sibthorpia peregrina*.—*E. H. J.* *Linaria Elissieriana*.—*H. J. K.* A very bad common *Cattleya Elissieriana*.

SUBJECTS TO PLANT IN A HEATED HOUSE OF 60 FEET IN LENGTH: *As a Source of Food.* *H. Woolmer.* You might grow Tomatoes and Cucumbers together or separate for early work, or very late Grapes of good keeping kinds. In plants there are numerous subjects. You might cover the roof with *Stephanotis floribunda*, growing *Adiantum* underneath; or you could grow *Marichal Niel* Roses.

VINE LEAVES: *C. H.* Your Vine leaves have the appearance of having been burnt. The ventilation has probably not been well attended to and the house may be too dry. There is neither disease nor decay present; want of attention to the above details is the cause of the appearance.

WEED ON LAWN: *R. C. Crepis biennis.* When did you mow your lawn last? You are going the best way to stock your lawn with this weed. Copious mowing will favour the grasses and proportionately enfeeble the weeds. Meantime carefully cut off all the flowers to prevent their seeding.

WHITE-SKINNED CUCUMBER: *Cucumber.* The form is that of the common ridge variety the "short prickly," only the spines are quite rudimentary. You are probably a descendant, but probably unintentionally, the differences between the "Telegraph," and this one being too marked for any one to fancy he could send out the one for the other.

* * All communications intended for publication should be addressed to the "Editor." Such communications should be written on one side only of the paper and sent as early in the week as possible, so that our correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

INTELLIGENT READERS, DO PLEASE NOTE.—Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and NOT to the Editor.

FOREIGN SUBSCRIBERS sending Post-Office Orders are requested to send them to the Publisher of this journal, 47, Wellington Street, Covent Garden, and to make them payable to William Richards, at the Post-Office, Drury Lane, London, W.C.

COMMUNICATIONS RECEIVED.—*W. H. T.*—*D. M.*—*T. H. P.*—*Drinkstone Park*.—*J. C. Arthur*, New York.—*A. G. J.*—*Ed. André*, Paris.—*J. W. A. K.*—*T. C. W.*—*S. L. O.*—*W. J. F.*—*T. M.*—*H. G. R.*—*W. G. S.*

Markets.

COVENT GARDEN, July 15.

[The subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. Ed.]

OUR market is heavily supplied with all classes of goods, and clearances are only made at a sacrifice, *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s.	d. s.
Cherries, ½ sieve ..	3 0-60
Blackberries, ½ sieve ..	3 0-60
Figs, per dozen ..	2 4-0
Grapes, per lb.	1 3-30
Lemons, per case ..	18 0-30

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s.	d. s. d.
Artichokes, per doz. ..	2 0-0
Asparagus, Eng. 12 b. ..	2 0-0
— French, bundle 2 6-0	
Broad Beans, 12 b. ..	3 0-0
Beet, red, per dozen ..	2 0-0
Carrots, per bunch ..	0 6-0
Cauliflowers, per doz. ..	0 6-0
Celery, per bundle ..	1 0-0
Coleworts, doz. bunch ..	0 6-0
Cucumbers, each ..	0 6-0
— Spruce, per dozen ..	0 6-0
Herbs, per bunch ..	0 4-0
Leeks, per bunch ..	0 4-0
Lettuce, per dozen ..	0 6-0
Mint, green, bunch ..	2 0-0
Mushrooms, punnet 1 6-0	
Mustard and Cress, doz. ..	0 4-0
Onions, per bushel ..	2 0-0
Potatoes, dozen bunch ..	0 5-0
— Potatoes, per cwt. ..	4 0-0
Spinach, per bushel ..	3 6-0
— Spruce Asparagus, per bundle ..	2 0-0
Tomatoes, per lb.	2 6-0
Turnips, bunch ..	0 6-0
Veget. Mar., each ..	0 6-0

POTATOES:—Best Kidneys, 7s.; Rounds 5s. per cwt.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s.	d. s. d.
Aralia Sieboldi, doz. ..	9 0-18 0
Bedding Plants, various, per dozen ..	3 0-12 0
Begonia, per dozen ..	6 0-12 0
Bouvardia, doz. ..	12 0-18 0
— Celestina, per doz. ..	5 0-10 0
— Cyrena, per dozen ..	4 0-10 0
Dracena terminalis, per dozen ..	3 0-60 0
— viridis, per doz. ..	12 0-18 0
Ericas, various, doz. ..	12 0-18 0
Eucydonus, in var., per dozen ..	6 0-18 0
Evergreens, in var., per dozen ..	6 0-24 0
Ferns, in var., doz. ..	4 0-18 0
Foliage Plants, various, each ..	2 0-10 0
— Fuchsia, doz. ..	3 0-12 0
— Hydrangeas, doz. ..	9 0-18 0
— Lobelia, per dozen ..	3 0-60 0
— Marguerite Daisy, per dozen ..	8 0-12 0
— Mignonette, per doz. ..	4 0-60 0
— Musk, per dozen ..	2 0-40 0
— Myrtle, per dozen ..	8 0-12 0
— Nasturtium, dozen ..	3 0-60 0
— Palms in var., each ..	2 0-60 0
— Pelargoniums, doz. ..	6 0-12 0
— scarlet, per doz. ..	3 0-60 0
— Petunias, dozen ..	2 0-60 0
— Pelonies, 12 blooms ..	1 0-12 0
— Spiraea, per dozen ..	6 0-12 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s.	d. s. d.
Arum Lilies, 12 blms. ..	4 0-60 0
Asters, 12 blooms ..	0 6-0 0
Bouvardia, per bun. ..	6 0-10 0
Campanulas, 12 bun. ..	4 0-90 0
Campanulas, 12 blms. ..	1 0-30 0
Cornflowers, per bun. ..	1 6-30 0
Daisies, common, 12 bunches ..	2 0-40 0
Delphiniums, 12 bun. ..	3 0-60 0
— Sacharini, per dozen ..	2 0-40 0
Forget-me-Not, or Myosotis, 12 bun. ..	2 0-40 0
— Cornflowers, 12 bun. ..	2 0-40 0
— Pyrethrums, 12 bun. ..	2 0-60 0
— Rhodanthus, 12 bun. ..	6 0-90 0
— red, per dozen ..	2 0-40 0
— outdoor, 12 bun. ..	3 0-90 0
— Gladioli, 12 bun. ..	6 0-90 0
— Lilium candidum, 12 ..	6 0-15 0
— 12 blooms ..	0 6-10 0
— Lilium longiflorum, 12 blooms ..	4 0-60 0
— Marguerites, per bun. ..	3 0-60 0
Mignonette, 12 bun. ..	3 0-90 0
Pansies, 12 bunches ..	10 0-30 0
Pelonies, 12 blooms ..	1 0-12 0
Pelargoniums, per 12 trusses ..	0 9-10 0
— 12 blms. ..	0 9-10 0
— Fuchsias, var. 12 bun. ..	2 0-40 0
— Pyrethrums, 12 bun. ..	2 0-60 0
— Rhodanthus, 12 bun. ..	6 0-90 0
— Sweet Sultan, 12 bun. ..	3 0-40 0
— Tuberose, 12 blms. ..	4 0-12 0

CORN.

MARK LANE: July 12.—The Wheat trade opened with a firmer tone, which improved towards the close, and rather better prices were obtained for some descriptions of foreign. The flour trade was slow, and the large imports into London are against prices, but the receipts of English are very small, which is calculated to help them a little. Barley was firm, and met rather more inquiry. Beans were also firm at late rates. With rather more supply Peas were 6d. lower on the week, and there was a surplus of Oats put the market rather in favour of buyers.

July 14.—There was not much animation in the trade to-day, but the tone was steady. Both English and foreign Wheat supported Monday's prices. Flour met little inquiry, and remained steady. Barley was steady, with a moderate demand. Oats were slow of sale. Beans tended against buyers, and Peas sold slowly at Monday's rates.

FRUITS AND VEGETABLES.

COLUMBIA (East London): July 14.—Plentiful supplies, for which there was a fair demand. Prices:—Black Currants, 5s. to 5s. 6d. per half sieve; Red Currants, 4s. 6d. to 5s. 0d.; Gooseberries, 3s. 6d. to 5s. 0d. per bushel; Cherries, 3s. 6d. to 4s. 6d. per half sieve; Strawberries, 5s. to 6s. 6d. per peck; Cabbages, 5s. to 7s. 6d. per tally; bunch Greens, 3s. to 3s. 6d. per dozen bunches; do. Onions, 4s. to 4s. 6d. per doz. do. Carrots, 3s. to 4s. 0d.; Broad Beans, 2s. 6d. to 3s. 6d. per sieve; Peas, 4s. to 4s. 6d. per bushel; Lettuce, 2s. to 2s. 6d. per doz. Lettuce, 2s. to 2s. 6d. per doz. Mint, 2s. per dozen bunches; Parsley, 2s. 6d. do.

STRATFORD: July 13.—There was a good supply, and a fair trade at the following prices:—Cabbages, 4s. to 6s. per tally; Greens, 1s. to 1s. 6d. per bunch; Onions, 1s. 6d. to 1s. 9d. per ton; Peas, 3s. to 5s. 6d. per bag; Lettuce, 4d. to 6d. per peck; Cherries, 3s. to 6s. per basket; Gooseberries, 4s. 6d. to 7s. 6d. per sieve; do. green, 1s. to 2s. 0d.; Currants, black, 3s. 6d. to 4s. 6d. per sieve.

POTATOES.

BOROUGH AND SPITALFIELDS: July 13.—Fair supplies of foreign, and fairly suitable assortment of English. Prices:—Jersey forewings, 7s. to 8s.; Jersey and Kidneys, 6s. to 7s.; Rounds, 3s. 6d. to 4s. 6d. per cwt.

COLUMBIA (East London): July 14.—Quotations:—Jersey kidneys, 6s. 6d. to 8s.; do. rounds, 5s. to 6s.; St. Malo kidneys, 6s. to 7s. 6d.; do. rounds, 4s. 6d. to 5s. 6d.; Cherbourg kidneys, 6s. 6d. to 7s. 6d.; do. rounds, 4s. 6d. to 5s. 6d. per cwt.; Magnums, 5s. to 6s.; Champions, 4s. to 5s. per ton.

HAY.

WHITECHAPEL: July 13.—The supply was short, and there was a fair demand for best quality. Quotations:—Clover, prime, 90s. to 107s.; inferior, 70s. to 85s.; hay, prime, 70s. to 95s.; inferior, 45s. to 65s.; and straw, 25s. to 37s. per load.

July 15.—A moderate supply was on sale. The trade was fair, and prices dearer for Clover.

CUMBERLAND (Regent's Park): July 13.—A good supply, with a firm trade for meadow hay, but dull for Clover. Quotations:—Clover, best, 90s. to 105s.; second, 75s. to 85s.; hay, best, 70s. to 85s.; inferior, 50s. to 60s.; and straw, 30s. to 35s. per load.

Government Stock.—Consols closed on Monday, Tuesday, and Wednesday at 101½ to 101½ for both delivery and the account. Thursday's closing prices were 101½ to 101½ for both delivery and the account.

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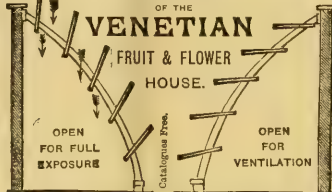
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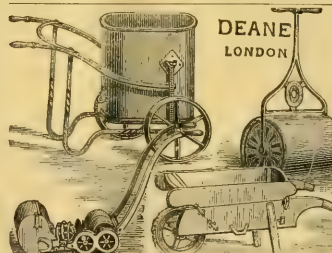
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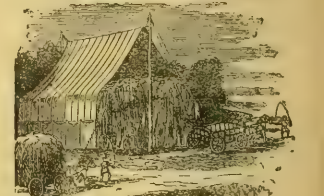
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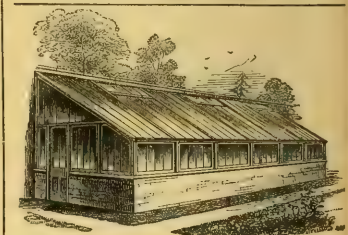


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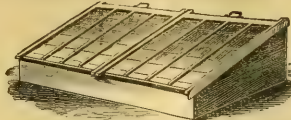
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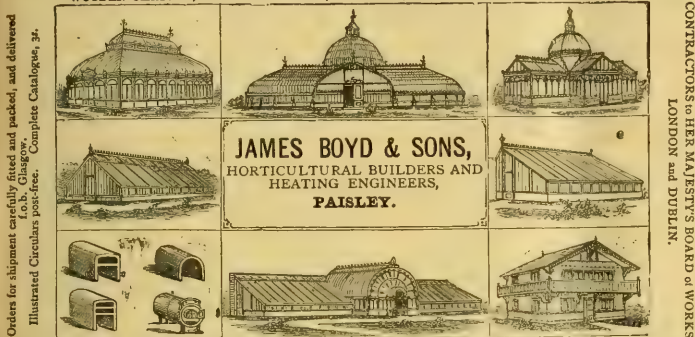
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FROM

TO

W. RICHARDS,

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LONDON, W.C.

1886.

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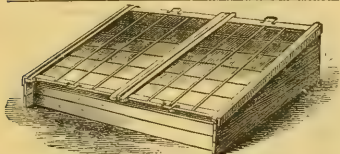
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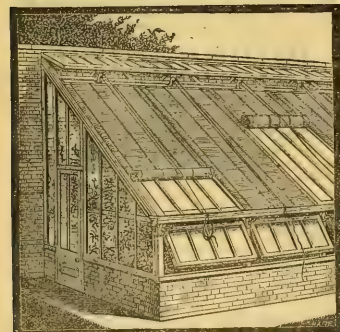
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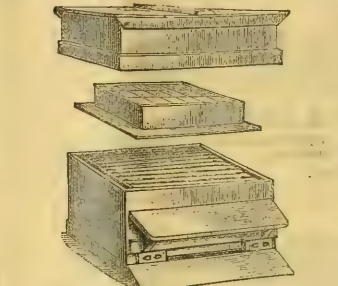
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WILLIAM J. VIAN, Secretary.

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Working Head Gardener.

WANTED, a strong active married MAN, under 40 years of age. Must be experienced in Flower and Kitchen Gardens, Stove, Greenhouse, Vines, Orchard, and Melon Houses. Apply with particulars of last situation, to Mr. BURRELL, Westley Hall, Bury St. Edmunds.

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Gardeners, Head and Under.

THE BIRMINGHAM AND MIDLAND COUNTIES GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION have a Register COMPETENT and ENERGETIC MEN of excellent character. Ladies or Gentlemen requiring either of the above, can obtain particulars by applying to J. HUGHES, Hon. Secretary, Northwood Villas, Moseley, near Birmingham.

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TO LANDED PROPRIETORS, &c.—A. MCINTYRE (late of Victoria Park) is now at liberty to undertake Formation and Planting of New Garden and Park Grounds, and Remodelling existing Gardens. Plans prepared. 115, Lister Park, Stamford Hill, N.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners, seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

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GARDENER (HEAD).—**R. WALTON**, Hilton Park, near Wolverhampton, requires a situation as above. Experience in all branches. Highly successful Cultivator of Fruits, Flowers, and Vegetables.

GARDENER (HEAD).—Married, no family; twenty-three years' thoroughly experienced in Flowers, Fruits, Vegetables. Highest references as to character.—**GARDENER**, Craven Cottage, Royal Nurseries, Ascot.

GARDENER (HEAD). where two or three are kept.—Age 30; married, one child. Understands Vines, Melons, Cucumbers, Flowers, and Kitchen Gardening.—**W. ROSER**, The Laurels, Wimbledon Park.

GARDENER (HEAD).—Age 28.—**MR. MITCHELL**, Head Gardener to Sir George Elliot, Bart., M.P., Aberham Park, Aberdare, can confidently recommend his Foreman, T. Teby, to any Lady or Gentleman who may require a thorough practical man.

GARDENER (HEAD).—**JOHN DERRICUT**, for the last eleven years Gardener to the late Sir H. Edwards, Bart., C.B., seeks re-employment in good establishment. Thoroughly practical in all branches. Highest references.—**Pye Nest**, Halifax.

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GARDENER (HEAD WORKING); married, no children.—**J. MORTER**, Esq., can with confidence recommend his Gardener as a thorough, trustworthy, practical man.—**GARDENER**, Fuchsia Cottage, Hanworth, Middlesex.

GARDENER (HEAD WORKING).—Age 27; fourteen years' experience, and has a thorough practical knowledge of all matters relative to Horticulture. Highly recommended.—**JNO. JENKS**, Oakley, near Wolverhampton.

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GARDENER (HEAD WORKING).—Married, eighteen years' practical experience in all branches of the profession. Highly recommended as to character and capability. Could Manage Land and Stock if required.—**G. MARSHALL**, 4, Cumberland Terrace, Bramford Road, Ipswich.

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GARDENER (good SECOND), where three or four are kept.—Age 21; single; seven years' experience in Housework and other branches of the profession. Seven years' character from present employer. Abstainer.—**JNO. R. CATON**, Messrs. A. Ross & Son, Nurseries, Kendal.

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GARDENER (UNDER).—Age 24; eight years' experience, two years' good character. Highly recommended; abstainer.—**K. BEAMS**, 58, High Street, Dorling.

GARDENER (UNDER), or JOURNEYMAN, or Florist.—Age 21; Mr. THOMPSON, Gardener, Frickey Hall, Doncaster, can thoroughly recommend a young man as above. Six years' experience, chiefly in the Houses.

GARDENER OR FLORIST.—Young; has had seven years' experience.—**A. L.**, Oak Villa, Lorne Road, Forest Gate, E.

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To Nurserymen.
FOREMAN, Outdoor.—Age 36; twenty years' experience in Roses, Conifers, Fruit, Forest, and other kinds of trees and shrubs. Eight years' last place.—**HORTUS**, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOREMAN; age 28.—**LUCOMBE**, PINCE & Co., Exeter Nurseries, Devonshire, would be pleased to hear of a friend's good recommendation to a suitable abster. Ten and a half years' experience, Inside and Out, in Noblemen's and Gentlemen's Gardens; knowledge of House Decorations. Please state wages. Distance no object.

FOREMAN, in the Houses in a good establishment.—Age 27; twenty years' experience in Growing Vines, Peaches, Melons, Cucumbers, Stove and Greenhouse Plants and Orchids. Well represented by present and previous employer.—**M. FIELD**, Stockton House, Colford St. Mary, Bath.

FOREMAN, in the Houses, or SINGLE-HANDED.—Nearly five years in last situation. Can be well recommended.—**W. B.**, Dunks Green, Tonbridge, Kent.

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JOURNEYMAN, Inside and Out.—Age 23; can be well recommended.—**E. C.**, Little Gaddesden House, Berthamstead.

JOURNEYMAN, in the Houses, under Foreman, in a good establishment.—Age 20; good character.—**S. THATCHER**, The Gardens, River Med, Sunbury.

JOURNEYMAN, or to make himself useful in the garden.—Age 19; four years' experience and good references.—**H. BENNETT**, Steeple Aston, Oxon.

JOURNEYMAN, in the Houses.—**D. C. POWELL**, wishes to recommend the above. Six years' experience; two years in present situation.—The Gardens, Powderham Castle, Exeter.

JOURNEYMAN, in the Houses.—Age 24; nine years' experience, well recommended, good knowledge of all kinds of plants. Total abster.—**J. WHITE**, The Hatmills, Brencley, Kent.

To Head Gardeners.
JOURNEYMAN, for the Houses; age 21.—**J. GODFREY**, Ashwick Hall, Marshfield, Chippingham, Wilt., wishes to recommend an intelligent young man as above. Can make himself useful in Kitchen Garden. Total abster.

IMPROVER, in the Houses, in a Gentleman's Garden. where gardening in all branches is carried on.—Four years' good character.—**W. L.**, Long Cross House, Chertsey.

IMPROVER; age 19.—**T. CARLTON**, Gardener to Lord Hillingdon, will be pleased to highly recommend the above to any Head Gardener requiring a steady and industrious young man, employed in the Houses here five years.—**F. CABB**, The Gardens, Wideness, Sevenoaks.

TO GENTLEMEN and GARDENERS.—**F. FOX**, late Foreman to Mr. R. Green, Florist, London, at his growing establishment, seeks a situation in a private Establishment. Good character and testimonials. Married; age 35.—**C. F.**, Grosvenor Cottage, Wellington Road, North Holloway, N.

TO NURSERYMEN, GARDENERS, &c.—Situation wanted by a young man. Understands Vines, Peaches, Cucumbers, Tomatoes, &c. Willing to find up time at Painting, Glazing, and Repairs. Good character.—**G.**, 16, Liverpool Buildings, Liverpool Road, Islington, N.

TO NOBLEMEN'S and GENTLEMEN'S GARDENERS.—The Advertiser wishes to place his son (age 19) under a thorough practical man. Would not object to give a small Premium. Has been two years in a garden.—**M. T.**, 127, Marine Parade, Brighton, Sussex.

TO FOREMEN and GARDENERS.—Wanted, a Situation, in the Houses under Foreman; age 21; two-and-a-half years' good character.—**J. F.**, 8, Frogley Road, East Dulwich, S.E.

TO NURSERYMEN.—Wanted, a situation in the Houses. Age 17; three and a half years' experience; used to general Nursery Work. Can be well recommended.—**J. H.**, 1, Rhymmer Street, Herne Hill, S.E.

TO NOBLEMEN'S and GENTLEMEN'S GARDENERS.—The Advertiser wishes to place his nephew (age 17) under a thorough practical man. Would not object to give a small Premium. **H. BARNARD**, Chase Side Nursery, Southgate, London, N.

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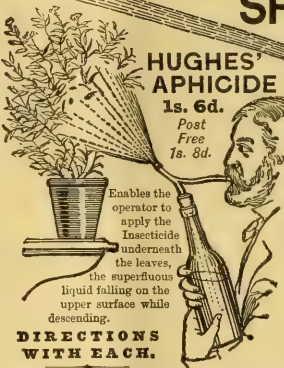


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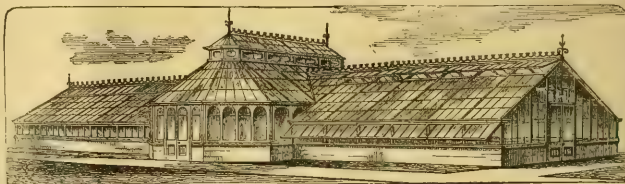
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No. 656.—VOL. XXVI. { NEW SERIES, }

SATURDAY, JULY 24, 1886.

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ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.

NOTICE.—COMMITTEE MEETINGS, Fruit and Floral, at 11 A.M., in the Conservatory, Scientific at 1 P.M., in the Lindley Library, on TUESDAY NEXT, 25th JULY, 1886. NATIONAL CARNATION AND PICOTEES SOCIETY'S SHOW.

N.B. Open to Fellows at 12 o'clock. and the Public at 1 o'clock.

NORTHAMPTONSHIRE HORTICULTURAL SOCIETY'S GREAT SUMMER SHOW, Delapark, Northampton, AUGUST 2 and 3 (Bank Holiday and following day). £55 in Prizes. For best sixteen Plants, £18, £10, £5; Central Group for Conservatory Decoration, £5, £6, £2 10s.; twenty-four Roses, £3, £2, £1, &c. Entries close July 24. Schedules and full particulars from A. FORBES, Secretary, Northampton.

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MESSRS. PROTHOROE AND MORRIS will include in their SALE OF FLOWERING ORCHIDS, on **TUESDAY NEXT**, about 150 lots of *ONCOTOMUS*, *EPIDENDRUM* of the best type, also *CATTLEYA SANDERIANA*, and *C. SKINNER* from Messrs. Shuttleworth, Carder, & Co.

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MESSRS. PROTHOROE AND MORRIS will **SELL BY AUCTION** on the Premises, The Woodfield Nursery, Harrow Road, W., close to Wellesome Park Station, on **WEDNESDAY**, July 28, at twelve o'clock precisely, the whole of the well-grown stock-in-trade consisting of a magnificent collection of 2000 *SUCCULENTS*, many probably unequalled in this country; a variety of *STOVE* and *GREENHOUSE PLANTS*; 2000 *Ferns* and *Palms*, specimen *Palms* and other plants for ornamenting; 1000 *ARIZONIA* ex-cult in 48 pots; the Erectors of Five *GREEN-HOUSES*, 700 feet *HOT-WATER PIPING*, *BOILERS*, nearly new *Spring Market VAN*, any *CART*, *spring VAN*, *Capital Brown MULE*, *ONLY MOULDED WARE*, and other effects.

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In the village of Thorpe, about 20 miles from London, in a healthy and picturesque neighbourhood, is a twenty-five minutes' walk from Egham or Virginia Water Stations.

IMPORTANT TO GENTLEMEN AND OTHERS seeking a compact *FRESHLY-BUILT* RESIDENCE, with a large garden, combining business with pleasure. For Sale, with possession.

MESSRS. PROTHOROE AND MORRIS are instructed to view and occupy who is leaving the neighbourhood, to **SELL BY AUCTION**, at the Mart, Eokenhouse Yard, City, E.C., on **THURSDAY**, July 29, at 2 o'clock precisely, the valuable *FRESHLY-BUILT ESTATE*, known as the *West and Fruit Garden*, Thorpe, near Chertsey, embracing a total area of about 10 Acres of excellent Land, well stocked with Fruit Trees and Bushes in bearing condition, and a Market Garden of 2 Acres, 1000 ft. in length, by 100 ft. in breadth, containing seven Bedrooms, Dressing-room, fitted Bath-room, three Reception-rooms, two Kitchens, and domestic offices, numerous *W.C.s*, and a large well-built Cattle and Stabling; the fruit garden is bounded on one side by a concrete wall, 600 feet in length. The property has a frontage of 100 feet to the main road, and is within 10 minutes' walk of a portion of which can be easily utilised for building, without detriment to the remainder of the land. The entire Estate possesses a great prospective building value, and a portion contains a valuable bed of the best gravel to a good depth.

May be viewed. Particulars, plan, and conditions of Sale may be had on the Premises, at the Mart, E.C., of W. Sharp, Esq., Solicitor, 9, Abchurch Lane, E.C., and of the Auctioneers and Surveyors, 67 and 68, Cheapside, E.C.

Lewisham.

By order of the Mortgagees.

MESSRS. PROTHOROE AND MORRIS are instructed to **SELL BY AUCTION** at the Mart, Eokenhouse Yard, City, E.C., on **THURSDAY**, July 29, at 2 o'clock precisely.

LOT 1.—The valuable *PLOT OF LAND*, situate in George Lane, Lewisham, now the property of Mr. R. E. Jones, used by him as part of his old-established Nurseries, together with the three well-built Houses standing thereon, two being built and one in hand, the whole representing a total rent of £58 per annum.

LOT 2.—Four *LEASEHOLD COTTAGES*, Nos. 82, 88, 90, and 92, Higher Green Lane, near the works of Messrs. Girdle, and producing £72 10s. per annum, and 1 *LEASEHOLD Ground-rent*, secured upon 44 and 85, Higher Green Lane, and Houses in rear.

The property is in the hands of Messrs. **WARDE AND LOADER**, Solicitors, 31 Raymond Buildings, W.C.; and of the Auctioneers, 67 and 68, Cheapside, E.C.

Friday Next.

AERIDES GODEFROYANUM.

MESSRS. PROTHOROE AND MORRIS are instructed by Mr. F. Sander to **SELL BY AUCTION**, at their Central Sale Rooms, Grand 68, Cheapside, E.C., on **FRIDAY NEXT**, July 30, at half-past 12 o'clock precisely, a fine lot of *AERIDES GODEFROYANUM*. It is a superb new species. Professor Reichenbach describes it in the *Gardener's Chronicle* for June 25 last, and says:—"The most stately member of the *Forbesii* group." The flowers can, however, be seen in the way of *A. Agria* in the catalogue. This might be considered a giant *Aeride* affix, with Lobelia flowers improved. Professor Reichenbach also states that "it produces a magnificent and glorious inflorescence"—a statement which is not exaggerated. We saw the plant in flower a few weeks since.

At the same time will be sent a splendid lot of *CECROGYNE PANDURATA*, a new *DENDROBIUM* of extraordinary beauty, also another species, no doubt quite new: a yellow *SACCOLABIUM*, a very pretty and lovely species, the spikes are erect, and the colour is some yellow.

Many other fine ORCHIDS will be offered the same day.

On view morning of Sale, and Catalogues had.

Friday Next.

CYPRIPEDIUM SANDERIANUM.

MESSRS. PROTHOROE AND MORRIS are instructed by Mr. F. Sander to **SELL BY AUCTION**, at their Central Sale Rooms, Grand 68, Cheapside, E.C., on **FRIDAY NEXT**, July 30, at half-past 12 o'clock precisely, a splendid lot of this remarkable and superb new *CYPRIPEDIUM*, offered for the first time.

CYPRIPEDIUM SANDERIANUM is first described and fully described in the *Reichenbachia*. It stands by itself in its singular and quaint beauty, and is the only *Cypridium* being caudex produced in the way of *A. Agria* in the catalogue. It produces three flowers and more on the stem, the petals are very broad at the base, and of a reddish-purple with a light green at the tip, and the lip is black-purple, and the tips are quite blunt, covered with thick hairs.

The pouch is a dark brownish-red. It is altogether a showy, remarkable, and fine new Orchid, and is a great pleasure to the Professor Reichenbach, in describing it, says:—"This is an extraordinary surprise, as well as a great beauty, from the Malayan Archipelago. It is a great pleasure to dedicate this fine novelty to Mr. Sander."

On view morning of Sale, and Catalogues had.

Friday Next.

NEW CYPRIPEDIUM.

MESSRS. PROTHOROE AND MORRIS are instructed by Mr. Sander to include in the SALE at their Rooms on **FRIDAY NEXT**, a grand importation of a new and very fine flowered *CYPRIPEDIUM*. A plant in bloom will be on view.

On view morning of Sale, and Catalogues had.

Dutch Bulbs.—Trade Sales.

MESSRS. PROTHOROE AND MORRIS beg to announce that they have arranged their SALES OF *DUTCH BULBS* for the coming season as usual. The first sales are specially made up for the trade and other large Buyers, and will commence in AUGUST.

Further particulars next week.

67 and 68, Cheapside, E.C.

Bothwell Castle Collection of Heaths

Very Important Public Sale of the RARE and CHOICE *COLLECTION OF HEATHS* at Bothwell Castle, Northwell, N.B., cultivated by the late Mr. Andrew Turnbull for the Right Honourable the Earl of Home.

MESSRS. MORRISON, DICK, AND McCULLOCH, by the Right Honourable the Earl of Home, to **SELL BY AUCTION**, in Houses Nos. 1 and 2, Bothwell Castle, Bothwell, N.B., on **THURSDAY**, July 29, at 12 o'clock Noon, the *COLLECTION OF RARE and CHOICE HEATHS*, which have been particularly selected by the Earl of Home, and containing many Varieties confined to this collection.

The Earl of Home says:—"The cultivator can scarcely err in possessing himself of the different varieties originated by such men as Mr. Turnbull of Bothwell Castle, who has well been raised more excellent varieties than any other man of his day."

The whole will be on View in the Houses on Monday, Tuesday, and Wednesday, July 25, 26, and 27, from 10 A.M. to 4 P.M., and on Forenoon up till Hour of Sale. To prevent overcrowding, admission by Catalogue only (price Sixpence, returnable to all purchasers), on application at our office, 93, Sauchieland Street, Glasgow; or forwarded by post on receipt of Sixpence in Stamps.

MORRISON, DICK, and McCULLOCH, Auctioneers.

Stanwell, Middlesex.

FREEHOLD LAND, suitable for Market Garden or Building Purposes; also *HOUSE, HOMESTEAD*, and Small *FREEHOLD FARM*, most conveniently placed, close to the Villages of Stanwell and West End, within 14 miles of Hyde Park Corner, $\frac{1}{2}$ mile from Ashford Station, $\frac{1}{2}$ mile from Staines, and $\frac{1}{2}$ mile from the Great Western Railway to London, all in a high state of cultivation, and in the occupation of the Vendors, comprising together 91 Acres, or thereabouts, of the best *FREEHOLD* LAND, with *TAGES*, with extensive Gardens, fronting the road to Ashford Station. Let at low weekly rents.

MESSRS. BUCKLAND AND SONS will **SELL** the above by **AUCTION**, in Lots, by order of the Executors of the late Mr. Ward, Esq., at the "Angel and Crown" Hotel, Staines, on **THURSDAY**, August 5, at 5 for 6 o'clock P.M., unless an acceptable offer be made previously. Particulars and Conditions of Sale of Messrs. BUCKLAND AND SONS, Solicitors, 27, Mark Lane, E.C.; at the "Swan," Stanwell; at the place of sale; and of the Auctioneers, 11, Adam Street, Strand, W.C., and Windsor.

To Nurserymen, Florists, &c.

MESSRS. FLETCHER AND GODEFROY are favoured with instructions to **SELL BY PRIVATE CONTRACT**, the Goodwill, Growing Stock, Houses, of an *OLD-ESTABLISHED NURSERY*, established and successfully carried on by the proprietor for Eighteen years, and now sold on account of ill-health preventing him from continuing his business. The Nurseries and Houses are well stocked with a varied and Saleable Stock. The concern is now in working order, and is a growing and profitable business to commence business. An immediate purchaser would be liberally dealt with and part of the purchase-money might remain on security. Price £5000.

Full particulars of the Auctioneers, 42, Cherry Street, Birmingham.

THE LIVERPOOL HORTICULTURAL COMPANY (John Cowan), Limited.

Have a large and fine stock of *NEW AND RARE ORCHIDS*: and they are constantly receiving fresh Importations from various parts of the world.

Full particulars of Orchids in stock, and also of fresh importations as received, forwarded on application.

The Company have also a large stock of *TEA* and other *ROSES* in pots, *GRAPE VINES*, *FERNs*, and other *ORNAMENTAL PLANTS*.

LISTS with full particulars on application.

THE VINEYARD AND NURSERIES,
GARSTON, LIVERPOOL.

ADDRESS for TELEGRAMS:—"COWAN, LIVERPOOL."

FOR SALE.

NURSERY AND SEED BUSINESS.

THE OLD-ESTABLISHED NURSERY and *SEED BUSINESS*, so successfully carried on for upwards of 50 years by **THOMAS IMRIE AND SONS, Ayr**.

The Nursery Grounds, extending to 20 Acres, adjacent to the Railway Station, and are well stocked with saleable Trees and Shrubs, and there are commodious premises for carrying on the Seed Business. The Nursery is well supplied with all, or Nursery and Seed separately; and is being disposed of solely on account of Mr. Imrie's delicate state of health. Full particulars on application to **THOMAS IMRIE AND SONS, Ayr, N.B.**—June 21, 1886.

TO BE SOLD, an old-established *FRUITERER'S, GREENGROCEER'S, and FLOWERIST'S*, Long Lease, House, 5 Vans; every thing for use. Price £150. Apply at 455, Fulham Road, S.W.

TO BE DISPOSED OF, through ill-health, a *First-class* old-established *NURSERY BUSINESS*, 5 miles from London, S.E. A good trade (no market) is being done, and every satisfaction given for leaving, and books can be inspected. Capital required for freehold land, buildings, &c., about £1000. For full particulars, apply to The Victoria Nursery, Malham Road, Forest Hill, S.E.

FOR IMMEDIATE DISPOSAL, a *FLORIST'S BUSINESS*.—The Proprietor of a large and highly lucrative business, in full swing, which has been established for over twenty years, and is beautifully situated in the main road, Haywards Heath, Surrey, and commands the traffic from the principal entrance to Kensington Gardens, is desirous of disposing of the same. There is an unexpected term of five years, or further, the present lease, at an exceptionally low rental, and the trade return represents a large amount per annum. The books show various records of the patronage of the business, and it is a great number of the Nobility and Gentry of London, also of numerous Country patrons. To those seeking a good *Floral Business*, it is especially recommended as a first-class investment. It is especially suited to a partnership where the combined energies of two or more practical men would conduce to a great increase, as a large portion of the business is in Ball and Rout furnishing, and in the ever-increasing demand for floral decorations in refined society at all seasons of the year. The whole stock, plant, goodwill, and lease, will be sold together as a going concern, as the Proprietor, being practically single-handed in the management, now finds it much too great a strain upon him, and he wishes to retire in consequence of ill-health. Full particulars may only be furnished to Principals or their Solicitors. Apply to J. A. KING, 29, Queen's Road, Bayswater, London, W.

Florists or Gardeners.

5 minutes' walk from Rye House Station, G.E.R.;

TO BE SOLD, a *Plot of excellent LAND*, 17 Acre, with Double and Single Gates, and the frontage of 93 feet 6 inches, and having a well-built Glass and Iron Greenhouse, 100 feet by 10 feet, and a large well-built and adapted for horticultural purposes, or for the erection of a villa residence.

Apply to Mr. HENRY BELLINGFIELD, Ware, Herts; and to Union Court, Old Broad Street, E.C.

TO LET OR SOLD.

as a thorough going concern.

A NURSERY.

Comprising $\frac{3}{4}$ Acres, about 10 miles from London,

with Shop in Market Place.

Good Dwelling House, Greenhouse, Frames, &c.

For particulars, apply to J. FLOOD, 57, Albert Street, Mornington Crescent, London, N.W.

To Florists and Others.—Chelsea.

Glass and Gardener's Cottage.

Apply to N. G. GODEFREY, 13, Beaufort Street, S.W.

TO BE LET, ON LEASE, MARKET GARDEN GROUND at Camberwell, close to the station on the London, Chatham and Dover Railway, containing 12 Acres, bounded on three miles of Covent Garden and other Metropolitan Markets.

For particulars, apply to Messrs. DRIVER and CO., 41, Whitehall, London, S.W.

To Landed Proprietors, &c.

A. MCINTYRE (late of Victoria Park) is now at liberty to undertake the *FORMATION and PLANTING of NEW PARK GROUND*, and *REMODELING existing GARDENS*. Plans prepared. 115, Listeria Park, Stamford Hill, N.

CYCLAMEN SEED, in Sealed Packets, 2s. 6d. and 5s. each, separate colours, red, white, pink, and variegated or mixed.

H. PAGE & SONS are offering for the first time their well-known strain, which has been awarded The Medal by the Royal Horticultural Society during last season, and gained highest honours wherever shown.

They cannot be surpassed in habit, colour, and size; and as the quantity is limited, Orders will be executed in strict rotation, and sent Post-free on receipt of Postal Order after August 1. Application to—

H. PAGE AND SONS.

Grove Nursery, Teddington, S.W.

CARTERS' SEEDS

FOR PRESENT SOWING.

CABBAGE—Carters' Early Heartwell.

Pronounced to be the finest early Cabbage in cultivation. Very distinct. The heads are extremely firm, weighing from 4 to 6 lb.

In Sealed Packets only—Per Packet, 1s. and 6d.; per ounce, 2s. All Post-free.

CABBAGE—Carters' Mammoth Beefheart

The best main-crop Garden Cabbage in cultivation; very large firm heads of exquisite flavour, very few outside leaves, and does not readily run. The finest Summer Cabbage known.

In Sealed Packets—Per Pkt., 1s. and 6d.; per ounce, 1s. 6d.

LETTUCE.

CARTERS' GIANT WHITE COS .. 6d. and 1 0
DUNNETT'S GIANT WINTER COS .. 6d. and 1 0
HARDY NORTHERN KING .. 6d. and 1 0
ALL THE YEAR ROUND CABBAGE .. 1 6

LETTUCE .. 6d. and 1 3

ONION. Post-free. Per oz. Per pkt.

GIANT ROCCA .. 1 6 0 6

GIANT WHITE TRIPOLI .. 1 6 0 6

EARLY WHITE NAPLES .. 1 0 0 0

GIANT MADEIRA .. 0 9 0 0

SEEDSMEN by Royal Warrants to H.M. the QUEEN and H.R.H. the PRINCE OF WALES.

237 & 238, HIGH HOLBORN, LONDON.

PALMS FOR SALE.

Two grand Specimens.
One LATANIA BORBONICA, 10 feet high and 12 feet through, with twenty leaves 5 feet across.

One ARECA SAPIDA, just making new leaf, 8 feet 6 inches long, 3 feet 6 inches across leaf, 10 feet through.

THOMAS WEAVER, Oakley Hall Gardens, Basingstoke.

SAMUEL SHEPPERTON, FLORIST,

Prospect House, Belper, Derbyshire, begs to offer the following, of which he has many specimens.

PRIMULAS—PRIMULAS—PRIMULAS.

—Grand Premier Prize Stain of the finest new colours, as White, Carmine, Rose, Salmon, Crimson, Mauve, &c. Fine large trusses and beautifully fringed flowers. Strong plants, to bloom well, 1s. 3d. per dozen, extra strong 1s. 6d. 9s. per 100, all free.

CINERARIAS—CINERARIAS—CINERARIAS.

CINERARIA S.—Superb coloured Frize Strain, dwarf compact habit, and most brilliant colours, cannot possibly be excelled. Good plants, 1s. 3d. per dozen, extra strong 1s. 6d.; 9s. per 100, all free.

SAMUEL SHEPPERTON, Florist Prospect House, Belper, Derbyshire.

CABBAGE SEEDS

to offer—

Dwarf York .. Large York
Enfield Market .. Early Rainham
East Anglian .. Elms' Early
Offham .. Dwarf Nonpareil
Wheeler's Imperial .. Leeds Market
Flat Dutch .. Drumheads

All are our own home-grown choice stocks. Prices on application to

TABER and CULLEN, Seed Growers, Rivenhall, Witham, Essex.

SEEDLING PLANTS

OF CHOICE

FLORISTS' FLOWERS, &c.

We have much pleasure in offering strong healthy transplanted Seedlings from our superb strains of the following—

Per doz. Per 100.

CALCEOLARIAS, from choicest flowers only, 1s. 6d. 1s. 6d.

beautifully tinted and spotted .. 1 6 .. 10 6

CARNATIONS and PICOTEES, from stage flowers, will produce 80 per cent. of fine double bloom .. 1 6 .. 10 6

CARNATIONS, choicest yellow, very fine .. 2 6 .. 10 6

CINERARIAS, from a grand strain .. 1 6 .. 10 6

large flowered, fine .. 2 6 .. 10 6

CYCLAMEN PERSIUM, strong young plants, from single pots, 10. blooming next autumn .. 1 6 .. 10 6

CYCLAMEN ALBUM, pure white, very fine .. 4 6 .. 30 0

CYCLAMEN, very choice, mixed .. 4 0 .. 25 0

PRIMULA, Crimson King, magnificent .. 2 6 .. 10 6

Crimson King, extra strong plants .. 3 6 .. 10 6

" Daniels' choicest white, fine .. 1 6 .. 10 6

" Daniels' choicest red, splendid .. 1 0 .. 10 6

" Daniels' choicest mixed, many beautiful varieties .. 1 6 .. 10 6

" Daniels' choicest mixed, extra strong plants .. 2 6 .. 15 0

PANSY, Emperor William, deep ultra-marine blue, very fine .. 1 0 .. 7 6

POLYANTHUS, gold-laced, very choice .. 1 0 .. 7 6

BLUE GUM TREE of Australia (Eucalyptus globulus), fine for greenhouse or sub-tropical garden. Said to be the most powerful febrifuge known. Fine young plants of this interesting species, 6s. each, 5s. per dozen.

Carriage Paid on receipt of Post-office Order.

DANIELS BROS., Town Close Nurseries, NORWICH.

CUTBUSH'S MILL-TRACK MUSHROOM SPAWN.

Too well known to require description. Price 6s. per bushel (1s. extra per bushel for package), or 6d. per cake; free by parcel post, 1s.

None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached. WM. CUTBUSH AND SON (Limited), Nurserymen and Seed Merchants, Highgate Nurseries, N.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks 25s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack; 5 sacks 22s.; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton, 25s. per ton in 4-bushel bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. 2d. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Price LIST.—H. G. SMYTH, F.R.S.S., 21, Goldsmith's Street, Drury Lane (late 174, Coal Yard), W.C.

THOMSON'S IMPROVED VINE and PLANT MANURE.

This valuable Manure is made solely on our premises here. Every Bag and Tin has our Name on it. It can be had from all Nurserymen and Seedsmen, and direct from us, 1s. 2d. and over carriage paid. Our London Agent is Mr. GEORGE, 10, Victoria Road, Putney, S.W.

WM. THOMSON and SONS, Clovenfords, Galashiels, N.B.

For Perfect Tennis Lawns, Bowling Greens, and CRICKET PITCHES, use

"BELLICIDE."

THE DAISY and WEED ERADICATOR. Manufactured by HURST & SON, 152, Houndsditch, London, E.

To be obtained (with useful instructions) from all Seedsmen and Florists everywhere. Sample Dredger-canister, 1s. per post.

GARDEN REQUISITES.

TWO PRIZE MEDALS.

Quality, THE BEST in the Market. (All sacks included.)

PEAT, best brown fibrous .. 5s. per sack; 5 sacks for 25s. 6d.

PEAT, best black fibrous .. 4s. 6d. .. 5 sacks for 20s.

PEAT, extra selected Orchid 5s. 6d. .. 5 sacks for 25s.

LOAM, best yellow fibrous .. 1s. per bush; 3s. per sack.

PREPARED COMPOST, best .. 1s. (sacks included).

PEAT MOULD, best only .. 1s. (sacks included).

SILVER SAND, coarse, 1s. 6d. per bush; 14s. half ton, 24s. ton.

RAFFIA FIBRE, best only .. 1s. 12. per ton.

TOBACCO CLOTH, finest imported .. 8d. lb., 28 lb. 18s.

TOBACCO PAPER .. 8d. lb., 28 lb. 18s.

MUSHROOM SPAWN, finest Miltirac .. 5s. per bushel.

SPHAGNUM MOSS, all selected, 2s. per bush, 6s. per sack.

CHUBB'S "FERTILISER," the Best Food for all kinds of Plants, Flowers, Fruits, Vegetables, &c. Tins, 1s. 6d.

Bags—7 lb., 3s.; 14 lb., 5s.; 28 lb., 8s.; 56 lb., 14s.; 1 cwt., 22s.; VIRGIN CORK, best quality only—14 lb., 3s.; 28 lb., 5s.; 56 lb., 10s. 6d.; 1 cwt., 17s.

HORTICULTURAL CHARCOAL, best quality only, 2s. 6d.

COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. each; 10 sacks, 9s.; 15 sacks, 13s.; 20 sacks, 17s.; 30 sacks, 25s.; 40 sacks, 30s. Truck-load, loose, free on rail, 25s. Limited quantities of G. special quality, granulated, in sacks, 2s. each. Terms, strictly Cash with order.

CHUBB, ROUND & CO., WEST FERRY ROAD, MILWALL, LONDON, E.

IMPORTANT TO GARDENERS.

BENTLEY'S WEED DESTROYER.

Invaluable for the Destruction of Weeds and Moss on Garden Walks and Carriage Drives.

Particulars sent Post-free.

BECK CHEMICAL WORKS,

BARROW-ON-HUMBER, HULL.

J. JENSEN & CO.'S

NORWEGIAN

FISH-POTASH MANURE.

Fish Manure is composed of flesh and bone—the best of all fertilising materials, and in combination with pure Salts of Potash and Magnesia forms a perfect fertiliser, as it contains the important ingredients of Ammonia, Phosphates and Potash in their most concentrated and available form. It is equally valuable for Farm Use, for Fruits, Flowers, and Vegetables, and produces wonderful growth, especially with Vines.

The Average Manurial Constituents are as follows:—

Cod Fish and Potash. Herring and Potash.

Per Cent. Per Cent.

7.0 Ammonia .. 8.30

20.0 Phosphates .. 9.0

15.0 Potash .. 15.0

10.0 Magnesia .. 10.0

Or, in other words, a ton of COD FISH and POTASH is composed, approximately, of—

10 Cwt. of Dried Fish Flesh—Organic Matter.

10 Cwt. of Dried Fish Bone—Phosphates.

3 Sulphate of Potash.

1 Sulphate of Magnesia.

1 of Moisture, and ingredients not of manurial value.

The Prices are 210 per Ton (bags included) for the COD, and 250 for the HERRING, on Rails in the Docks, subject to Discount for prompt Cash.

Retail Prices, Carriage Paid, upon receipt of P.O.

IN TINS.—2 lb. for 1s. and 1s.

IN BAGS, 7 lb., 2s.; 14 lb., 4s.; 28 lb., 6s. 6d.; 56 lb., 10s. 6d.

1½ cwt., 20s.; 2 cwt., 30s. Bags free.

Apply to all Nurserymen and Florists, or to

J. JENSEN & CO.,

10, ST. HELEN'S PLACE, LONDON, E.C.

HUGHES' SOLUBLE

FIR-TREE OIL INSECTICIDE.

1s. 6d., 2s. 6d., and 4s. 6d. a Bottle; Gallon, 12s. 6d.

less in larger quantities.

HUGHES' APICIDE, 1s. 6d. By post 1s. 8d.

HUGHES' GREEN SHADING 1s.; post 1s. 3d.

Also CREAM SHADING, 9d. per Box, per post 1s.

HUGHES' FLORAL CEMENT, in Bottles, 1s. and 2s.

HUGHES' TROPICAL BEETLE POWDER, most effective in Greenhouses, 6d., 1s., and 2s. 6d.

Post 3d. extra.

A TREATISE ON FIR TREE OIL as an INSECTICIDE, sent Post-free, on receipt of address, by E. G. HUGHES,

Operative Chemist, Victoria Street, Manchester. Wholesale from all the London Seed and Horticultural Sundries Merchants, Wholesale Druggists, and Patent Medicine Houses.

WATKINS & SIMPSON,

Seed and Bulb Merchants,

EXETER STREET, STRAND, LONDON, W.C.

DANIELS' SEEDS

For Present Sowing.

CABBAGE.

DANIELS' DEFIANCE, the finest Cabbage in cultivation, early, large heads, 7 lb. to 10 lb. each, post-free .. 1 0 .. 1 6

DANIELS' LITTLE QUEEN, a superior dwarf, early variety .. 1 0 .. 1 6

ENFIELD MARKET .. 1 0 .. 1 6

DWARF NONPAREIL .. 1 0 .. 1 6

ONIONS.

DANIELS' GOLDEN ROCCA .. 1 0 .. 2 6

" WHITE ELEPHANT TRIPOLI .. 0 9 .. 2 0

" GIANT ROCCA .. 1 0 .. 1 0

" CRIMSON ROCCA .. 1 0 .. 1 0

" NEW WHITE GLOBE .. 1 0 .. 2 6

" IMPROVED WHITE SPANISH .. 1 0 .. 2 6

Other kinds, 6d. to 1s. per ounce.

LETTUCES.

DANIELS' MONSIEUR BROWN COS .. 1 0 .. 2 6

" GREEN WINTER .. 0 6 .. 1 6

" CONTINUITY CABBAGE .. 1 0 .. 2 6

" TEXTER .. 0 6 .. 1 6

Other kinds, 6d. and 1s. per ounce.

DANIELS BROTHERS,

16, 18, and 20, EXCHANGE STREET,

NORWICH.

Catalogues free on application.

WEBBS'

EMPEROR

CABBAGE,

The Earliest and Best Cabbage,
6d. and s. per packet, 1s. 6d. per ounce, post-free.
7s. per pound.

Mr. J. Muir, in the "Journal of Horticulture" of May 24, says:—
"Our largest piece of Spring Cabbage measures 70 feet by 50 feet, and here we have many sorts growing. The best of all these at the present time is WEBBS' EMPEROR."

	Per Ounce, Post-free.
EARLY NONPAREIL CABBAGE ..	8d.
ENFIELD MARKET do. ..	6d.
EARLY RAINHAM do. ..	8d.
EARLY DWARF YORK do. ..	6d.
LARGE RED DUTCH do. 6d. per packet ..	9d.

ONION.

	Packet.	Ounce.
WEBBS' NEW RED GLOBE TRIPOLI ..	6d.	1s.
WHITE ITALIAN TRIPOLI ..	6d.	9d.
LARGE FLAT RED TRIPOLI ..	6d.	9d.
GIANT ROCCA ..	6d.	1s.
WHITE LISBON ..	6d.	9d.
WHITE SPANISH or READING ..	6d.	9d.

All Garden Seeds free by Post or Rail.
Five per Cent. Discount for Cash.

Seedsmen by Royal Warrants to H.M. the Queen
and H.R.H. the Prince of Wales,

WORDSLEY, STOURBRIDGE.

EARLY WHITE ROMAN HYACINTHS.



JAMES VEITCH & SONS

REG TO ANNOUNCE THEY HAVE RECEIVED THEIR USUAL CONSIGNMENTS OF

THE ABOVE VALUABLE BULBS FOR EARLY FORCING,

And will be pleased to receive Orders for immediate delivery.

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NEW ORCHIDS,

Brought home by Mr. EDWARD WALLACE.

MR. J. C. STEVENS has received instructions from the
NEW PLANT AND BULB COMPANY to SELL by AUCTION, at his Great Rooms,
38, King Street, Covent Garden, W.C., on THURSDAY NEXT, July 29, at half-past
12 o'Clock precisely:—

A NEW CATTLEYA, collected in a fresh locality. The bulbs resemble somewhat those of
Trianae, the flowers nearly as large but self-coloured, lips same colour as sepals and petals, with
rich orange throat; many are pure white, others nearly so, very floriferous and fragrant—six to
eight flowers were seen on one spike. Flowers after C. Trianae is over; from a cool locality
among the mountains, about 3000 feet above sea level, and as easily grown as C. Trianae. Dried
flowers will be shown.

A NEW EPIDENDRUM in the way of E. Stamfordianum, but different, and far finer.
Has much broader and shorter leaves than that species, is more floriferous and richer coloured.
Collected at an elevation of 1500 feet above sea level. Grows aloft in tufts on the trees. The
spikes are emitted mostly in pairs from the base of the bulb, and were observed to descend 1 to 2
feet, with three to five branches, and large sprays of white or rosy-lilac flowers. Described by
Mr. Wallace as a most beautiful sight. Dried flowers will be shown.

A NEW WHITE SOBRIA-LIKE PLANT, with bunches of flowers looking on the
mountain side like masses of snow. With dried flowers.

A WHITE BLETIA, found growing on the mountain slopes in grass and loamy soil. With
dried flowers.

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SCHOMBURGKIA, a grand new TERRESTRIAL ORCHID, with flowers 4 inches across, of a
purple colour; and a few plants of MASDEVALLIA PICTURATA, the first established Plants
offered for sale in Europe. On view morning of Sale, and Catalogues had.

FRIDAY NEXT.

CYPRIPEDIUM SANDERIANUM.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F.
SANDER to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on
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NEW CYPRIPEDIUM—offered for the first time.

CYPRIPEDIUM SANDERIANUM is figured and fully described in the *Reichenbachia*. It stands
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with tails 18 and 20 inches long. It produces three flowers and more on the stem. The petals are very broad
at the base, and of a reddish-purple, mottled with a light hue; the tail-like part is black-purple, and the tips
are quite blunt, covered with thick hairs. The pouch is a dark brownish-red. It is altogether a showy
remarkable, and fine new Orchid.

Professor REICHENBACH in describing it says:—"This is an extraordinary surprise as well as a great
beauty, from the Malayan Archipelago. It is a great pleasure to dedicate this fine novelty to Mr. F. Sander."

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THE

Gardeners' Chronicle.

SATURDAY, JULY 24, 1886.

MAX LEICHTLIN'S GARDEN.

AFTER a journey of two days from Haarlem, the next place at which I made a halt was Baden-Baden. It is the Mecca of all true gardeners, where plants and bulbs of the greatest interest are to be found. Of course all this centres in Herr Leichtlin's Botanischer Privat Garten. A more delightful situation could hardly be imagined than that which is occupied by him. The town is stretched out at his feet amid an amphitheatre of richly-wooded hills. In front are the Greek church and the villa of Prince Solms, besides many other residences of one kind and another. On the left he is flanked by the palace of the Grand Duke, and the ruins of a fine old castle are against the sky-line at the back. I have scarcely anywhere met with a prettier scene than this. If flowers have any sense of beauty themselves, they must be supremely happy in Herr Max Leichtlin's hands. It was difficult at first to realise that I had come to a spot of which I had heard so much before. How many envelopes of the brightest possible yellow have I not received from here! How many boxes or tinfuls of bulbs have been sent to me from here! How often have I received the best possible horticultural advice, and how in almost every garden of any note which I have visited (and the number has mounted up very considerably of late) has not Max Leichtlin's name appeared on label after label, and "grandiflora Leichtlini," or "Leichtlini macrantha," or something else of the same sort has been a certain passport to fame. From a bulbist's point of view this little spot of ground is the umbilicus of the world—for into it are poured in one continuous stream the treasures of Central Asia, of Persia, of Siberia, of the Himalayas, of Asia Minor, of the Cape, and of many other regions of botanical interest which are too numerous to be named. By a kind of force of attraction especially good thing when it first comes to light gravitates here before it travels elsewhere. Consuls in out-of-the-way parts of the world, soldiers, missionaries, ladies, doctors, adventurers, as well as professional collectors—all hand over any exceptionally interesting treasure which they may have found to the well-known gardener at Baden-Baden. But it does not follow from this that all plants and bulbs leave Herr Max Leichtlin's hands just as he found them. It is true he is not one of those professional hybridisers who like to carry a flower away from its own proper type as far as they can do it—who think they can so improve on Nature that they hide it and disfigure it altogether. He emphasises and deepens the true characteristics of a flower. In the first place, he knows what they are, and then by patient attention and selection he makes them more clear. As an example of this let me mention *Crocasmia aurea macrantha*. It has not yet been sent out, but the whole stock is sold, and it will be one of the best autumn flowers of the future I am sure. Max Leichtlin showed me the different stages through which

this *Crocsmia* had passed. He has dried specimens of each and all of them, and it was most curious to note how improvement had followed upon improvement till now it can no longer be desired.

In the same sort of way who does not call to mind a certain *Freesia* which gladdens us in the spring?—and I think *Primula rosea* must bend its head before *Primula rosea grandiflora*, as it has come out of Herr Max Leichtlin's hands. There are many other instances that might be given of the same sort of thing. With Irises he has been conspicuously successful, and he looks for greater victories still; but what struck me first of all on entering his garden was a charming *Aubrietia* that was clinging to the wall. I know *Aubrietia græca*, and A. Campbelli, and several others, and I possess one which goes under the name of A. erubescens, and which flatters itself that it ought to be noticed because it is perhaps a little more red than blue. Really it is of no particular colour at all, but it does its best to be blushing, though with very indifferent success. Max Leichtlin's new *Aubrietia* is of a most captivating rosy-carmine hue that could be imagined; there is no mistake about it at all. The colour is attracting and pleasing in the highest degree, and while the plant still is an *Aubrietia* all over, it is very much better than anything else which I have ever seen before of the same sort. The magician informed me that it took him ten years to accomplish this feat. A life has not been lived for nothing which could do so much.

With the greatest possible kindness Herr Max Leichtlin has from time to time gone over his garden with me, and has shown to me his green-houses, his seed-beds, and his frames. A garden like this requires an interpreter at every turn. It is by no means large, and though I believe some three or four acres are attached to the house, the inner sanctuary, where such wonderful things are done, is not more than three-quarters of an acre in extent. This is crammed full to overflowing, and not a square foot or even an inch of ground has been lost. The Privat Botanischer Garten lies open towards the south with perhaps a slight inclination to the east, and one of its features is that terrace rises above terrace—they are made upon a slope. This arrangement of terraces has its advantages and its defects. The rain sometimes comes down in torrents in these parts and washes the soil of one terrace over another, but they have a pretty effect, and the extent of available walls for creepers and for the shelter of tender things is largely increased by their means.

SOME OF THE CONTENTS OF THE GARDEN.

Among the most noticeable of plants and bulbs which were in blossom in May may be given the following:—*Iris paradoxa*, which I have never seen before, and which is excessively striking. It comes from the Caspian Sea, and in his own words it may be said "the claws are ochreous-yellow, speckled with small crimson spots; and the falls, which are attenuated and tongue-like, much resemble small pieces of black velvet." *Iris Korolkowi* in its best form was, to my great misfortune, just over. This must be a very great beauty indeed. When it is admittedly the finest of all the Irises, what more can be said of it? Max Leichtlin, to whom flowers are as the breath of his life, stops still in his garden to look at it. He is unable to pass it by. The colour—the veining—the whole contour of this *Iris*, are said to be incomparably good. A variety was in blossom of olive-green appearance, and with black markings on it. One might well have been contented with it if only it had been the best. *Polygonum sphaerocephalum*, of a pleasing red colour; *Androsace foliosa*, *Isoliolion macranthum*, *Eremurus robustus*, and E. Bungei; *Tropæolum brachyceras*, *Æthionema caudatum*; a new *Lachenalia*, which had the good points of aurea and of *Vancouveri pendula* combined; *Polemonium grandiflorum*, hexandra, *Dracocephalum grandiflorum*, and very many more things, which are

too numerous to be named, were in blossom at the time of my visit, and were very attractive indeed. In most of these cases there was newness, and some special point had to be observed. *Polemonium grandiflorum* is of great size. *Isoliolion macranthum* is the best *Isoliolion* I have ever seen. *Æthionema caudatum* is pure white, and other notes of the same sort might be given about some of the rest. Even where a plant or bulb is not quite new, it often has a different look in this garden from what it assumes elsewhere. *E. robustus* is by no means as good under one set of conditions as it can be under another. I never saw anything equal to the specimen of this glorious plant as it is in Max Leichtlin's hands. It has seemed to me sometimes to be rather overrated, but no one would say that for a moment who has ever beheld it in all its glory. As I looked upon it the other day it must always take first rank, and *Eremurus Bungei*, which is of a very clear yellow colour, is a most worthy companion for it, and sure to be very highly appreciated. A large bed of *Iris moroides* should not be passed over without a word. It was quite at its best when I saw it, and it showed how differently flowers often look when grown in large quantities from what they do when only single specimens are obtained. Of plants and bulbs which have yet to grow into celebrity the number is legion. Here is a wonderful *Thistle*, *Cnicus* conspicuus, which will have a very large head of blossom of a bright red colour. There is a distinct *Arnebia*, of which outsiders are ignorant at present. An *Amaryllis* from China, which is said to be quite hardy, raises much expectation at once, and a shrub, *Lonicera Alberti*, promises great things, and will be wreathed in rosy blossoms before long. But to deal with the future would be an endless task in such a garden as this. I prophesy that the *Aubrietia* I have referred to above will be a wonderful favourite in villa gardens before long, and so also will many other things which are seen all packed together be exceedingly admired when they come to be distributed and properly planted out. A large frame full of *Tecophilæa* must have been a sight to see a few weeks ago in Max Leichtlin's garden, and when this comes to be better known, and specially because it appears to be quite hardy, no lover of flowers will ever be contented without it. There is one thing which is certainly a pity, and it ought to be remedied. I am told by Herr Max Leichtlin that very often he grows a large stock of some desirable plant or bulb, and it is altogether passed by on the other side. No one seems to care for it, no one notices it, and the whole lot of valuable things is then thrown away, and consigned to oblivion. Such a plant is *Dianthus pulcherrimus*, a little gem of only an inch or two in height. It was known and cared for in the distant past, then it was utterly lost to sight, and when it was accidentally rediscovered by Max Leichtlin a few years ago in an apothecary's garden on the Polish frontier it found no favour at all, and it soon passed into forgetfulness again. It is much to be deplored that such a thing as this should happen at all, but it does happen, I am told, over and over again. What in the world can our nurserymen be about to permit it? They are the channels through which these fine things should come into the hands of the community at large; they ought to be much more wide awake, I am sure. The loss of Herr Max Leichtlin's plants must be the loss of so much silver and gold to their coffers.

It must be a matter of some anxiety to carry on operations in such a garden as his. Who does not know how some favourite may be lost through an awkward turn of the water-pot? and too much shade or too much sun may work havoc at once; but, in our case there is no need for despair. Experience always must be bought at some cost, and a letter to the generous donor of a plant that has come to grief, or a few shillings spent for the second time at some nursery garden from which it was obtained, will very often put things right again for the future, and the worst that has happened is delay. But nothing of this sort takes effect at the Botanischer Privat Garten at Baden-Baden. To work there is something like playing with edged tools—you may cut your fingers before you think about it at all. All the nursery gardens in the world would fail to repair the loss of this or that very scarce and correspondingly precious plant or bulb if it should fail. Pounds instead of shillings will never bring it back if it goes. Only a few days before I arrived, the gardener who works under Max Leichtlin's eye, and who seems to be intent on his

business, mistook a flower for a weed, and *Incarvillea Olge compacta* went its way and disappeared from the scene. *Incarvillea Olge* is not uncommon, and we all know it very well, but *Incarvillea Olge compacta* is a very different thing, and a stranger to most of us. No careless gardening will do in a place like this—it would work havoc in a very short time indeed.

But if plants are lost in grievous and unexpected ways, I was glad to find that they sometimes hold their own, and are saved after the strangest adventures. The best *Gladiolus* that Max Leichtlin has ever had—his favourite of favourites with that particular flower—was growing once in a bed of seedlings which he had occasion to move, and which were doomed to destruction, as he set no great value upon them. Ninety-nine, we may say, perished accordingly, but the hundredth was not so minded to die. It conquered bravely in the fierce struggle for existence which it had to endure, and its owner took pity on it when it reappeared the following spring, much to his surprise, and he let it live, merely because it stood out so well against adverse circumstances, and seemed unwilling to perish. The reward was this—a very singular and beautiful *Gladiolus*, which in leaf and general habit differed from all others, and of which the blossom could not fail to be admired.

MR. MAX LEICHTLIN'S EXPERIENCES.

In addition to the great pleasure and profit of viewing his plants, there is an immense deal to be gained from discoursing with the master himself. I have seen him very often, and he most kindly gave me access at all times to his domains. The following may be taken as samples of the very valuable hints which dropped from his lips.

We were bending over a very large patch of *Omphalodes Lucilæ*, and I said, "How do you propagate it? Do you grow it from seed?" The reply at once was, "There is just one fortnight in April which is good for increasing it, and if you manage to catch that one fortnight every little tiny bit of it will grow." What length of experience may have been wanted to find out this one all-important fortnight in the course of the year!—for he would not allow that outside of it there is the same chance of success.

Omphalodes Lucilæ is very tractable for fourteen days, and for 351 days in the year, according to Herr Max Leichtlin, it is very capacious indeed. But my lesson did not by any manner of means end there. We passed on, and soon another great favourite, *Pulmonaria dahurica*, was reached. In my crass ignorance I said, "I shall try to find a fortnight for this *Pulmonaria* in the spring, after the way of *Omphalodes Lucilæ*." "Then you will do no good with it at all," was the immediate reply, "for it only divides in the autumn."

It is the very quintessence of horticultural experience with which Herr Max Leichtlin abounds, and what is so very important to other persons is, that he does not try to keep it to himself. Who has not admired *Nerines* and often failed with them if he has tried to grow them at all? But it makes all the difference in the way of encouragement if you know there are two sorts which stand out from all the rest in point of facility of culture, and other good properties which they possess. Begin with *Nerine excellens* and *N. pudica*, and let the troublesome *N. sarsienensis* go its way. Over and over again the thought was uppermost in my mind, "Would only that my friend would write a book!" I have never felt this so strongly with regard to any one else. He has a manner of treating things, and a hold upon all minutiae which have to do with either plants or bulbs that seem to command success, and long patient trials have of course brought enlightenment with them. Max Leichtlin can now tread certainly where most other persons have still to feel their way. A book from him full of horticultural lore would be of priceless value to amateurs, and to those to whom progress is dear. I was much amused at hearing that exactly the same thing had already been suggested to him.

All along Max Leichtlin made me anxious to learn from him. It is true I went to Baden-Baden for that purpose, but the desire only deepened as it was fed. If I could put back the hands upon the clock of Time, and I had nothing important to do, I should like nothing better than to serve an apprenticeship under him, and to enter fully into all the inner mysteries of his profession. But valuable as his suggestions certainly are from every point of view to the lover and cultivator of plants, it should be borne in mind that his example must not be servilely copied in every case.

It is right so far as it goes beyond all question and doubt, but he lives and works amidst surroundings which no English gardener can know. A lizard which almost runs across your hand and then stands motionless and stares you in the face reminds you that you are in rather a hot place. In the merry month of May the process of putting on and taking off the scrim coverings from his frames requires great attention and care. But who would see such a need for it in England at that early season of the year? And at midsummer the trouble is even greater to which he submits—the ground becomes so heated and baked by the fierce rays of the sun during the daytime that it does not answer at all to water in the evening, which is just the very time that our gardeners take for the purpose. Max Leichtlin rises at half-past three o'clock in the morning, and he then and then only deems it safe to water his favourites. In winter time he seems to suffer in the opposite way. He tells me that snow very frequently falls to the depth of half a foot in a night.

But the man must have his eyes closed to what is beautiful and his ears shut against all that is instructive in the way of gardening lore who does not find a visit to Baden-Baden refreshing and useful in the very highest degree.

We all have to be thankful that there is one person who gives himself up so undividedly to the study of his choice, and who does it so well that his are no barren investigations, but they blossom and bear fruit abundantly. *A Wanderer.*

New Garden Plants.

ADIANTUM CAPILLUS-VENERIS VAR. GRANDE, T. M.

THE remarkably handsome form of *Adiantum Capillus-Veneris*, of which a description is subjoined, was sent to us by the raiser some two years since, at which time it was not fully developed, and we advised its being grown on in the expectation that it would prove to be something noteworthy, and such it has proved to be, for it is not too much to say it is the finest and most noble of all the varieties of this species of Maidenhair.

The plant is of creeping habit, and soon develops a dense spreading tuft of its handsome fronds. These grow about a foot high, springing up from a creeping scaly rhizome, and have a black shining stipe of about 6 inches, and a triangular ovate lamina of the same length, made up of alternate spreading pinnae which consist of a few very large pinnules, the basal ones on the lowest pinnae being just sufficiently divided to render the fronds technically tripinnate. These pinnules are very peculiar, for when growing on the frond they appear to be solid, and one supposes they are large and undivided; when, however, they are gathered and placed between paper for the herbarium they appear to undergo some degree of shrinking without being reduced in their general bulk, for they are parted into from ten to a dozen dichotomously-divided segments, which are cut down fully two-thirds to the base, so that a frond laid in paper one day would scarcely be recognised the next. In both forms, the concrete and the divided, the fronds are particularly handsome. The pinnules, of which the larger ones measure fully an inch across, vary somewhat in form, some being half-circular in outline, some roundish-elliptical, and some few cuneate, or occasionally more or less rhomboidal with the posterior line concave. The margin is in all cases deeply lobed, in a dichotomous manner, with a sordid occupying the apex of each lobe, and either oblong or linear in shape according to the breadth of the lobe on which it is produced; this is covered by a narrow indusium, which is regular or toothed at the margin. The rachides and pedicels are of a glossy black, like the stipes.

The fortunate raiser of this fine novelty is Mr. T. Jannock, of the Lily Nursery, Desingham, King's Lynn, who makes a specialty of the cultivation of the Lily of the Valley. He reports that he finds this Fern most useful as a decorative plant, and adds, "It is hardy, and will stand out-of-doors in sheltered places during the summer." It will grow in shallow pans or vessels of any description; the specimen sent to us—a very fine example of good cultivation, with quite a forest of vigorous fronds, was growing in a shallow pan some 1½ inch deep and 6 inches across, which was literally hidden from above by the mass of bright green fronds with which it was furnished.

Fronds 10 inches to a foot long (including stipes of 5–6 inches), evergreen, glabrous, triangular ovate, tripinnate; pinnae spreading, alternate, the lowermost slightly bipinnate; pinnules large, shortly and finely pedicellate, the larger ones fully an inch across, half-circular roundish flabellate or cuneate, the intermediate ones sometimes rhomboidal, with the posterior side recurved, all more or less deeply dichotomously lobate, the largest ones parted quite two-thirds to the base into 12–15 segments; veins flabellately forked; sori oblong or linear, occupying the apices of all the lobes; indusium narrow, irregular or toothed at the edge; rhizome creeping, covered with pointed dark brown scales; stipes, rachis, and pedicels glossy black. *T. Moore.*

LASTREA DILATATA VAR. DENTIGERA, n. nov.

This neat and pretty variety, unlike anything we find in our herbarium of British Ferns, is well worthy of record. It is almost symmetrical, the few variations in the two fronds before us consisting in one of them having two blank spaces where there should have been pinnae, the pinnae opposite one of these blanks being forked; and in the occurrence in the other frond of a group of three pairs of pinnae which are smaller than the normal size, are unequal in length, are set on askew, and are more crowded than usual. The fronds are dwarf (6–8 inches long), slender, lanceolate or narrowly ovate-lanceolate, the larger pinnae about 1½ inch in length, the pinnules ovate acute, quite distinct in the lower part, and more or less decurrent in the upper part of the frond; they are parted, according to their size, into from two to four lobes, which are again cut into one or two short acute ovate teeth. This toothing being very even throughout the frond becomes a very conspicuous feature, and is intended to be indicated by the name adopted. The slender stipes and rachis are each furnished with small lanceolate scales, which are mostly recurved, and though *petite*, are large enough to show here and there the dark brown stripe which is one of the recognised marks of this species. The specimens here described were sent to us by the Countess of Lichfield, the plants, now growing at Melbury, having been found by her in August, 1885, near Loch Laggan, in Inverness-shire, at from 1500–2000 feet above the sea-level. In its minute toothing it perhaps comes nearest to *L. dilatata crosa* among the older forms, but that is much larger, and a more vigorous grower. *T. Moore.*

MASDEVALLIA STRIATELLA, n. sp.*

A small flowered *Masdevallia*, in the way of *Masdevallia chloracea* and *camptyliglossa*, with a closed perigone going out into three short tails, which are yellow, while the body of the perigone is white, with several (always nine?) cinnamon longitudinal stripes. Petals lanceolate, with an angle in the middle of the inferior side, white, with a brown mid-nerve. Lip lanceolate acute, with an angle on each side at the base, white, yellow at the base and apex, and with three longitudinal purple nerves. Column white, with purple side borders. The leaf is rather thick, cuneate, ligulate, blunt, acute, reaching 5 inches in length, not 1 in breadth. I had this nice little beauty through the kindness of Mr. W. Lee, Downside, Leatherhead. *H. G. Rehb. J.*

CHONDORRHYNCHA LENDYANA, n. sp.†

Major A. C. Lendy, Sunbury House, Sunbury-on-Thames, Middlesex, has grown this for some years. Finally it has flowered, and has proved a chaste novel beauty. The flower is nearly as large as that of *Warszewiczia discolor*, but the petals are very large, and much superior to the sepals, the lateral ones

are reverse and retrorse, which produces a very peculiar impression; and the large elliptical lip has a small bidentate callus in the centre. Sepals and petals are of the lightest whitish-yellow, but the lip is much darker. The column is white with some small purple lines at the base in front. It is dedicated with great satisfaction to its excellent possessor. *H. G. Rehb. f.*

THE GENUS ODONTOGLOSSUM.

(Continued from p. 39.)

THE following form a very pretty section, many of them come under Lindley's division *Ianthium*, and most of them bear branched panicles of rather narrow-petalled or comparatively small flowers. All are from high elevations, and all succeed best in the cold house, and with a liberal supply of rain-water. Many of this section are difficult to import and slow to come into regular flowering condition, but they are all very beautiful and free flowering enough when once they get established. Many of them also partake more of the habit of growth of *Oncidium macranthum* than of the other sections of *Odonoglossum*, and they succeed well when grown in the same manner as the plant named.

ODONOGLOSSUM AUROPURPUREUM, has large pear-shaped pseudobulbs, and more or less erect leaves, the whole plant being of a light green; flowers about 2 inches across, of good substance; sepals and petals narrow, yellow marked with purple, borne on stiff much-branched upright panicles, often 5 feet in height. Peru; Venezuela.

O. REVOLUTUM.—Similar in habit to *O. Lindleyi*, but with stiff leaves rolled back on either side of the midrib. Flowers yellow, borne on stout spikes in a dense pyramidal panicle.—Hartweg. Paramo of Guanacas, Poyasan. Height, 11,000 feet.

O. LINDLEYI.—Habit of *O. auropurpureum*. Flowers on upright spikes, 2 to 3 feet, the upper half branched, each arm bearing several narrow-petalled flowers, wavy at the edge, of a clear yellow tint, and nearly 2 inches across.—New Grenada; 6000 feet.

O. SPATHACEUM.—Of this Lindley, in *Folia Orchidacea*, says:—"A noble plant, with large panicles of spotted flowers, apparently yellow, with sepals 1½ inch long. The bracts are much larger and more spathaceous than in the allied species." More recently received dried specimens prove the plant to be a very fine one, with golden-yellow flowers, sometimes marked with crimson spots. It is, however, very difficult to import, and but few of it have survived.—New Grenada.

O. PARDINUM, originally discovered by Dr. Jameson in the Andes of Ecuador at a height of 10,000 feet, and well flowered by Backhouse, of York, in 1867, has ovate compressed pseudobulbs and narrow acute leaves, all of a greyish-green. It bears narrow-petalled flowers on strong panicles, and the variation in the colouring is very great, some of the varieties being wholly yellow, some spotted, and some barred with reddish-brown. All are pretty and fragrant.

O. ANGUSTATUM.—This is a very elegant plant, with narrow pyriform pseudobulbs, each bearing one leaf. The flowers are on erect branched panicles. Sepals narrow, greenish-yellow with a line of brown in the middle. Petals broader and wavy at the edge, yellow with brown bars.—Peru, in the valley of the Lloa; height 8000 feet.

O. CLAVICEPS.—This curious species has large twiggly branched panicles of flowers, reminding one of *Oncidium phymatocilium*. The narrow wavy petals and sepals are cinnamon, barred with darker brown, the lateral sepals being under the labellum.—Ecuador.

O. RAMOSISSIMUM.—This, although known for many years, is not yet plentiful in collections. The pseudobulbs are oval and compressed, leaves long, narrow, and pointed. Flowers on upright, much branched panicles, sometimes almost wholly pure white, in others tinged with lilac, and in some, of the forms white, profusely spotted with purple; lip purple at the front portion. The late Mr. Roez mentions having found it at Manizal, Colombia, at 12,000–13,000 feet, where it is often subjected to frost.

O. EDWARDII.—Plentifully sent from Ecuador about 1878 by Edward Klaboch, after whom it was named. It is a fine and distinct species, with stout dark green pseudobulbs and strong panicles of violet-coloured

* *Masdevallia striatella*, n. sp.—Aff. *Masdevallia chloracea*. Rehb. f., ac M. *camptyliglossa*. Rehb. f.: foliis cuneato oblongo ligulatis obtuse acutis pedunculis subrevolutis floribus solitariis porrectis; ovario pedicellatis bracteis excedentibus; mento in sepalorum tubo minuto; caudis crassis tubum ipsum non aequantibus; tepalis lanceis infra angulatis; labello basi utrinque angulato lanceo; columna clavata apice acuta. Sepala albidia nervis, cinnameis, caudis aurantiacis. Tepala alba nervo medio brunneo. Labellum basi apice flavum nervis tenuis purpureis. Columna alba purpureo marginata. Col. d. Lee. *H. G. Rehb. f.*

† *Chondorrhyncha Lendyana*, n. sp.—Sepalo impari ligulato obovato acuto, sepalis lateralibus, linearis ligulatis reversis retrorsis; tepalis oblongis, labello elliptico antrorsum obscure subrenatulo, callo depresso bidentato in disco, rostellato producto tridentato. Sepala pallidissime ochroleuca. Tepala edentula. Columna ligulata. Labellum cuneatum magis antice pallidius. Columna alba striata in basi purpurea. Exc. Lendy Sunburyensis dicata. *H. G. Rehb. f.*

flowers, each about an inch across. It is also very fragrant.

O. IOPILOCON resembles a plant intermediate between O. ramosissimum and O. Edwardii, both of which it resembles in some of its features. Flowers mauve, the wavy segments being broader and shorter than those of O. ramosissimum. It flowered with Mr. Bull, of Chelsea.

O. LILIFLORUM.—Under this name a very charming plant was exhibited at a recent meeting of the Royal Horticultural Society. It bears a resemblance to O. ioplocon, but is much stronger growing if Mr. Buchan's plant fairly represents it. It has since been imported and sold under the name O. liliflorum, and thus the name is established in gardens. It bears stout flower-spikes 3 to 4 feet in length, naked for two-thirds of the length, and bearing at the top a dense head of rose-coloured flowers, each over an inch across, the segments being broader and shorter than O. ramosissimum. James O'Brien.

ACORN GALLS.

THE inquiry in a recent issue of the *Gardeners' Chronicle* as to the origin of "coconos in an acorn at Cannes," furnishes a convenient opportunity for a brief sketch of what is known of this interesting phenomenon. From the description given I have little doubt that these so-called coconos are true galls, and probably produced by a small gall-making Cynips known as *Andricus glandium*, or a closely allied species. Mayr, in his *Die Mitteleuropäischen Eichen-gallen*, in describing the acorn-galls of *Andricus glandium*, says:—"If we cut through the fallen acorns of the Turkey Oak in autumn, we often find in their interior a remarkable thickening of the brown shell, which takes the place of part of the nut, and in section show white, hard, oviform, or polyhedral inner galls of about the size of a Hemp-seed. They are joined together with slightly denser tissue, and in each there lies a gall-fly larva. Sometimes we find the acorn-shell only thickened by a single gall at a place, but sometimes the seed is wholly appropriated, and the whole acorn filled with these galls." He further remarks that the fly was not bred until the third year after the galls were gathered. The above translation, by Mr. E. A. Fitch, together with other information, may be found in the *Entomologist* for 1878.

Before considering how far the description of the coconos found at Cannes agrees with the above, we may mention what is known of acorn-galls in Britain, as we shall see it has a distinct bearing on the question. In the autumn of 1874 Mr. G. B. Rothera collected at Oller-ton, Nottinghamshire, an acorn-gall which he describes as a thin, shelly, unilocular gall, lying loosely within the acorn-case, and containing a large, fat, white, mandibulate larva, closely resembling that of *Cynips Kollari*, the maker of the well-known bullet-gall. He remarks that it does not agree with the one figured by Mayr, nor with Giraud's description, which applies to a multilocular gall.

In the early summer of 1875 Mr. Cameron collected near Glasgow two or three galls which he referred to this species. As they were, however, from the common Oak, as were presumably the Notts specimens, it is very doubtful if they belong to *A. glandium*, which has only yet been certainly bred from the Turkey Oak. And what renders the suspicion that they are produced by a distinct species the more certain is the fact that of the numerous European galls now known, none are common to these two species of Oak.

In the autumn of 1877 Miss E. A. Ormerod discovered at Kew acorn-galls on the true Turkey Oak, *Q. Cerris*, and its variety, *Lucombeana*. These I have little doubt are really produced by *A. glandium*. They are common at Kew every autumn, though I have not yet succeeded in breeding the insect. The chief difference between the two consists in the more dwarfed state of the acorn in English than in South European specimens, though this would hardly denote a specific difference if unaccompanied by any other, and possibly may be due to our less favourable climate. Now comes an interesting point. Miss Ormerod, in the spring of the previous year, had found a bud-gall on the same Oak which yielded the acorn-galls in the autumn, and on forwarding specimens to Herr von Schlechtendal, he gave the opinion that they corresponded to the bud-galls of *Andricus circulus* of Mayr. Miss Ormerod then threw out the

suggestion that further search might possibly show these two galls to be the spring and autumn forms of the same species, as is now so well known in the case of the common Oak. Whether this be really the case is a problem which I believe yet awaits a solution.

This dimorphism in galls is an extremely interesting and even remarkable fact, for the two forms have hitherto been usually placed in distinct genera. If acceptable I may possibly return to this at some future date; in the meantime it would materially help in the solution of the question as to the maker of the coconos found at Cannes if Mr. W. Marshall could inform me if the acorns were those of the Turkey Oak or of the common species, and, still better, if he would kindly forward me specimens, on some future occasion, for identification, and to enable me to breed the maker, if possible. R. A. Rolfe, *Herbarium, Kew*.

Orchid Notes and Cleanings.

HEMIPILIA CALOPHYLLA.

THIS is an interesting and very beautiful addition to the genera of Orchids now cultivated at Kew. It was in flower there till a few days ago, when, a figure of it having been made, the spike was secured and carefully dried for the Herbarium. It is well described by Professor Reichenbach, as follows:—"The leaf is dark green, very beautifully mottled and netted with brown, and equals that of the common *Hemipilia cordifolia*, Lindl., as does the whole plant. The elegant flowers are white, with green tips to the sepals and petals; the lip is purplish, and, according to a note of the Rev. C. Parish, flowers wholly purplish occur." The plant was detected on limestone rocks near Moulemein, in August, 1873, by the Rev. C. Parish who forwarded to Professor Reichenbach a drawing, and a specimen with an eight-flowered spike. In habit it resembles a *Goodyera* or *Anæctochilus*, except that it has the peculiarity of producing only a single leaf. R. A. R.

DENDROBIUM BREVIFLORUM, Lindl.

This long lost, though by no means showy *Dendrobium*, has again turned up, a specimen, received from the Calcutta Botanic Garden, being now in flower at Kew. It was described by Lindley in 1859, with the information that it flowered in 1844, in the nursery of the Messrs. Loddiges; the wild locality being doubtfully given as Singapore. A coloured drawing at Kew, received from the Calcutta Botanic Garden, however, states that the plant was introduced there from Parasnath, in the Indian province of Behar—a much more likely locality. The flowers, which are half an inch in diameter, are borne in fascicles on pseudobulbs of the previous year. The sepals and petals are pale greenish-white, with crimson spots arranged somewhat in longitudinal stripes. The lip is three-lobed; the broad central lobe yellow in colour, and the falcate acute side-lobes crimson. The column is creamy-white, with a crimson border round the stigma. Lindley's herbarium contains a well executed coloured drawing of the flower, a portion of a pseudobulb, and a fascicle of flowers. R. A. Rolfe, *Kew*.

SOME ORCHIDS IN FLOWER AT MESSRS. J. VEITCH & SON'S.

The large Cattleya-house still contains a good number of plants in flower, but we could perceive the season was fast drawing to a close, and a week or so of hot weather will dispose of the remainder of the harvest of bloom that has now lasted since the beginning of the year. A few *Cattleya Sanderiana*, in which considerable diversity of colour and some also in size of bloom were noticed; the cheerful-looking *C. crispata*, a few richly-coloured *C. Dowiana*, and *C. elegans*; *Lælia elegans*, always so capital a contrast in its pure white to the high-coloured species; and several of the lesser known *Lælia xanthina*, with flowers of white and pale yellow. Of the charming species *C. guttata* Leopoldi there were several plants bearing robust spikes of eight or ten blooms each, distinct from everything else by the richness of their tints.

In other houses were *Angraecum Scottianum*, a pretty diminutive species, pure white, the tail measuring 6 inches in length; the very varied as to colour *Oncidium Jonesianum*; *Dendrobium endochasis*,

one of Mr. Seden's hybrids, with terete pseudobulbs and white flowers, Mignonette-scented; and *D. Rhodostoma*, a small flower, with the colours common to *D. nobilis*.

CATTELYA GIGAS.

This species has done very well this season in the gardens of De B. Crawshaw, Esq., Rosefield, Sevenoaks. It is certainly one of the finest of the genus, and grows freely enough, but is very shy in flowering. If the plants are potted in the same way as *C. Mossiae*, *C. Mendelii*, *C. Trianae*, &c., and placed on a stage, they will probably remain flowerless. I have grown it the best in blocks suspended near the roof. Mr. Cooke, the gardener, has placed his plants in pans and baskets, and hung them up near the roof. Nearly the whole of the growths have produced flowers out of a considerable number of plants. It likes a warm temperature when making its growth. J. Douglas.

SPATHOGLOTTIS ANGSTURUM.

From the Compagnie Continentale of Ghent we have received a cut spike of the singular and beautiful plant described by Professor Reichenbach in *Gardeners' Chronicle*, vol. xxv., p. 334, and figured in the *Lindleya*, t. 25. The flowers are borne in close many-flowered terminal racemes, each flower springing from a white boat-shaped, eventually reflexed, bract. The slender erect pedicels measure about an inch in length, and pass imperceptibly into the ovary, which is linear, untwisted, and of about the same length as the pedicel. The individual flowers are about $\frac{1}{2}$ inch in diameter, white, flushed with lilac; the three sepals broad at the base, oblong-acute, concave, the side petals of a similar colour, but broader and tapering at the base; the lip is shorter than the petals, and of singular construction: the basal portion has on each side a lobe of falcate oblong obtuse form, and of a purplish-brown colour, finely spotted, ascending and arching over the central callus, which has a median groove, bounded on either side by a thick wedge-shaped process, flat at the top, and provided with a few hairs; at the base of this callus, on either side, are two small ear-shaped processes, while in front of them the lip runs out into a long slender stalk or unguis, pointed in the middle, and dilating in front into a petaloid transversely oblong, two-lobed violet-coloured limb. The column is about half the length of the petals, club-shaped, white, arching over the side lobes of the lip. Pollinia eight, with long stalks.

We do not know directly by what means the flowers get fertilised, but the inference to be drawn from the structure is highly curious. It will be seen from what has been before said that there is a well-marked tunnel in front of the base of the column, a tunnel formed by the side lobes of the lip which form the sides and roof, while the floor is formed by the deeply-grooved callus or wart. In front of this is the lip with its long stalk jointed in the middle, and terminating in a petal-like expansion. We imagine from this structure that an insect alighting on the fore part of the lip crawls along the tunnel at the base to get at the honey. Having entered the tunnel the door, which at first stood invitingly open, is closed behind him by the action of the hinge in the stalk of the lip. The lip, in fact, which was at first in a straight line becomes, probably by the impact of the insect exciting the movement, suddenly bent at right angles, the more or less effectually closing the tunnel, or at any rate detaining the insect, which in its struggles to free itself from the trap must infallibly dislodge the pollen masses. M. T. M.

AZALEA OCCIDENTALIS.

THE word *Azalea* offers a difficulty in nomenclature. Botanists have ascertained that between *Rhododendrons* and *Azaleas* there are no absolute limitations—that while a *Rhododendron* proper and an *Azalea* proper are amply distinct, there are intermediates which do not fit precisely into one or the other, and consequently from their point of view there is but one genus, of which *Azalea* is a mere subdivision. From a garden point of view, however, *Azaleas* are not *Rhododendrons*, nor are *Rhododendrons* *Azaleas*—the intermediates are unknown or ignored, and custom has become too potent to allow of any change in garden nomenclature. So long as it is understood what is meant it really is not of much consequence; and under these circumstances we prefer to stick to the garden nomenclature, and call this plant *Azalea occidentalis*. Botanically it is *Rhododendron* (section *Azalea*) *occidentalis*.

Azalea calendulacea has long been known from the Eastern or Atlantic States, and the present species from California is in the dried state so like the older-known plant, that it is no wonder that it was thought they were identical. Nevertheless, the Pacific plant is amply different when seen in the fresh, and so, instead of one species common to both sides of the American continent we have two—one peculiar to the South Atlantic States, the other to the West or Pacific States. Whether or no they origi-

This, and the illustration (fig. 21), preclude the necessity of giving further botanical detail. Its garden history is that it was introduced to the Veitchian nursery at Exeter, many years ago, by Mr. W. Lobb, and it was from this source that Sir W. Hooker's figure was taken. From the same source, probably, were derived the bushes in the Kew Arboretum; little, however, has been heard or thought of the plant till recently. Just as we were thinking *Azaleas* were nearly over, Mr. Anthony Waterer brought up to South Kensington trusses of this *Azalea*,

the community are due to Mr. Waterer for once more bringing this under notice.

SCOTCH NOTES.

THE TWEED VINEYARD, CLOVENFORDS.—It is nearly eight years since we had the pleasure of looking over this famous Grape-growing establishment.



FIG. 21.—*AZALEA OCCIDENTALIS*: FLOWERS ORANGE AND CRIMSON, FRAGRANT.

nated in some remote past from one common stock no one can say; probably they did, but the pedigree is not forthcoming, and we must now take them for what they are—two distinct species.

A. occidentalis is a native of the Sierra Nevada, and of the coast range along streams. It is fully described in the *Botany of California*, vol. i., and in Gray's *Synoptical Flora of North America*, vol. ii., part 1 (1878), p. 40, having been previously described from imperfect materials by Torrey and Gray, and by the late Sir W. Hooker, who figured it in the *Botanical Magazine*, t. 5005.

which attracted great attention from the season at which they were shown, as well as from the beauty and fragrance of their flowers. The flowers are each about 2 inches long, the tube 1 inch, cylindric-funnel-shaped, deep rosy-red and shining, though not so thickly beset with glandular hairs as *A. calendulacea*, in which also the tube is more slender. The leaves, too, are bright shining green, assuming, we are told, a glowing red colour in autumn. At the margins they are bristly, but not serrulate as they are shown in the woodcut. For the rest our illustration, taken from Mr. Waterer's specimen, tells its own tale. Anything which will prolong the *Azalea* season is welcome, and this has so many good points in addition that the thanks of

Many changes have taken place since then in the horticultural world, short though the time be—few of them for the better, many for the worse, whether the view be taken from the commercial, the social, or the domestic standpoint. There have been changes in this great place also, as we noticed on the occasion of a recent visit, but they are of such a nature as to increase rather than diminish the interest of the visitor, while they undoubtedly add to the profit of the proprietors. Perhaps the most notable change in recent years is the discarding of the market plant trade and the substitution of Orchid growing instead.

THE ORCHIDS.

The suites of houses formerly devoted to the cultivation of thousands of the usual classes of market plants are now filled with valuable Orchids. The collection consists only of the best species and varieties obtainable—nothing inferior of its kind is grown, and the genera selected from include all that are popular at the present time. The condition of the stock is exceptionally good, the plants clean, vigorous, and well established. Of rare kinds we noted fine plants of *Anguloa eburnea* (true) and *A. Ruckeriana* in flower, both specifically alike in growth, but totally distinct in colour, the former pure ivory-white and spotless, the latter deep bronze crimson, and both as interesting as they are rarely seen. Some fine forms of *Odontoglossum citrosimum* were flowering freely, and several splendid plants of *Dendrobium suavisimum* were profusely covered with their thyrses of lovely flowers. Among *Cattleyas* we noted a goodly number of *G. Gaskelliana* in flower, which, if not one of the best of the genus, is certainly a most useful one, inasmuch as it extends the possible season of *Cattleya* blooming to a period long after that in which the other sections of the genus have ceased to flower. *Cypripedium ciliolare*, as seen here, is a very distinct and desirable species. Why such a beautiful and free-blooming sort should have made so little impression on Orchid growers at the time of its introduction is difficult to conceive. It is unquestionably one of the finest and most distinct of the section of the Lady's Slipper family, to which it belongs. There were some admirably healthy specimens of *C. Dominionum* in bloom, and a magnificent specimen of *C. Stonei* in a 20-inch pot that was formerly in the collection of the late Mr. Sam Mendel in his most glorious horticultural days. Some very healthy plants of *Phalenopsis Ludemanniana* were flowering freely in baskets; and the dwarf and best form of *Sobralia macrantha* was showing a profusion of its always attractive blooms. The most noticeable of rare species and varieties not in flower were vigorous plants of *Laelia Jonghiana*, with from seven to nine bulbs; *Dendrobium nobile nobiliss.*, fine young stock, in fine growth; *Laelia Amanda*, *Cattleya Skinneri* alba, *C. exoniensis*, *Laelia anceps* alba, *Coclogyne Massangeana*, *C. cristata* (Chatsworth variety)—of the latter a large stock propagated from original plants; *Dendrobium Leechianum*, a fine batch of young plants; and *Odontoglossum Pescatorei* Thomsoni, a very superior form of this popular species. The stock of *Masdevallias* and *Odontoglossums*, containing only the best varieties of all that are worth growing, is all well established, and being propagated at home—not imported—are to be depended upon as to the character of each individual plant. There were a good many plants of *Odontoglossum Alexandræ*, and a few of *O. Pescatorei*, in bloom, all showing distinctiveness and purity of colouring. Several strong tufts of *Masdevallia chimera* were the only samples of that genus in flower.

THE VINERIES.

A look through the vineries was very gratifying. We have often had the pleasure of inspecting them since they were first planted some sixteen or seventeen years ago, but have never seen the Vines more heavily cropped or in better health than on this occasion. The Lady Downe's houses are simply grand, the crop enormous, the bunches large, almost uniform in size from top to bottom of the long rafters, averaging 2500 in each house. Viewed from an end of the house, the crop appears to be a solid mass of noble bunches and berries. The Gros Colmar houses are even more remarkable for the excessive weight of the crop they contain. The bunches are somewhat fewer perhaps per Vine, but the enormous size of the berries, which in the earliest house are just beginning to colour, and the greater bulk of the bunches combine to give an appearance of greater weight than is suggested by the view of the Lady Downe's crop.

These two Vines with Muscat of Alexandria form the bulk of the crop now grown at Clivenfords. The two first are the favourites in the market, they take more readily by the public than any other sorts. They keep better, and carry with much less risk of damage to distant markets, and as these are the chief or rather the only outlets for such masses of the best qualities of grapes as are annually produced here, the selection of sorts and other arrangements are all made by the proprietors with the view of meeting the requirements of their trade. Very little from Clivenfords finds its way into Scotch markets, consequently only sorts that will carry and keep well are grown.

For this reason we regretted to observe that the space devoted to the growth of the Duke of Buccleuch is very much restricted as compared with what it was formerly. This is not a good keeping Grape, nor is it a good traveller. Its thin skin, its slender footstalks, and its enormous weight, all unsuit it for either keeping long or travelling well. But provided there is a ready market near at hand, Messrs. Thomson are still of opinion that the "Duke" is one of the best and most profitable to grow for market purposes. No variety is more in favour with retail dealers or consumers of Grapes, and it is with regret that Messrs. Thomson find themselves compelled, for the reasons above stated, to limit their own growth of it.

The most astonishing fact that came to our knowledge in connection with the Vines at Clivenfords on this occasion, was that the use of farmyard or stable manure had been wholly discontinued during the last three or four years; it is not even used in the way of mulchings. Grass mown from the roadsides in the neighbourhood, is the only material used for mulching, and that only on inside borders to moderate evaporation, and to prevent the raising of dust by the passage of the numerous visitors through the houses. Nothing in the shape of nutrient or stimulant has been given to these Vines during the time stated above, except the "Improved" Vine manure, manufactured by Messrs. Thomson themselves. Prior to that time they were treated to stable manure collected for them in, and hauled at great cost from Galashiels, a distance of 3 miles, but the exhausted soil did not respond to such applications, and the Vines decreased in vigour, shanking set in, and it became evident that a change of treatment must be adopted or disaster would ensue. Many experiments had been instituted prior to this time with the various artificial manures that are in the market, some of which proved perfectly satisfactory, as mere stimulants during the periods of growth, but were deficient in the staying qualities requisite to the reinvigoration of worn out plants such as the Vine by accretion. The result was the concealing of their own special manure, originally only for their own purposes, and which the public now have the advantage of, but not before Messrs. Thomson had proven by their own experience that it was all they desired to meet the requirements of their own case. Their Vines have improved steadily since they changed their treatment as regards manure, and if results mean anything in such a matter they are eloquent at Clivenfords in favour of the new treatment. As regards the actual cost relatively of the artificial and the natural manures, Mr. W. Thomson, sen., considers the firm are over £100 annually in pocket by the change, the larger portion of which sum was due to the labour attendant on the use of the latter. Cleanliness and the absence of unsightly litter are points of perhaps secondary consideration to growers for market generally, but not so at Clivenfords, where everything is kept in spick and span order, and there is evident economy in any case in the maintenance of such conditions. X.

TREES AND SHRUBS.

RETINOSPORA TETRAGONA AUREA.

MESSRS. W. BARRON & SON, of Borrowash, showed at Liverpool a fine specimen of this compact growing Conifer, which has the great advantage, we were told, of doing well in the colliery districts, where it is exposed not only to foul air, but to strong wind. We do not know the source of this fine golden variety.

ABIES DOUGLASSII GLAUCOA.

This handsome variety is, we learn on the authority of Messrs. Barron, who showed a fine plant at Liverpool, harder than the common form and that from Vancouver Island, and less liable to be hurt by spring frost.

ZENOBIA SPECIOSA.

The most experienced botanists seem to be in accord in considering that there is but one species of this genus (by some considered a section of *Andromeda*), and that species, moreover, very variable. Asa Gray says that it varies from bright green to chalky white (*Synoptical Flora of North America*, p. 30). For garden purposes, however, it is well to keep the varieties distinct. The variety *pulverulenta*, figured by us at p. 109, *Gardeners' Chronicle*, vol. xx., has oblong obtuse leaves, markedly crenate, and very

glaucous. The pedicels, arranged in umbels along the ends of the branches, are about three-quarters of an inch long, and the drooping flowers measure rather over a quarter of an inch in length, and are bell-shaped, or somewhat funnel-shaped, not distended, in the middle.

ANDROMEDA CASSINIFOLIA.

Of which a specimen has been kindly sent us from Combe Wood by Messrs. Veitch, is even more beautiful, so far as the flowers are concerned. The young shoots are somewhat angular, and bear shortly-stalked, ovate-oblong, finely-serulate, not crenate, rather thick green leaves, the colour of which is set off by the red tint of the shoot-stalks. The flowers are like those of a Lily of the Valley on a large scale, bell-shaped, distended in the middle, and arranged in tufts or umbels on alternate sides of the shoot for a length of 4 or 5 inches. Both forms are strikingly handsome, and so hardy that one wonders not to see them more frequently.

HYDRANGEA INVOLUCRATA.

From Messrs. Veitch we have received, from their rich stores at Combe Wood, flowering specimens of *Hydrangea involucrata* vera, a plant with the stems and foliage more or less covered with stout bristly hairs, the leaves shortly stalked, lanceolate, finely toothed, and with prominent nerves. The two uppermost leaves or bracts are much smaller than the others, boat-shaped, and forming an involucre to the cyme of pretty blue flowers. The species is Japanese, and not often met with.

NOTOSPARTIUM CARMICHAELIÆ.

is a pretty and interesting shrub, with stems like those of the Spanish Broom, and with scale-like leaves only. From the sides of the flattened branches issue short racemes of pale violet pea-shaped flowers. It is a native of New Zealand. Messrs. Veitch.

STYRAX JAPONICUM.

A shrub with slender wiry branches, small thin ovate acute leaves, tapering into a short stalk. The flowers are borne on the shoots of the year, and have long slender pendulous stalks. The flowers themselves are bell-shaped, white, five-petalled.

CHOISYA TERNATA.

Mr. R. Greenfield, at p. 767, makes enquiries respecting this plant which he had noted at Kew some six years ago. Until quite recently there were two plants, which would correspond to what he mentions, and as he did not specify on what aspect it was planted, nor in what particular part of the garden he saw it, one could not be certain which he meant. One enjoyed the protection of a wall on the southern aspect, growing and flowering freely without the slightest protection until it was removed recently owing to some alterations that were being made. Another plant which I believe had been planted about the same date occupies an eastern aspect on the herbaceous ground wall, where it produces annually a great quantity of Orange-like blossom in many-flowered umbels. About three years ago some large branches of this plant suddenly died through some unaccountable cause, as frost had evidently nothing to do with it; but the remainder of the plant assumed its wonted vigour, and to-day it covers by a rough computation an area of 60 square feet, or 10 in height by 6 in breadth. It suffers no systematic pruning, and the leading branches only are nailed to the wall, so that an unbroken surface of foliage covers the wall, which doubtless assists the plant in severe weather. The power of resisting cold, however, possessed by this plant should induce gardeners to plant this shrub on a much greater scale than has hitherto been done in the open air. A figure of it is given in the *Gardeners' Chronicle*, vol. xiii., n.s., 1880, p. 625. J. F.

STATISTICS OF HARVESTS AND THE METEOROLOGICAL PHENOMENA. — C. Ferrari has published in the *Agricultural Annals* for 1883 a comparison for Italy between the statistics of harvests and the meteorological phenomena. He deduces a number of practical rules, such as the more rain we have in summer the greater the harvest of corn [Maize]; but for Wheat, Rye, and other grains, great rain frequency is injurious, and the harvest is greater as the temperature is higher and the cloudiness less.

REPORT ON THE CONDITION OF THE FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS, JULY, 1886.]

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
SCOTLAND.										
ABERDEEN .....	....	Some onts over average; Under	Under average	Not grown out-of-doors	Complete failure	Same as Apples	Rather under average; good	Average; good	Not grown	John Forrest, The Gardens, Haddo House
.....	Under	Under	Average	Not grown outside, but over in houses	Average	Under	Over	Average	Under	R. Farquhar, Fyvie Castle
ARGVILL .....	....	Victoria good	Scarce	....	Scarce	....	Fair average	Good	....	James F. Smith, Dunecht Gardens
AYR	Under	Under	Average; good	None grown outside	Under; bad	Under	Average; good	Average	....	G. Taylor, The Gardens, Inverary Castle
BANFF	About average; very good	Some sorts over, others a little under; good	Average; good	Under	Under average; bad	Under average; bad	Over average; very good	Average; good	....	William Priest, Eglinton Gardens, Irvine
.....	.....	.....	.....	Rather under; good	Total failure, with the exception of two or three hardy sorts	Very light crop	Average, excepting Gooseberries; rather under	Average	....	John Webster, Gordon Castle Gardens
CAITHNESS	Under; bad	Under; bad	Under; good	....	Under; bad	Under; bad	Average; good	Average; good	....	John Sutherland, Langwell, Berriedale
CLACKMANNAN	Under average	Good	Good	Under average	Under	Under	Abundant	Extra good	Very few	Thomas Ormiston, The Gardens, Alloa Park
DUMBERTON .....	....	Average	Very good	Under	Under	Under	Very good	Under	....	Jac. Mitchell, Camis Ekan, Helensburgh
DUMFRIES .....	....	Average	Under	....	Under	Failure	Over; good	Average; good	....	James Smart, Raxhills, Lock-erbie
EAST LOTHIAN	Average	Under average	Average	Average	Under average	Under average	Over average; good	Average; good	Failure	L. Dow, The Gardens, New-lyth, Presenlark
FORFAR .....	....	Over average	Average	....	Average	Average	Over average	Average	....	James Mit-hell, Pannure Gardens, Carnoustie
.....	Under	Average; especially Victoria	Average; but not much cultivated in this district	Under	Very bad	Under	Such as Gooseberries and Currants fairly good	Average	....	"Carse of Gosrie"
.....	.....	Over average	Over	....	Average	Average	Over average	Good appearance	....	M. A. Macdonald, Ba'mac-can Gardens
KINROSS .....	....	....	Under; good	....	Under; bad	Under; bad	Under; good	Under; good	....	John Fortune, Blair Adam
MIDLOTHIAN	Average; good	Over average; very good	Average; good	Under average; very good	Average; very good	Average; very good	Under average; good	Average; very good	Under average; good	M. Dunn, Dalkeith Palace Gardens
.....	Under average; bad	Under	Average; good	None outside	Average; good	Under average; good	Under average; good	Under average; good	....	Charles Johnston, Dalhousie Castle Gardens, Lasswade
MORAY	Under	Under	Under	Under	Under	Under	Average	Average	....	Donald Cunningham, Dalnaway Castle Gardens, Fries
NAIRN	Under	Under	Under	Under	Under	Under	Very good	Very good appearance	....	James Munton, Kilranneek Castle, Fries
ORKNEY .....	....	....	Average; good	Average	Under	Average; good	Over average	Average; good	....	T. Macdonald, Ballin Castle Gardens, Kirkwall
PEEBLES .....	....	Average; late	Under	....	Over; very late	....	Abundant	Over; good	....	Malcolm McIntyre, The Glen, Innerfithien
PERTH .....	....	Under	Good	....	Under	....	Good	Good	Fair	John Robb, Drummond Castle Gardens, Inchture
.....	Bad crop	Good; above average	Average	Under average	Under	Under	Under	Average	....	Peter W. Fairgrieve, The Gardens, Dunkeld
.....	Under	Under	Under	Under	Under	Under	Very good	Very good	....	John McKiddie, Gr. Rossie Priory, Inchture
RENFREW .....	....	Under average	Average; good	Under average	Under average	Under average	Over average; very good	Abundant; very good	....	Thomas Lunt, Ardgowan Gardens
ROSS	Average; good	Average; good	Average	Under; bad	Under	Under	Average; very good	Average; very good	....	J. McKay, Tarbat Gardens, Parkhill
.....	Under average	Under average	Under; bad	Under average	Under average	Under average	Under average	Under average	....	D. Harvey, Invergordon
ROXBURGH	Under; good	Under; good	Average	Failure	Under; good	Under; good	Average; good	Average; good	....	John Galloway, Mint Gardens, Hawick
STIRLING	Average; good	Under	Under	Average; good	Under; good	Under; good	Good average; good	Good average; good	....	Maurice Fitzgerald, Dunmore Park, Stirling
.....	Average	Under	Under	....	Under	Under	Over	Over	....	J. King, Blair Drummond
SUTHERLAND .....	....	Over; good	Average	....	Under; very few	Under	Average	Average	Average	D. Melville, Dunrobin Castle Gardens
WIGTON .....	....	Average	Over	....	Under	Under	Over	Average	....	Archibald Fowler, Castle Kennedy, Stranraer
ENGLAND—NORTHERN COUNTIES.										
CUMBERLAND .....	....	Over on walls	Under	Not grown outside	Under	Under	Ful crop	Under; fruit small	....	J. Hammond, Brayton, Carlisle
WESTMORELAND .....	....	Under; good	Average	....	Under	Under	Average; good	Average; good	Bad	William A. Miller, Underley Gardens, Kirby Lonsdale
NORTHUMBERLAND	Under average; good	Average; moderate crop	Very Duke and Morelle average	Under average	Scarce	Light crop	Heavy crop	Under average	....	George Harris, Alwark Castle
.....	Over; good	Under; good	Average; very good	Over; good	Under; good	Under; bad	Average; good	Average; very good	Under	David Inglis, Hawick Hall, Lesbury
DURHAM .....	....	Under; bad	Average; good	None outside	Under; bad	Under; bad	Average; good	Over average; very good	....	J. Hunter, Lambton Castle
.....	Plenty	Some, more or less, on all kinds; Victoria full crop; Damsons very few	Of all kinds thin crop	Not grown on open walls here	Generally a thin crop, though some kinds plenty	About the same as Apples	Plenty of all kinds	Early varieties not good, late kinds splendid	With me a failure	R. Westcott, Raby Gardens, Darlington
YORK	Under	Under	Good	Under	Under	Bad	Very good	Under	Under	Thomas Jones, Ribston Gardens, Wetherby
.....	Average	Under	Average	Average	Under	Under	Average	Average	Under	Robert C. Kingston, Brantingham, Brough, East Yorkshire
.....	Under	Very good	Good	Good	Bad	Bad	Good	Good	....	Joseph Shaw, Nunapple-ton, Bolton Percy
.....	Average	Over	Average	Average	Under	Average	Over	Over	....	James Bailey, The Gardens, Wentworth Castle, Barns-lev
.....	Under average; but not very extensively grown in this neighbourhood	Over	average	Under average	Under average	Under average	Over average	Average on low land; much dried up on high land	Not much grown in this district	James Tindall, Spratthorn Hall Gardens, Doncaster
LANCASHIRE .....	....	Moderate	Moderate	Good	Bad	Bad	Good	Good	Bad	William Calverwell, Thorpe Pottage, Boleide
.....	....	Under average	Average	....	Under average	Under average	Average; good	Over average; good	....	W. B. Upjohn, Worsley Hill Gardens, Manchester
.....	....	Over	Over; good	Average; good	Under; bad	Under; bad	Over; good	Average; good	Walnuts average; very small	W. P. Roberts, Currier Hall, Presta

CONDITION OF THE FRUIT CROPS—(Continued).

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
NORTHERN COUNTRIES.										
LANCASHIRE	Average; good	Under; bad	Over; good	Over; very good	Under; bad	Under; bad	Over; good	Over; very good	....	F. Harrison, Knowsley Gardens
	....	Over; good	Average; good	....	Under	Under	Under; bad	Over; small	....	Andrew Jamieson, The Gardens, Haigh Hall, Wigan
	None grown outside	Partial crop	Marcellus good	None outside	....	Partial	Heavy crop	Early variety good, late poor	....	Henry Lindsey, The Gardens, Huntroyde Park
MIDLAND COUNTRIES.										
CHESHIRE	Under	Average; good	Average	Under	Under	Under	Average; good	Average	....	Alfred Jos. Grant, Withington Hall, Chelford
	....	Under; Damsons plentiful	Average	....	Under	Average	Over	Failure	....	Robert Mackellar, Abney Hall
	Under average; fruit good, trees healthy	Over; very good	Average; good in quality	Over; very good	Under; fruit good	Under; good	Over; quality good	Under; not very large generally	Under	Wm. Whitaker, Crewe Hall, Crewe
	Under	Over; our Plums are looking wonderfully well, almost free from blight	Under; set a good crop, but have dropped off	Seldom do any good outdoors	Under; plenty of bloom, but not many Apples	Under; more on walls than on standards	Average; Currants are much blighted	Average; promise to do well	....	Robert Bass, Biddulph Grange
DERBY	Average; bad	Over average; good	Average; very good	Under average; bad	Average; good	Average; good	Over average; very good	Average; very good	Under average; bad	W. Wibberley, Oulton Park, Tarpoley
	None grown out-of-doors	Average	Over	None grown out-of-doors	Under average	Average	Good	Good	....	O. Thomas, Chatsworth Gardens
	Under average	Average	Average	Average	Below average	Bad	Very good	Average; very good	Average; Walnuts below average	J. Whildredge, Staunton Harold, Melbourne
NOTTS	Under; good	Average; good	Average; very good	Not grown outside	Average; good	Under	Average; very good	Average; good	Under	Thos. Keetley, Darley Abbey Derby
	Average; good	Over; good	Average	Average; good	Under	Under	Average; good	Under	Under	Richard Carr, Welbeck, Worksop
	Under	Average	Under	Average	Under	Under	Average; very good	Average; good	Under	S. A. Woods, The Gardens, Osberton Hall, Worksop
	....	Average	Good	Not grown out-of-doors, plenty in very good	Light	Light	Plentiful	Very good	....	A. Henderson, Thoresby Park, Ollerton
	Under average; good quality	Very abundant and good	Very good crop and quantity	Very good	Very poor crop	Good; over the average	Very abundant	Under average	Very scarce	Arthur Webb, Kelham Hall Gardens
	Under	Very good	Average	Good	Under	Under	Good	Very good	Very good	M. Gleeson, Clumber Park, Worksop
SALOP	Average; good	Much over average; good	Average; good	Average; good	Under average	Over average	Average; good	Average; good but small	Much under average	A. S. Kemp, Haughton Hall, Shifnal
	Over; good	Over; good	Average; good	Average; good	Under; fair	Under; fair	Over; good	Average; good	Under; fair	James Loudon, The Quinta Gardens, Chirk
	Under; good	Over; very good	Under	Over; very good	Under	Under	Over; very good	Average; good	....	Richard Milner, Sundorne Castle Gardens, Shrewsbury
	Under	Over	Average	Under	Under	Under	Average	Under	Under	Edmund Bland, Otley Park, Shrewsbury
	Under average	Average	Average	Average	Average	Under average	Over average	Average	....	Henry Purser, The Gardens, Berwick House, Shrewsbury
STAFFORDSHIRE	Average	Over average	Average	Over average	Average	Average	Average	Average	....	Wm. Davidson, Sandon, Stone
	Under	Over	Over	Average	Under	Average	Over	Average	Under	Edwin Simpson, Wrottesley, Wolverhampton
	Average; fair	Over average; very good	Average; very good	....	Average; good	Under average; good	Average; good	Average; good	Average	W. Bennett, Rangemore, Burton-on-Trent
	Under; bad	Average; good on walls	Average; good	Over average	Under average	Under average	Average; very good	Over average; good	Not many grown	George Oulton, Teddesley Park, Penkridge
	Under	Over; very good	Over; abundant	....	Under; very good	Average; good	Over; very good	Average; good	Average	W. Ward, Little Aston Gardens, Sutton Coldfield
	Under; bad	Under; good	Average; good	Under; bad	Under; good	Under; good	Over; very good	Over; very good	....	John Wallis, Keele Hall Gardens, Newcastle
	Very good	Good	Good	Very good	Under average	Very good	Abundant	Good	Average	Geo. H. Green, The Gardens, Enville Hall
LEICESTER	Under	Very good; dessert kinds, also cooking; Damsons very good	Good; dessert kinds, also Morrells	Under	Under	Under	Very good; Currants, Raspberries	Good	Under	Alfred Hamshire, The Gardens, Beaumanor Park, Loughborough
	Under	Average; good	Under	Very good	Under	Average	Very good	Good	....	Henry Wood, Bosworth Park, Hinckley
	Under	Over; very good	Average; good	Average; good	Under; bad	Average; very good	Average; very good	Over; good	Under	G. C. Maynard, The Gardens, Cole Orton Hall, Ashby de la Zouch
RUTLAND	Under	Under	Average	Under	Under	Under	Average	Average; good	Under	John Grey, Normanton, Stamford
	Under	Over; very good	Average; good	Under	Under	Under	Average; and very good	Under	....	Henry Mason, The Gardens, Bisbrook Hall, Uppingham
WARWICK	Partial	Plentiful	Plentiful	Partial	Plentiful	Plentiful	Plentiful	Plentiful	Plentiful	Wm. Miller, Combe Abbey, Glentworth
	Average	Abundant; good	Over; good	Average	Over; good	Abundant	Abundant; good	Under; bad	Under	R. Greenfield, The Priory Gardens
	Bad	Good	Good	....	Bad	Under average	Good	Average	Bad	J. C. Temple, Packington Hall, Coventry
	Under	Average	Average	Average	Over	Under	Average	Under	....	Thomas Beddard, Stoneleigh Abbey Gardens, Kenilworth
NORTHAMPTON.....	Under; bad	Over; very good	Average; good	Average; good	Average; good	Over; very good	Over; very good	Under; good	Average; good	Alex. D. Christie, Warwick Castle Gardens
	Under	Under	....	Failure	Under	Under	Over; good	Average; good	Average	J. Trigger, Milton Park, Peterborough
BEDS	Under	Over	Average; good	Under	Under	Average; good	Over	Average; good	Average	Edmund Cole, Althorp Park
	Very much under average; good	Much over average; good	Average; good	Average; good	Under average; good	Under average; good	Average; good	Average; not very good	Walnuts much under average	George West, West Park, Amphil
	....	Abundant	Average; small	Average	Over	Under on walls; over on standards	Over; good	Under	Under	Wm. M. Bailie, Luton Hoo Park, Luton
	Under	Average	Average	....	Under	Under	Average	Under; very bad	Under	A. McKay, Woburn Abbey
OXFORD	Under average	Over; very good	Average; small	Average	Under	Under average	Average; good	Average	Average	Charles Turner, Cranfield Court, Newport Pagnell
	Under	Over	Over; very good	Average	Under	Over	Over	Under; very good	Average	C. Hewett, Daylesford Gardens, Chipping Norton
	Under; good	Over; very good	Average; good	Average	Under	Average	Over	Average	Under	Thomas Doberty, Wroxton Gardens, Banbury
BUCKS	Under average; bad	Over average; good	Over average; very good	Average; fine	Under average	Under average	Over; very good	Average; good	Average	Henry Downing, Heythrop Park, Chipping Norton
	Under	Average	Over	Average	Under	Average	Average	Under	Average	Thos. Bailey, Shardloe Gardens, Amersham
										Geo. Thos. Miles, Wycombe Abbey Gardens

CONDITION OF THE FRUIT CROPS—(Continued.)

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
MIDLAND COUNTIES.										
BUCKS	Average	Over average; very good	Over average; very good	Average; good	Under average	Average	Over average	Average; good	Over average; good	J. Smith, Mentmore, Leigh-
	Under average	Good	Good	Bad	Under average	Under average	Good	Good	Bad	ton Buzzard
	Under average	Average crop	Morellos good, other sorts plentiful	Very scarce	Under average	Average	Gooseberries, white, red, and black Currants over average; Raspberries plentiful	Under average	Under average;	Philip Frost, Dromore, Maddenhead, William Waters, Bulstrode Park, Gerrard's Cross
	Average; good	Under; good	Over; good	....	Under	Average	Over; very good	Under; good	Under	J. Bone, The Latimers, Ches-
HERTS	Under	Average	Average	Average	Under	Average	Over	Under	Under	ham
	Under average; good	Over average	Average; Mo- rellos good	Average, and good	Much under average	Under average	Gooseberries and Currants over average; Raspberries good	Under average	Walnuts and Filberts under average	George Norman, Hatfield House Gardens R. Ruffett, Farnham
	Under average; good	Average; very good	Plentiful; good	Very good; good	Under average; bad	Under average; good	Over average; bad	Under; bad	Average	J. C. Mundell, Moor Park Gardens, Uxbridge
	Under; good	Average; good	Average; good	Under; good	Under; good	Average; good	Under; bad	Under; bad	Average; good	Joseph Thompson, Garham- bury Gardens, St. Albans
	Under average	Over average; good	Average; small good	Average; good	....	Under average	Over average; very good	Under average; good	Few	John Kipling, Knebworth House, Stevenage
	Under average	Over average; good	Average; very good	Under average	Over average; good	Under average	Gooseberries and Currants fair crop; Raspberries good	Under average	Under average	Charles Kinns, Brocket Gar- dens, Welwyn
EASTERN COUNTIES.										
LINCOLN	Under average	Over	Under	Average	Under	Under	Average	Under	Under	David Lumsden, Bloxham Hall
	Average crop, and trees losing many branches, but look healthier	Under average	Under average	Average on some trees; others under	The worst crop I have seen for twenty years	Much under average	Gooseberries and Currants a great crop and fine	Over average	Walnuts under average; Filberts and Nuts average	George B. Tillyard, Brock- leby Park
	Failure	Good	Good	....	Failure	Failure	Good	Mildling	....	Mr. J. Taylor, Lee, Gains- borough
	Under	Over	Average	Average	Much under	Under	Over	Under	....	Thomas Vinden, Harlaxton Manor, Grantham
	....	Average	Average	....	Under	Average	Over; good	Average; very good	Failure	W. Harris, Blankney Hall Gardens, Lincoln
	Under	Over	Under	Average	Under; almost a failure	Average	Over	Average	Under	J. Seth, Grimsthorpe Gardens, Bourne
	Under	Over	Average	Average; in cases over	Under	Under	Over	Average	Under	William Ingram, 'Belvoir Castle' Gardens, Grantham
	Under	Under	Average; small good	Under	Under	Under	Average; good	Average; good	Under; Wal- nuts average	H. Batchelor, Catton Park, Norwich
NORFOLK	Under	Average	....	....	Under	Under	Over	Average	....	W. Shugler, Melton Con- stable
	Under	Over; very good	Over; very good	Average	Under	Under; good	Over; very good	Over; very good	Average	James Forder, Hillington Hall, King's Lynn
	Under	Average	Average	....	Under	Under	Average	Under; good	....	C. Fenney, Sandringham Gardens, King's Lynn
	Under; bad	Under	Under; bad	Good under glass	Under; bad	Under; bad	Over; good	Under	Under	F. Lee, Lynford Hall Gar- dens, Norwich
	Under average	Good	Morellos good	Very good	Bad	Bad	Very good	Very good	Good	O. Rea, Shotesham Park, Norwich
	Under average	Under average	Under average	Under average	Under average	Under average	Good crops, but want moisture	Good crops, but want moisture	Under average	Thomas Wynne, Wroxham Hall
	Under	Average	Average	Average; good	Under	Under	Average; good	Average	Under	James Sheppard, Woolver- stone, Ipswich
	Under average	Over average	Average	Over average	Average	Under average	Average	Average	Under average	John Wallis, Orwell Park, near Ipswich
SUFFOLK	Under; late	Over; good	Under	Average; good	Under	Under	Over; good	Over; good	Under average	Robert Squibb, Ickworth
	....	Over average; very good	Over average; very good	Over average; very good	Under average; good	Under average; good	Average; good	Under average; good	Average; good	J. Mill, The Gardens, Ren- sham Hall, Woodbridge
	Average; good	Under	Over; very good	Over; good	Under; good	Under	Over; very good	Over; very good	Average	D. T. Fish, Hardwicke, Bury St. Edmunds
	Under	Over; good	Average; good	Average; good	Under; good	Average; good	Over; good	Average; very good	Under	Geo. Eden, Henham Hall Gardens, Wangford
ESSEX	Under	Average	Over	Average	Under	Average	Very good	Under	....	D. Donald, Knott's Greer, Leyton
	Under	Over; good	Over; good	Average; bad	Under	Under	Average; good	Average; good	Average	William Smith, Birch Hall, Birch, near Colchester
	Under average	Under average	Under average	Average	Under average	Under average	Average; good	Under average	....	W. Bowman, Highlands, Chelmsford
	Under; good	Over; good	Over; very good	Average; good	Under; bad	Average; good	Average; good	Under; bad	Under	Jas. Douglas, Great Gares, Ilford
	Good crop	Immense crop	Good	Medium	Very thin	Good crop	Abundant	Short crop	Short crop	William Earley, Ilford
	Under; good	Average; good	Average; good; Morellos over; very good	Under; good	Under; very few	Under; few	Average; very good	Average; very good	Cobs and Fil- berts under; Walnuts aver- age	James Vert, Audley End Gardens
	Under	Average	Average	Average	Under	Under	Average	Under	....	Henry Lister, Easton Lodge, Dunmow
	Under average; bad	Over average; good	Average; good	Under average; good	Under average	Average; good	Over average; very good	Over average; very good	Average	C. Butler, Parndon Hall Gar- dens, Harlow
SOUTHERN COUNTIES.										
BERKS	Light crop	Medium crop on standards; fair crop on walls, but not so heavy as last year	Excellent crop; very plentiful, and good	Plentiful and good; making trees very thin	An average crop; some trees very thin	Moderate crop; trees lean; looking finer than usual	Very abund- ant, and of good quality; trees clean	Average crop	Light crop	T. Jones, Royal Gardens, Frogmore
	Under	Average crop; very good	Average	Average; crop; very good	Average	Under	Average	Under	Average	James Tegg, Bearwood
	Under	Good	Average	Average	Bad	Average	Very good	Under average	Under average	R. Fenn, Cottage Farm, Sul- hamstead Abbots, Reading
	Average	Over; very good	Over; very good	Under	Under	Over; good	Over; very good	Average; good	Over; good	J. H. Rose, Locking Gar- dens
	Under; good	Average; good	Average; good	Under; good	Under; bad	Over; good	Over; very good	Under	Average; good	Geo. Stanton, Park Place Gar- dens, Henley-on-Thames
	Bad	Good	Under	Bad	Under	Under	Very good	Under	Under	Neil Sinclair, Easthamstead Park, Wokingham
	Under	Over	Average	Average	Under	Average	Over	Under	Under	Alex. Dean, Bedford
	....	Under	Morellos aver- age; good	Average	Under	Average; good	Average; clean	Under	Under	A. F. Barton, Royal Horti- cultural Society, Chiswick

CONDITION OF THE FRUIT CROPS—(Continued).

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
SOUTHERN COUNTIES.										
MIDDLESEX	Average	Under average	Average	Over average	Average	Average	Over average	Under average	....	John Woodbridge, Syon Gardens, Brentford
	Average	Average; good	Average; good	Average; good	Average	Average	Over average; very good	Under average	Under average	William Bates, The Gardens, Pottett Lodge, Twickenham
SURREY	Average	Under	Average	Average; good	Under	Average	Average; good	Average; good	Under	Wm. Denning, Londonborough Lodge, Kingston-on-Thames
	Under average	Average	Under	Over	Under	Under	Over average; good	Average	Over average	A. Evans, Lythe Hill, Haslemere
	Average; good	Over average; good	Average; good	Average; good	Under average; good	Average; good	Over average; good	Average; good	Under average; good	John Tanner, Tlindridge Court, Godstone
	Under average; not many grown	Average; good	Average; good	Under average; not many grown	Under average; good	Over average; good	Average; good	Over average; good	Under average; good	James Gold, High Ashurst, Dorking
	Under	Average	Good average	Over; good	Under	Average; good	Over; good	Under; good	Under	Thos. Silence, Nonsuch Park, Chessington
KENT	Under average; good	Over average; good	Average; good	Under average; good	Under average; good	Average; good	Full average; very good	Under average; small	Under average	R. Gray, Chevening, Sevenoaks
	....	Over	Over	Over	Over	Over	Average	Under	Under	George Bunyard, Old Nurseries, Maidstone
	Under	Over; abundant	Over	Average	Under	Over	Average	Under; in consequence of dry weather	Over; abundant	Henry Cannell, Swanley, Kent
	Under	Average	Good	Average	Bad	Under	Average	Under; in consequence of dry weather	Bad	F. Deuxberry, Cobham Hall, Gravesend
	Average	Over average; abundant, good	Average	Under average	Under average; bad	Average; good	Over average; good	Under average; short	Average	John Charlton, Summer Vale Nursery, Tunbridge Wells
	Under average	Over average	Over average; good	Under average	Under average	Under average	Average; good	Average	Under average	Charles Haycock, Barham Court, Maidstone
	Average; good	Over; good, but small	Average; good	Average	Under	Under	Gooseberries over; good. Currants average; inferior	Under; bad	Under	G. A. Don, Belgelbury, Hawkhurst
	Average; good	Over; good	Average; good	Under; bad	Under; good	Under; good	Over; very good	Under; bad	Under; bad	C. Masted, Kearsney Abbey, Dover
SUSSEX	Scarce	Plentiful	Most excellent	Under average	Under average	Over average	Over average	Under average	Over average	Joeph Rust, Eridge Castle
	Bad	Over average	Very good	Very much blighted	Under average	Average	Over average	Under average	Average	B. Coombe, Wiston Park, Steyning
	Average	Average	Average	Average	Much under	Average	Average	Under	Under	F. Rutland, Goodwood, Chichester
	Under	Average	Over average	Average	Under average	Over average	Very good	Very good	Very good	Sidney Ford, The Garde s, Leonardslades, Horsham
	Under average	Over average; very good	Average; good	Over average; good	Under average	Much under average	Average; good	Average; good	Under average	John Halsley, Cowdway Park, Midhurst
	Under average	Average; good	Average; good	Under average; bad	Under average; good	Under average; good	Over average; good	Under average; small	Under average	Alexander Reid, Possingworth Gardens, Basing, Alton
	Average; good	Over; good	Over; good	Average	Under	Average; good	Over; good	Average	Average; good	Thomas Fournell, The Gardens, Beauport, Battle
LIANTS	Under average	Above average; good	Above average	Average	Average; good	Above average; good	Above average; good	Under average; bad	Under average	Wm. Smythe, The Gardens, Basing, Alton
	Bad	Moderate crop	Average	Average	Much under average	Under average	Good and fine	Dried out; fruit small	Good	P. H. Edwards, Fowley Gardens, Liphook
	Very few	Over average; good	Average; good	Over average; very good	Under average; good	Under average; good	Average; good	Average; good	Average; very good	W. Aldrich, The Gardens, Heckfield Place, Winchfield
	Under	Over	Over	Average	Under; bad	Over; good	Average	Under	Under	F. Thirby, The Gardens, Broadlands, Romsey
	....	Average; good	Average; very good	None grown	Under; good	Over; good	Over; very good	Under; bad	....	Thomas D. Myles, Appley Towers, Ryde, Isle of Wight
WILTSHIRE	Under	Average; good	Average	Average; over	Under	Average; good	Over; good	Average	Under	William Phipps, Bowood, Calne
	Average; over	Average; over	Average	Average	Average	Average	Average	Average; under	....	J. Horsfield, Heytesbury
	Under average	Average	Average; very good	....	Under average	Average	Average	Under average	Average	Thomas King, Devizes Castle
	Under average	Over average	Over average; good	Average	Under average	Average	Over average; good	Average; good	Under average	H. W. Ward, Longford Castle, Salisbury
	Under	Average	Average	Average	Under	Over	Over	Average	Over	W. Pratt, Lougheat Gardens, Warminster
DORSETSHIRE	Average; under	Average	Average	Average; under	Average; under	Average	Average	Average; under	....	William P. Leach, Brynston Gardens, Blandford
	Average	Over; very good	Average	Over	Under	Average	Over; very good	Over; good	Fair prospect	James Beck, Critchill Gardens, Wimborne
	Under average	Average; good	Average; good	Average	Average; good	Under average	Average; good	Under average	Average	David Williams, The Gardens, Canford Manor
WESTERN COUNTIES.										
HEREFORD	Average	Average	Over; good	Average; good	Under	Under; bad	Over; good	Average; good	Average	W. Nash, Dringwyn J. Chinner, Downton Castle Gardens, Ludlow
	Average; good	Over average	Over average	Average	Under	Average	Over average	Over average	Under	W. Coleman, Eastnor Castle, Leicestershire
	Under	Over	Average	Over	Under	Average	Over	Under	Average	Kenneth McKenzie, Allensmore Court
	Average; good	Over; good	Over; good	Average; good	Under; bad	Under	Average; good	Average; good	Average	Arthur Ward, The Gardens, Stoke Edith Park
	Average; good	Average; good	Over average; very good	Average; good; Nectaries none	Average; good	Under average; good	Over average; very good	Average; very good	....	Chas. Denning, Holmes Lacy Gardens
	Under	Average	Average	Under	Average; good	Under; good	Over	Under	Under	Walter Child, Croome Court, Severn
WORCESTER	Average; good	Over; very good	Over; good	Under	Over; very good	Average; good	Over; very good	Average	Average	William Crump, Madresfield Court, Malvern
	Under; good	Over; good	Over; small	Over; good	Over; good	Over; very good	Average; good	Average; very good	Average; good	John Austen, Witley Court Gardens
	Average under; good	Average over; good	Average over; good	Average; good	Average under; good	Average; good	Over average; very good	Average; good	Average; under	Alexander Scott, The Gardens, Sherborne Park, Northleach
GLOUCESTERSHIRE	Under average	Average; good	Over average; good	Over average; very good	Over average; good	Average	Over average; very good	Average; good	Average	A. Chapman, Weston-Birt Gardens
	Under	Over; very good	Average	Average	Under	Average	Very good, especially Gooseberries	Fair	Under	John Sowray, Highbury Court
	Under average; good	Over average; good	Average	Average	Under average	Under average	Very good	Average	Over average	W. Greenaway, Dodington Park
	Under average	Over average	Over average	Over average	Under average	Under average	Over average	Under average	Average	A. Paterson, Pontypool Park
MONMOUTH	Good	Good	Abundance	Average crop	....	A heavy crop	A good crop	Fair	Partial; the cold winds in May and June but then off	William Hallett, Cossington House Farm
	Average	Good	Average	Under	Under	Good	Very good	Average	Under	W. Eggleston, Marston Gardens, Frome
SOMERSET	Under average	Over average	Over average	Over average	Under average	Over average	Over average; good	Under average; good	Under average	John Chalmers, Orchardleigh Gardens, Frome
	Over; good	Over; good	Under; bad	....	Under; good	Average; good	Over; very good	Average; small	Average	Charles Sully, Fairfield, Bridgewater
	Bad	Good	Bad	Under	Bad	Average	Good	Bad	Blighted	

CONDITION OF THE FRUIT CROPS—(Continued).

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NEC- TARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
WESTERN COUNTIES.										
DEVON	Under; good	Average; good	Early Cher- ries, average; good; Morel- los, most of the fruit dropped at stomping plentiful	Average; very good	Under; good	Average; good	Average; good at first, but suffered much from drought	Average; good; late crops poor because of drought	Walnuts average	David C. Powell, Powder- ham, Exeter
.....	....	Very scarce	....	Average; late	Under average	Under average	Abundant	Good	....	George Baker, Memland, Plymouth
.....	Average; very good	Average; good	Average; good	Over; good	Under	Average	Average	Average	Average	Fred. Jackson, Bicton Gar- dens, Budleigh Salterton
.....	....	Over; good	Average; good	Noe outdoors	Under; good	Under; good	Over; good	Over average; good, but small	Average; good	G. J. Barnes, The Gardens, Stoodleigh Court, Tiverton
.....	Average	Over average	Over average	Over average	Under average	Over average	Over average	Average	Under average	James Eastone, Wear, near Exeter
CORNWALL .....	....	Over; good	Over; good	Under; small	Under; good	Under; good	Over; good	Over; very good	Under; bad	Charles Lee, Boconnoc, Lost- withid
.....	Under average	Under average	Average	Full average	Under	Under	Abundant and good	Over; very good	Few grown	James Merton, Pencalenick, Truro
.....	....	Under average	Over	Average	Under	Under	Over average; very good	Average	Under	George Knox, Port Eliot
.....	....	Under	Average	Good	Under	Under	Very good	Very good	....	A. Mitchell, Teldid Park Camborne
WALES.										
CARMARTHEN	Under average; good	Average; good	Average; good	Under average; good	Under average; good	Under average; good	Average; good	Average; good	....	A. Ballard, Glenusk, Crick- howell
.....	Not many grown	Above average	Average	Average; good	Under	Average	Very good	Average	Under	Lewis Bowen, Edwinstford, Llandilo
.....	Under	Under	Under	Under	Under	Under	Average	Average	Under	Allan Calder, Vaynol Park, Bangor
DENBIGH	Average; extremely late and small	Under on walls, over standards, Damsons heavy crop	Average of all sorts; Morellos heavy crop	Under; much least blister	Average; some sorts heavily laden	Average; walls good, stand- ards muddling; Quinces failure	Heavy crops of Currants, Raspberries, Gooseberries, Goncherries	Most sorts failure, Elton Pine heavy crop	Walnuts failure, Fil- berts and Cobs very poor	P. Middleton, The Gardens; Wynstay, Rhuacon
GLAMORGANSHIRE	Under	Average	Average	Over	Under	Average	Good; average	Good; average	....	Jas. Muir, Margam Park, Port Talbot
MERIONETHSHIRE	Under	Average; good	Under	Under	Average; good	Average	Over average	Over average; very good	Average	J. Bennett, Rhng Gardens, Corwen
MONTGOMERY	Under	Under	Over	Under	Under	Under	Over	Over	Average	William Lee, Powis Castle Gardens, Welshpool
PENBROKE .....	....	Over average	Average	Average	Under average	Average; good	Average	Good	Over average	Geo. Griffin, The Gardens, Sleebek Park
IRELAND.										
ARMAGH	Under average	Under average	Under average	Under average	Average	Average	Average	Average; good	Under	Thomas Sheehy, Palace Gar- den, Armagh
BELFAST .....	....	....	Average; very good	....	Under; bad	Under; bad	Average; very good	Average; very good	....	Geo. Porteous, Garra Tower
CLARE .....	....	Average	Average	Under	Average	Average	Currants abun- dant, Goose- berries under, Raspberries over	Average	Average	W. Wilson, Dromoland Gardens
DOWN	Average	Average	Under	....	Under average	Under average	Average; good	Average	....	Jas. Taylor, Mountstewart Gardens, Newtownards
DUBLIN	Under; inferior	Under; bad	Average; good	Not grown outside	Under; bad	Under; bad	Average; good	Average; good	Under	J. Ellam, Brenanstown House Gardens
KILKENNY .....	....	Under	Average; good	....	Under	Much under	Average; good	Average; good	Average	William Gray, Woodstock Park, Innistoge
WESTMEATH	Under	Average; good	Average; good	Under	Under	Average; good	Good	Good	Average; good	John Igoo, Garden Vale, Athlone
CHANNEL ISLANDS.										
GUERNSEY .....	....	Average	Average; good	Average	Over	Over	Average; good	Average; good	....	Charles Smith & Son, Cale- donian Nursery
JERSEY	Under; pro- mise well	Under; bad	Under; good	Under; good	Average; pro- mise well	Average; pro- mise well	Average; good	Average; good	....	Chas. R. Saunders, St. Saviours
ISLE OF SCILLY .....	....	Average	....	None in the open	Under average; good	Average; good	Average; good	Above average; very good	....	Geo. D. Vallance, Tresco Abbey Gardens

THE CARNATION GROUND AT MESSRS. J. VEITCH AND SONS.

COLD days and colder nights in early summer, and the general unfavourable climatic conditions of the present season, hindered the proper development of most varieties of Carnations and Picotees, the "grass" being anything but abundant, and the flowering season nearly a fortnight later than usual. London air prevents, in the most favourable years, any attempts at the culture of many flowers, both those strictly of the florists' type as well as others equally desirable; but the Carnation, the Pink, and the Picotee are all in about an equal degree proof against its malignity, as is proved by many a pot-grown flower on window-sills in the densest parts of town, and by the really fine show made with the Clove Carnation and others in the Embankment gardens, near Charing Cross.

But to return to our Chelsea flowers. Here space is not so confined with houses, and factories are a good way off. Some fine varieties were found in bloom or coming into bloom, which many a gardener in country places would highly prize in his borders. These are nearly all "border" flowers that we find here, and are mostly such as are good doers, as under-

stood by the craft; not but that most of the show varieties—which by the way are not grown at Chelsea—will grow and flower in the open border under good treatment. Of sorts excellent for beds where plants are liked that do not reach a great height may be mentioned C. The Bride (Hodges), a fine bold regular flower, pure white, grows well and lasts long in flower; C. Burnett, nearly new, of a cerise colour, with abundant grass and bloom, and of a dwarf stocky habit; C. W. P. Milner is another fine bedder, reaching to a height of 20 inches, the flowers being white and very full in form; C. Royal Purple is also fine for beds; it has abundant foliage, is robust in constitution, and is of a pleasing shade of colour; in bedders nothing can excel C. Magnum Bonum for compactness of growth, abundance of bloom and colour, which is a brilliant scarlet. Newer, and slightly taller growers are C. Brilliant (new), an abundant flowerer, of a purplish-cerise tint; C. Celia, a lovely pink flower, tolerably well known, a tall and strong grower; C. Florence, a buff-coloured self, the bloom full and large; C. Earl of Wilton, a good crimson flake; C. Ajax, a purple flake; C. Masterpiece (new), a rich crimson

self, of very fine quality; C. Walter Ware, a fancy variety, buff ground, with scarlet stripes; C. General Stewart, a very dark crimson self, carrying abundance of bloom; C. Earl of Beaconsfield, a dark shade of the same colour, with still darker stripes, a splendid flower; C. Countess of Ellesmere, a fancy, spotted minutely with crimson on a pale pink ground; this is an old but very pretty variety. C. Beauty of Whitby is a fine scarlet flower, excellent in all points as a border kind; as are also C. Dora Williamson, white; C. Beauty of Boston, deep rose—one of the best of that colour; C. Brigadier, a scarlet flower, of a medium size and dwarfish habit; and C. Queen of Roses.

The Picotees were coming into bloom in large numbers, both old and new kinds. Two of the finest were observed in P. grandiflora, a heavily barred flower; and P. Goldfinger, a medium grower, the flower having a yellow ground.

Pink Rose Perfection is a late flowerer, a robust grower, and is a true Pink, being a sport from one of the laced varieties; as an edging Pink this would be excellent. Pink Abbotsfordiana, a purple-rose, is likewise a meritorious variety. M.

APPOINTMENTS FOR THE ENSUING WEEK.

		Royal Horticultural Society: Meeting of the Fruit and Floral Committee, at 11 A.M.; Scientific Committee, at 1 P.M. Show of the National Canadian and Pictorial Society (Southern Section).
TUESDAY,	July 27	Sale of Imported Orchids brought home by Mr. E. Wallace, of Colchester, at Stevens' Rooms. Sale of Flowering Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY,	July 28	Clearance Sale of Plants, Greenhouses, &c., at the late Mr. Buller's Nursery, Harrow Road, W., by Protheroe & Morris.
THURSDAY,	July 29	Wild Horticultural Society's Show at Salisbury (two days).
FRIDAY,	July 30	Sale of Orchids, by order of Mr. F. Sander, at Protheroe & Morris' Rooms.
SATURDAY,	July 31	Southern Horticultural Society's Show, at Farnham. Royal Horticultural Society's Show (and on Monday, August 2).

THE reports which we are enabled, by the courtesy of our correspondents, to give in this issue as to the general state of the FRUIT CROPS in Great Britain, are, if not entirely satisfactory, at least of much interest. It must be borne in mind that they are supplied from all parts of the country by experienced observers, who have for the most part been in the habit of supplying this kind of information for several years, from the same localities all over the country; and if they cannot be relied on to afford mathematically exact evidence they at least give a thoroughly impartial general statement. The evidence applies to some crops that are past, and to others that are as yet prospective. They are of interest, especially if compared with similar evidence for the last quarter of a century, as affording some criterion as to the probable value of fruit-growing as one remedy for the depression in agriculture; and they must also be considered from this point of view with the details obtained from a study of the exhibits from week to week at the Colonial Exhibition from our several colonies, and more especially from the territories of Canada and the United States. Looked at from these points of view we cannot say the record is reassuring for the home-grower. Fruit culture in this country is as uncertain as are the Wheat crops, and, when all things are considered, from much the same general causes.

The fruit crops generally this year may be written off as a failure, but the exception—small fruits—is significant. Small fruits come in early; they defy foreign competition in the matter of carriage, and even Strawberries, which travel as badly as things of that kind can travel, have probably yielded a profit, even though the aggregate crop, as appears from our reports, has been deficient. Our Apple crop, which, on the whole, is the most commercially important, is under average, while our American and Canadian advices seem to show that in those countries the crop will be a fair average. We know what this means. In a few months thousands upon thousands of barrels will pour into our markets from the other side of the Atlantic, while the experience of the last few years, and the indications of the Colonial Market at South Kensington go to show that from such far-off localities as the Cape of Good Hope and the southernmost Australian colonies fruit of excellent quality may be expected to arrive in first-rate condition at seasons when our own fruit crops are exhausted, or nearly so.

Even in regard to tropical fruits, which formed the subject of an address by Mr. MORRIS, the newly appointed Assistant Director at Kew—of which a report is given in another page—and which hitherto we have not taken much into consideration, the prospects for the home-grower are not brilliant. West Indian Pines, as it is, have to a large extent brought about the abolition of Pine growing in this country, and we see no reason to doubt that if some of the colonies take the matter up they may prove as formidable rivals in Grape culture as they have done in the case of Pines. Even in the instance of soft tropical fruits—the Mangos, the Bananas, the Guavas, the Mangosteens, perhaps

even the Durians—we see no reason to doubt that in the future quick transit and the use of refrigerating chambers on board ship, will enable our colonial friends to supply the market at profitable rates with fruits which at present we only know by hearsay. Of course this will be a public benefit, but whether the home fruit-grower will look at the prospect in this light is another matter. At any rate, we think that the circumstances go to support our contention, frequently expressed, that it would be unwise for the agriculturists to trust to fruit culture alone to remedy the depression under which they are suffering. At any rate, they should not put their trust exclusively in Apples, still less in Pears. If money is to be made it must be in the culture of soft fruits within easy reach of the markets of populous centres, and it must be combined with other crops, such as popular flowers and vegetables. Those who are growing for commercial purposes must take special heed that they put not all their eggs in the same basket, and small growers will do well to develop local trade in their own neighbourhood rather than flood the great markets. It is very anomalous that in country places the casual visitor, and presumably the native, finds a difficulty in getting country products—milk, butter, fruit. Go to a country hostelry, and see what is put before you.

The general results to be gleaned from our tabular statement, which we shall supplement next week with many interesting details, for which we cannot find space this, is that Apricots have been decidedly under average, that Plums are likely to furnish a good crop of fine quality; that Cherries have been very variable and generally good in the South. To Peaches and Nectarines the same remarks apply; Apples, commercially the most important, on the whole are a failure; Pears hardly less so, though fair in the home and southern counties. Small fruits (Gooseberries, Currants, &c.) have yielded a good general average, above rather than below the standard. Strawberries have been generally deficient alike in quantity and in quality—better perhaps in the North than in the South, but still generally bad. Lastly Nuts, including Walnuts and Filberts, are reported generally as deficient. Allowing for exceptional cases, we cannot see much reason for congratulation in the report of the fruit crops for 1886. On the Potato crop we shall report in a subsequent issue.

— THE PROSPECTS OF THE YEAR, when judged by the splendid promise of the bloom on Apples, Pears, and Plums, were so good that, barring the damage effected by frost during the blooming period, we should have witnessed the most prolific year on record. But there were two separate agencies at work against this wished-for consummation, viz., the physical inability of the trees to carry an abundant crop, owing to the exhaustion following on the fine crops of the previous year; the other the inclement weather in April and May. Continued low temperature, accompanied by more than the usual amount of north and north-easterly winds, wrought much havoc, especially in the early districts, where trees come into flower early. The crops of the year, *par excellence*, are Plums of all kinds; Cherries, Currants, excepting black sorts, which are generally thin on bushes; Gooseberries and Raspberries. Strawberries cannot be regarded as a first-rate crop. In Kent we find the Cherry crop stated to be especially good, and as the county is noted for these fruits, this means money to the grower. Damsons and Plums in this county, and generally, are likewise abundant; wall fruit and nuts are not plentiful; Apples and Pears are scarcely found anywhere in abundance in southern shires, with the exception of parts of highly favoured Devonshire and Worcestershire. The Midlands have been more favoured than other parts in the same latitude, as the fruit crops of all kinds are stated to be the finest known for several years, and the fruit trees very clear of insects. In the Eastern Counties much of the blossom dropped off Strawberries, orchard fruit,

&c., so that whole rows of prolific varieties of the former have no fruit on them, and the Apple, Pear, and Plum crop will be a very light one; and on the same coast, but further north, the orchard crops are rather worse. The rainfall over the whole of England, and especially in the counties bordering on the North Sea, has been much below the yearly average—a circumstance that has worked detriment to the fruit crops in those parts, being the cause, together with the starving effects of long-continued cold, of the loss of much of the blossom. The farther we go north or west, the worse become the crops of Pears and Apples, although in some western Plum and Damson districts good crops of these fruits are found. The wall fruits in these parts are also generally thin. The small fruits in Northumberland and Durham are said to be excellent, and Peaches and Apricots are abundant, but we suspect that is where there is the great advantage of heated walls. Scotland can boast of a heavy crop of small fruit; and in the milder parts, some of the finest sorts of Apples and Pears have done well, and Plums in orchards and on walls are a good crop. Over the country generally, there are, however, lamentations about the poorness of the fruit crops. In Ireland the crops of large fruit are thin, some kinds of Plums only being abundant. We may hope in the interest of the growers of market fruit, that in the absence of large crops, the quality will be so good that enhanced prices will recoup them for their loss. And in the greater interest of the consumer, we may be allowed to hope for large consignments of those splendid varieties of Apples, Pears, &c., now to be seen in the Australian Court of the Colonial Exhibition, and which we are assured can be brought from that distant colony with success, and at a season, when our own supplies are naturally coming to an end.

— THE PHYLLOXERA IN ALGERIA.—We have received the following official notice from the Foreign Office, based upon a communication from Sir LAMBERT PLAYFAIR, the Consul-General at Algiers:—

"In my late report of a journey taken in the western parts of Algeria I alluded to the subject of the Phylloxera, which had appeared at Tlemcen, and to the measures adopted for stamping it out.

"I regret to report that it has appeared in the east, also in the neighbourhood of Philippeville in three separate localities, although at no great distance from each other.—I have, &c., (Signed) "R. L. PLAYFAIR."
"The Earl of ROSEBURY."

— BEE MANUAL: "LES ABEILLES." BY VICTOR RENDU. (Paris: LACHETTE & Co.)—This is a useful little book of 111 pages and seventeen engravings. The text is everything that could be desired. The book is approved by the Société pour l'Instruction Élémentaire. The plates, especially those of the bees, are not quite up to those of many other works on the same subject and in the same language. The book will no doubt sell well, as it has in a short space of time passed into the third edition.

— "COMPENDIO DELLA FLORA ITALIANA."—This useful publication, directed by Professor GIBELLI, is now completed, so far as the text goes, by the issue of the general index. Ninety-nine quarto plates, each with analytical details, render this one of the most serviceable works of the kind. The length of time involved in its publication, though inevitable under the circumstances, is the greatest drawback to the book.

— "THE BOTANICAL MAGAZINE."—The July number contains figures and descriptions of the following plants:—

Myrmecodia Beccarii, t. 6883.—A most extraordinary plant. One of many specially studied by Signor BECCARI, and remarkable for the huge spinous tubers developed on the stems, and which are channelled in all directions by ants, which form their nests in these tunnels, the plants themselves not being specially injured, but flourishing in spite of the disturbance of its interior economy. The plant in question was imported by Messrs. VEITCH from the Gulf of Carpentaria, and was by them presented to the Royal Gardens, Kew, where it is treated as a stove epiphyte.

Aristolochia longifolia, t. 6884.—A native of Hong Kong, with a short thick stem, from which proceed slender climbing stems, with short-stalked long lance-



FIG. 22.—CARPENTERIA CALIFORNICA: FLOWERS WHITE, FRAGRANT. (SEE P. 115.)

late leaves, downy on the under surface. The flowers are borne on short stalks, tubular, bent abruptly in the middle, the limb expanded, oblique, two-lobed, purplish-brown.

Galtonia clavata, t. 6385.—It is satisfactory to see a third species of this genus which differs so remarkably in habit from *Hyacinthus*, and which is yet structurally so close to it. The flowers are long, tubular, and green, so that though botanically interesting, it is by no means so desirable a plant for gardens

as the two previously described species, *G. candicans* and *G. princeps*.

Pleurothallis Barberiana, t. 6386.—A pretty little species, not likely to find favour with orchidists just at present.

Tulipa Kaufmanniana, t. 6387.—*Nimium ne credi colori* might be adopted as the motto for this and other Tulips, which vary so remarkably in the colour of their flowers. In the present instance the perianth-segments are sometimes white, flushed outside with

brown, or with crimson; sometimes yellow flushed inside with red. In all the specimens, however, the claw of the segments is flushed with orange-yellow, without any black line or encircling horse-shoe mark, as in the nearly allied *T. Gesneriana*.

— FOREIGN HORTICULTURISTS IN ENGLAND. — On Tuesday last, favoured with glorious weather, the twelve Belgian, French, and Dutch horticulturists, including Messrs. J. VAN HULLE, E.

LEMOINE, BESSON, DELAUX (*Chrysanthemum notoriety*), C. HAVENTH, and L. WALTHENY HALLEIN, now in England on an excursion to seek information and instruction from the various establishments, paid a visit to Messrs. CANNELL & SONS, Swanley. On arrival they were met by Mr. H. CANNELL, sen., the nursery and greenhouses were thrown open, and they were allowed to ramble at their leisure, and remain as long as they chose over any special object which interested them most. The construction of the houses, heating apparatus, &c., came in for their share of inspection. Having passed through the various departments of the "Home of Flowers," luncheon was served at the "Lullingstone Castle" Hotel, after which the fruit-growing portion of the neighbourhood (at present in fine pick) was inspected, and the quantities now being despatched to every large town in the North of England appeared to astonish them, a finish being made with a run through Mr. LADD's immense fruit-growing establishment.

— MESSRS. J. CARTER & CO. AT NORWICH SHOW.—On the occasion of the visit of H.R.H. the Princess of WALES to the show of the Royal Agricultural Society at this town, Mr. SHARMAN, manager to the above firm of London seedsmen, had the honour of presenting to Her Royal Highness a bouquet of Roses gathered from their Rose grounds in Kent.

— IMPORT OF BUFFALO BERRIES.—The Canadian correspondent of the *Liverpool Journal of Commerce* says, that "Mr. W. H. HOOPER, of Brandon, is developing a new industry in the country. The other day he shipped some samples of Buffalo Berries (*Shepherdia argentea*), growing luxuriantly on the prairies on that part of the North-West territory, to Messrs. CROSS & BLACKWELL, pickle manufacturers, London, England, as a test. He is confident they will turn out satisfactorily. He gathered the other day 285 berries from two plants."

— NEW PARK AT WEDNESBURY.—We have been informed that Messrs. W. BARON & SON, of Elvaston Nurseries, are appointed Consulting Engineers and Surveyors to the Wednesbury Urban Sanitary Authority in the matter of a proposed public park, and they have received instructions to prepare plans and specifications for the same.

— KAPOK.—Some attention has been drawn of late to the silk cotton which encloses the seeds of *Eriodendron anfractuosum*, under the name of Kapok. From a communication made to the Agricultural and Horticultural Society of India it seems that the quality of the cotton is much superior in Java to that produced in India, which is attributed to the greater heat of the dry season in the former country. The writer of the communication referred to says:—"The Kapok is only used to fill up mattresses, chairs, &c. So far as I am aware there is in the whole of Java no Kapok plantation. In each village there are sometimes, the fruit of which is sold by the natives for one rupee per thousand. When cleaned the price is 30 to 50 Rs. per picul (i.e., 130 English pounds); the price is now very high, but I do not doubt it will rise more when the use is more known. Several people have tried to make the Kapok tree a culture, but all attempts failed, the cause of which must be sought in the enormous salaries."

— CHISWICK SCIENTIFIC AND LITERARY SOCIETY.—An enjoyable garden party was given by this Society in the Royal Horticultural Society's Gardens, Chiswick, on Friday evening the 16th inst., in the large vinery. A number of members of the Society, and a few outsiders (who were specially invited) exhibited a varied selection of objects under microscopes; Mr. G. NICHOLSON, Kew, showing some botanical specimens. The weather was favourable for astronomical studies, and a great attraction consisted of a telescope fitted up on the lawn. Commander ROBINSON, R.N., was in charge of the instrument, and gave information respecting the moon, the planets Jupiter (with his moons) and Mars, as well as several of the fixed stars, &c. A well-dried and well mounted collection of British plants, with botanical descriptions attached was shown by Miss RUTTER, although the names were not in all instances correct. The gardens are most suitable for scientific conversations, and it is to be hoped that this meeting will not be the only one of its kind.

— NOVA SCOTIA FRUIT-GROWERS' ASSOCIATION.—We have before us the report of the Society for 1885. At a time when our societies are languishing, it is interesting to see that, both in the United States and in the Dominion, the practical value of such associations is recognised, and the members do their best to give and receive information on subjects of interest to them. The meetings seem to partake of the character of the conferences which have been so popular at the Royal Horticultural Society, and afford an indication of what people want, and of one excellent means of supplying the want. There is a serious business purpose about these Transatlantic meetings which is in marked contrast to the dilettante gatherings our societies have catered for to so little purpose.

— THE POTATO DISEASE.—We take the following from the *Journal of the Pharmaceutical Society*:—"Dr. A. B. GRIFFITHS has lately made some interesting experiments on the effect of sulphate of iron on the Potato disease fungus (*Chemical News*, May 28, p. 256). He found that an aqueous solution of 0.1 gram of ferrous sulphate in 100 grams of water causes perforations of the cellulose walls of the hyphæ and spores, while it does not attack the cellulose walls of higher forms of plant life, the cellulose of which appears to be of a different character, since it is coloured by reagents which do not affect the cellulose of fungi. He also suggests that potash salts in manures, while valuable for the Potato, also stimulate the growth of fungi, since CHEVREUL has shown that fungi greatly flourish when watered with a solution of potassium nitrate."

— PINUS ENGELMANNI.—A Pine cone would not appear at first sight to be a suitable material for the fabrication of a hair-brush; nevertheless, Dr. E. PALMER says the Mexican Indians use the cones of the Pine in question for this purpose by removing the corky portion of the scales. Perhaps these Indians do not have much use for such brushes.

— COLOCASIA DEVANSAYANA, *Linden and Rodigas*.—This is a supposed new species of *Colocasia*, of which the flowers are not known. It is derived from New Guinea, and has long-stalked leaves, the stalks reddish-brown, sheathing for half their length; the blades hastate or cordate ovate-acute.

— THE OXFORD CARNATION AND PICOTEE UNION.—The second exhibition of the Union will take place, as last year, in Mr. E. S. DODWELL's garden, Stanley Road, Oxford, on Tuesday, August 3, and the schedule of prizes recently issued comprises forty-five for collections of twelve or six blooms respectively, and seventy-eight prizes for single blooms, the total money value being nearly £50. In issuing the schedule Mr. DODWELL, the Hon. Secretary, states:—"The object of the founder of the Association has been to foster interest and enthusiasm in the cultivation of the flowers rather by free fraternal communion than by the stimulus of large money prizes; therefore an essential part of the programme is a modest luncheon, free to all subscribers—an arrangement which many years of experience has proved to be good." The 10 A.M. Great Western Railway express from Paddington reaches Oxford at 11.40, and judging begins at noon, to suit the convenience of exhibitors from a distance.

— SKELETON LEAVES.—Some of the best specimens have been seen were exhibited by Mrs. HODGKINS, Beaufort Avenue, Withington, at the recent Liverpool show. They were not only well prepared, but effectively mounted upon a crimson velvet background. Amongst other things a *Nepenthes bicalcarata* was exhibited. Now-a-days, when considerable importance attaches to the distribution of the vascular bundles, these preparations may become something more than mere fancy work.

— AGRICULTURAL SOCIETY OF INDIA.—The last number of the *Journal* contains articles on grafting Mangos by Mr. MARIES; on the preparation of Rhea fibre, by Mr. JENNINGS; on the flowering of *Bambusa arundinacea*, by Mr. NICHOLS, and an interesting paper on the rise and progress of the Society in the sixty-five years of its existence. The Society was established in 1820, at the instigation of Dr. CAREY, the Baptist missionary, so favourably known as a scholar and a botanist. The improvement of agricultural and horticultural products was the chief

end aimed at, and this was accomplished by the establishment of an experimental garden, the instruction of the natives, the introduction and diffusion of useful plants, the establishment of a library and museum, and the publication of a *Journal*. The replies given to questions and the manner in which information is afforded on points of interest, as shown in the *Journal*, alone afford conclusive evidence as to the utility of the Society, which boasts some 561 members.

— HYGROMETER.—For cultural purposes an instrument of precision is not needed, as less exact means answer the end in view. M. le Comte DE BUYSSEON has lately again called attention to the carapels of *Erodium*, whose long beaks roll up when dry, and straighten when moist, like the awns of *Stipa* and other plants. A small slab of slate or zinc is pierced in the centre, and into the hole the seed is introduced. With the carpel of *Erodium gruinum* M. DE BUYSSEON says that when the beak is quite straight, an atmosphere saturated with moisture is indicated; when it has six coils complete dryness exists, a medium condition being shown by two coils of the spine.

— VERONICA SALICORNIOIDES.—There is a whole group of dwarf Veronics which mimic *Lycopodiums* or dwarf Conifers, and which appear to be anything rather than what they really are. In such cases proof may be demanded, and such is before us in the form of flowering specimens of the plant named at the head of this paragraph, and which undoubtedly prove the plant to be a *Veronica*. For our specimen we are indebted to Mr. GUMBLETON. Many of our readers will remember the fine group of these species exhibited by Mr. WARE at the meetings of the Royal Horticultural Society on June 22 this year. This group showed how well these plants which are hardy (except perhaps in the severest winters) are fitted for ornamental beds on terraces or for window-garden purposes.

— BLACK COUNTRY FLOWER SHOWS.—Some extremely interesting and instructive papers might be written on "Pitmoond Gardening in the Black Country." By the Black Country is meant that stretch of country lying between Birmingham and Wolverhampton, with ironworks, coal mines, &c., in abundance, and which appears to be at all times encompassed by a dense atmosphere of smoke. Here, one would imagine, gardening must be carried on under great difficulties, and yet three highly successful flower shows are held annually in the month of August—one at Darlaston, one at Bilston, and one at Willenhall. These places, from their geographical position, may be said to form a triangle, and they are about 3 miles from each other. Bilston has probably the largest show, and Willenhall ranks next in importance; in each case the competition is very keen, and the attendance large. And it is worthy of note that while large commercial centres like Wolverhampton and Walsall—probably for want of pluck and good management—are unable to support a show, and even Birmingham is without a thoroughly representative exhibition, in these unlovely districts not only are good shows held, but they are well managed, and financially successful. Well done, Black Country!

— PHILIPPINE FORESTRY.—At a time when the forestry question is forcing itself into the foreground, owing to the rapid exhaustion of forests in various directions, it is unfortunate to hear a rumour of the probable early recall of the Commissioner of Forests in the Philippines, and the suspension of the work in which he is engaged. The investigation of the flora was one branch of the work of this department, and when it is borne in mind that practically nothing has been done since the time of CUMING, until the work was taken in hand by DON SEBASTIAN VIDAL, the present Commissioner—and that even now some of the islands are practically unexplored—it will be a matter for sincere regret if the work should come to a sudden termination owing to the unsettled state of the political horizon in Spain.

— THE CISTUS FAMILY.—We welcome the appearance in the *Boletim da Sociedade Brasileira* of a monograph written in French by Professor HENRIQUES, and devoted to the genera and species of *Cistaceæ*. The Professor gives an historical summary of the family, and adopts WILKONIA's subdivision of the family, and enumerates as European

genera—*Cistus*, *Halimium*, *Tuberaria* *Helianthemum*, and *Fumana*. This is followed by a sketch of the physical geography and mountain systems of Portugal and of the geographical distribution of the *Cistineæ*. Eleven species of *Cistus* (irrespective of varieties) are noted in Portugal—nine species of *Halimium*, six species of *Tuberaria*, thirteen of *Helianthemum*, and four of *Fumana*, and of these abbreviated descriptions are given, arranged in the convenient form of analytical tables, together with indications of the localities where the species are found. An appendix relating to the hybrids between various species—and which are very common in this genus—is added. In this appendix M. BORNET's experiments are alluded to. This botanist, it will be remembered, raised numerous hybrids in the garden of M. THURET, at Antibes, where we had the pleasure of seeing them. Unfortunately M. BORNET has not yet published any record of his experiments, but we learn from M. HENRIQUES' statement that M. BORNET succeeded in raising 245 hybrid *Cisti*, that *Cistus ladaniferus* yielded results with seventeen other species, but that no cross could be effected between a *Cistus* and a *Helianthemum*, although the pollen of *Cistus salixifolius* produced a hybrid with *Halimium halimifolium*. We would fain hope that Professor HENRIQUES' conscientious monograph may lead to the revival of the cultivation of these very beautiful shrubs, formerly so much in vogue that SWERT published an illustrated monograph of the forms known to him. Now-a-days if a flower is unsuitable for house decoration, or as a "cut flower," it is little esteemed, be it never so beautiful or interesting. Some day intelligence as well as the satisfaction of the mere sense of beauty will be considered, and things will change.

—GARDENING APPOINTMENTS.—Mr. C. TURNER, late of Mostyn Hall, Flintshire, has been appointed Head-Gardener to DAVID BRIMSLOW, Esq., Bitterswell Hall, Lutterworth.—Mr. JOHN SWYTHE, late Gardener to the Hon. Mrs. POLLOCK Lismany, Co. Galway, Ireland, has been appointed Gardener to JOHN MILLS, Esq., Bisterne Park, Ringwood, Hants.

CARPENTERIA CALIFORNICA.

THIS is a handsome shrub, which bids fair to be hardy, and of which up to the present more has been heard than seen. It is a native of King's County, California, and was originally described by Dr. Torrey in the *Plantæ Fremontianæ*, t. 7, where, however, only capsules and leaves are shown. These capsules are remarkable, in that they split, not only into valves, but the outer surface of each valve peels off from the inner surface. Dr. Kellogg, in the *Proceedings of the Californian Academy*, vii., 10, alluded to it; and the plant is duly registered in that most useful book of Mr. Sereno Watson, the *Botany of California*, vol. ii., p. 446.

What we know of it is derived from these sources, from the herbarium specimens at Kew, from notices and figures in the *Garden* (October 23, 1880, and July 18, 1885), and specially from the specimen figured, and which was obligingly communicated at our request by Miss Jekyll, of Munstead, near Godalming, who has been so fortunate as to be the first to flower the plant in this country. Miss Jekyll's letter is appended to this note. All that we need add is that the plant is a shrub with lanceolate, rather thick leaves, very finely serrulate, felted with close white hairs on the under surface, and with rather distant nerves. The flowers, as shown in the illustration (fig. 22, p. 113), from a photograph, are very like those of a *Philadelphus*, but differ in having the styles united throughout into one column, while in *Philadelphus* the styles are separate above, though inseparable beneath. The ovary and capsule are more nearly separate from the base of the calyx than in *Philadelphus*, besides which there is in *Carpenteria* the peculiar mode of splitting up of the valves of the pod before alluded to.

"The specimen figured," writes Miss Jekyll, "is a bush about 7 feet high, planted out in a cool greenhouse. There are others out-of-doors (one of them showing bloom on one point). As they have withstood the late severe winter without having a leaf injured, and without any protection except that afforded by a west wall, near which they grow, I think we may consider that this fine thing is hardy, at any rate in our southern counties. Our soil is peaty sand, elevation 400 feet."

THE FRUIT CROPS OF NOVA SCOTIA.

WE are indebted to the courtesy of one of the Canadian Commissioners at the Canadian Exhibition for the following reports on the Apple crop in Nova Scotia from which we yearly import so much fruit of excellent quality:—

Newport.—Potatoes are looking well, and will be probably a good crop, although, on account of continued rains at the usual planting season, very late planted. There is promise of a fine crop of Apples. The trees were loaded with bloom, a large proportion of which have been fruitful. I have noticed, however, on gravelly soils, trees that have a great many yellow leaves, indicating a famished condition. The Plum trees in this vicinity have mostly succumbed to the "black knot."

King's County.—The prospect for the Apple crop is good, and in some sections very good. Some few orchards have been devastated by canker worm; others considerably injured, but not enough to make a material difference in the main crop. And taking the increase and growth of young orchards into account, I should estimate that the crop of 1886 will be the largest ever grown in the county of Kings.

Annapolis.—The prospect of an extraordinary large Apple crop is not as encouraging as it was earlier in the season. There was an immense show of blossoms, but it is reported from many sections that the fruit did not set well, and the present dry weather is causing the nearly-formed Apples to drop off. It is rather early to give an opinion, but there will certainly be an average crop. Small fruit is very abundant, Strawberries being exceptionally fine.

Cumberland.—According to reports from the different sections fruit trees were never in a more flourishing condition, and we look for a bountiful yield in this part of the province. Many localities are becoming quite thickly studded with Apple orchards, varying in extent from seventy up to 200 trees, and most of them not over twelve years old. The varieties found to succeed best are of the more hardy species, as *Duchess of Oldenberg*, *Emperor Alexander*, *Golden Pippins*, *Wealthy*, *English* and *Golden Russet*, *Red* and *White Astrachan*. Owing to the "black knot" Plums have been found not to succeed except one variety, Moore's Arctic, which is doing well.

Hants.—The indications of a good Apple crop are fair. The show of blossoms was wonderful, and in all the Apple growing districts considerable fruit has set.

Yarmouth.—Fruit bloom was abundant, and the crop will be large, with favourable conditions for maturing. Small fruit are all doing well; cultivated Strawberries, Wilson chiefly, are beginning to come forward. Raspberries (cultivated), which were a total failure last year, through winter killing of the buds, give promise of a larger crop than I have ever seen; while Gooseberries and Currants make their annual display of well filled branches. Upon the whole the season has been an early and a most favourable one for the farmer; and should no disastrous wind storms occur, the exhibition in October should show unwonted excellence of fruit, root, grain, and other crops. Potatoes never looked better, making a strong, healthy, rapid growth; the earliest growers are already in the market with the first of the crop, retailing at 3 cents per pound.

Notices of Books.

How I Managed and Improved my Estate.
(London: George Bell & Sons, 1886.)

This cheerful book re-appears from the columns of the *St. James' Gazette*, where many readers must have welcomed occasional pictures of country life by one who had given up London work and established himself in Sussex, with a single task in hand, that of the management of a landed estate, which he had purchased for the express purpose of improving it. If, after thirty years experience in management similar to that of our author—building, planting, farming, and all the miscellaneous, delightful, and sometimes unprofitable work of managing land—he had written a volume on the subject, it would have proved, we will not say a better, but certainly a bigger book. His plan, however, is a good one, since he gives his own experience in simple language. In commencing the

building of a very handsome house he says, "I resolved to have no master-builder but myself," and as a great many people have either built houses or hoped to do so some day, his account of finding a stone quarry on the spot and building far beyond his first plan, for the sake of utilising the excellent materials, must prove attractive to many persons. In "puddling" a fish pond he saved £300 by using a horse instead of ten or twelve men! In laying out his gardens, which cost £150 for ornamental shrubs, he saved hundreds by personal superintendence and contrivance—we might say thousands, or the difference between £500, which the house and grounds cost him, and £10,000, which the same would have cost in the hands of contractors.

We have now shown that this little book of 108 pages contains by no means a dull story, and for that reason, if for no other, its eight chapters are better and more wholesome reading than is at present offered to agriculturists in some of their special papers which are engaged, week after week, in bewailing the bad times. Our author's subjects are as follows:—1, Choice of an Estate; 2, Underwoods; 3, Timber; 4, Building and Contracting; 5, Making Grounds; 6, Farming and Shooting; 7, Fishponds and Aviares; 8, Conclusion. On these several topics he discourses briefly, and not at all in the style of some preachers, for he does not venture beyond the limits of his knowledge, and only tells what he can himself vouch for as having come within the range of his own personal experience. As an observer of scientific phenomena, and in the domain of natural history, our author seems to us to be sometimes misled, as in the case of a wonderful storm, or something, by which he says his house "was softly and mightily struck" in the night, so that the walls, though 3 feet thick, "rocked with the blow." There is a curious discovery (p. 104) of "a dangerous peculiarity in the manners of weasels with which all strollers in woods and out-of-the-way places should be acquainted." This is, that instead of running away from an intruder they run up him as far as his jugular. A "sure instinct guides them to the largest blood-vessels of all who offend them!" We have enjoyed a large acquaintance among weasels and stoats, as well as game-keepers, and have often shot the former and sometimes the latter; but in our district the weasels were not held in ill-odour, at least not morally in connection with human jugulars. Our author relates a fact far more satisfactory when he tells us that he made a good profit of his land consisting of two estates. He says:—"I gave £14,000 for them; farmed them and managed the woodlands almost entirely myself, obtaining, during the whole time I held the land, considerably higher returns than I could have obtained in rent; sold £1000 worth of timber; spent about £5500 on improving house and land; and within fifteen years afterwards had parted with the place, which I had made too grand for my use, for £27,000—the whole transaction leaving me £9500 richer than I was before in money, and richer also in a great deal of pleasant experience and country knowledge." And this in these bad times!

The Rosery.

SOME RECENT ACQUISITIONS IN ROSES.

WE have received from Messrs. W. Paul and Son, of Waltham Cross, some blooms of four new Roses, viz., *Florence Paul*, *Lady of the Lake*, *Grand Mogul*, and *Silver Queen*, the first two being already in commerce, and the others will be first sold in the spring of 1887. *Florence Paul* is of a dark crimson, of nearly the same tint as the well-known A. K. Williams, from which it was obtained; is of medium size, the petals being slightly recurved; a vigorous grower, and odoriferous to a slight degree. *Lady of the Lake* is of a light flesh colour, very full in the centre, especially when half expanded; the foliage is somewhat similar to that of the *Provins* Roses, and the flower is slightly perfumed. *Silver Queen* is a very light coloured Rose, approaching to white in the outer petals; the flower is very full and pleasing in form, and the shoots and foliage robust. *Grand Mogul*, which has already appeared on the exhibition table, is a very dark crimson, darker than the first-named, and is furnished with short recurved petals, fairly numerous, and forming a flatish bloom, with the centre nearly made

up—a good flower when well done. What we miss in most of the new Roses, is that distinctive and always desirable quality, strong true Rose scent. The odour of the Tea Rose is delicious in moderate doses; but it at last becomes overpowering, not so that of the Cabbage Rose, and others partaking of the nature of that variety.

NEW ROSES: CAROLINE DARDEN (*Dickson*).

The following extract from a letter received this morning from one of the judges at the Helensburgh, West of Scotland, show, held on last Friday, will interest all lovers of Roses, especially your correspondent, "Wild Rose":—"Dicksons, of Newtownards, produced a sensation with their new Roses here yesterday. None could have anticipated that your Emerald Isle would have the credit of producing such a magnificent seedling Rose as Caroline Darden, formerly named after the famous American Dr. Jacks, but now sent out under the maiden name of his wife. It is in the way and build of Charles Lefebvre, or perhaps nearer A. K. Williams, but much darker, of greater substance of petal, and glowing velvety richness. Their Earl of Dufferin, a magnificent new seedling Rose also, got the 1st prize as the best Rose at the show, all classes competing. Besides Caroline Darden and Earl Dufferin, they also received Certificates, First-class, for James Brownlow and W. Laird. Rest assured, Murphy, these are Roses that will be heard of in the future." I was rather proud to get this, as last year the *Gardeners' Chronicle* drew attention for the first time to these seedling Roses, and this year confirms the impression. Caroline Darden also got a First-class Certificate a few days since at the Royal Dublin Society's Summer Show. I am sure all lovers of Roses will be proud of the Messrs. Dickson's success. *W. J. Murphy*.

The Flower Garden.

A SURVEY of the general features of the pleasure grounds should now be made. When deciduous trees and shrubs have attained their full size and proper colour of foliage, a better idea can be formed of the requisite thinning and planting where it is desirable to open, or keep open, views of some distant objects, and also where it would be advisable to introduce a light foliaged or flowering shrub, or the dark tints of the purple Beech or Pine. In opening these groves or views, the sides should not be made straight, or they have a formal look, but plenty of sprayey branches should be left on either side. Should the weather be showery towards the end of the month the planting of shrubs should be commenced. Choose cloudy days for the operation, and see that the soil is well loosened for a considerable distance round the plants, so as to prevent the stagnation of water, which is most injurious to them.

CUTTINGS.

Cuttings of Hollyhock should now be inserted. Choose young shoots when they can be obtained; but they will strike freely from eyes. Cut the side shoots into pieces of one eye each, put them into some slight compost, and under a handlight they will soon strike. Cutting of Fagnolia should also be made now. It does not signify how small the cuttings are, but they should be taken from shoots which have not flowered, as they will root quicker and more certainly than those which have flowered. Cuttings of Phloxes and many other herbaceous plants should be put in as opportunity offers. If not already attended to offsets of the hardier kinds of *Sempervivums* should be pricked into lines, also cuttings of *Mentha*, *Santolina*, *Herniaria*, and all the other hardy plants used for carpet and other bedding.

ROSES.

The budding of Roses should now be completed. Do not allow the ligatures to remain after the union is completed. Suckers should also be removed as soon as they appear; they are more troublesome this year than usual. When Roses do not receive sufficient water mildew is sure to attack the plants. As a remedy for this disease I have tried soot with good results. I damp the foliage with a fine spray syringe, and dust the soot over them, allowing it to remain

on for three or four days, then washing it off. All flowers should be picked off immediately their beauty is past. Young shoots attacked with greenfly may have their points dipped in tobacco-water. All strong shoots of perennials should be shortened. This will induce the plants to produce several flowering shoots from the growths so treated.

GENERAL WORK.

Chrysanthemums in beds will require abundant supplies of manure-water. The same applies to *Dahlias* and *Hollyhocks*. Keep the seed-pods constantly picked off *Violas*, and give them frequent waterings with liquid manure, or else they will speedily go out of flower. *W. M. Baillie, Luton Hoe, Beds.*

PLANTS AND THEIR CULTURE.

CHRYSANTHEMUMS.

EASY as these plants are to manage, the press of other work is often the cause of their being but little attended to, and a fine head of bloom is in consequence not obtained. The stronger and more vigorous the plants, the more nutriment they will require, to be given in the shape of manure-water. The pots will now be getting full of roots, and should be plunged in sifted coal ashes, cocoa-nut fibre, or any other suitable material; this keeps the temperature more equable about the roots, besides saving much labour in watering the plants. Where a batch of the earliest varieties are grown to keep up a successful display, the plants will now be showing their bloom-buds, and should now be always watered with some kind of manure-water in a diluted state. Stake and tie all growths as they require it, and pinch back all lateral growths as they appear if single specimen blooms only are required.

ROSES (TREAS)

which were turned out-of-doors some time since should now be examined, repotting any plants that have filled their pots; repot or retub all young free-growing plants, according to the growth they have made and space they are to occupy, in good fibrous loam, with the addition of some half-inch bones, mortar rubble, and sand enough just to keep it open. Keep the plants well watered at the roots, and syringed overhead twice a day—at least, after potting during hot dry weather, pinching off all buds as they appear, for if these are left on the plants will exhaust themselves before they are wanted for forcing. Place them where they can get the full benefit of light and air, so as to get the wood thoroughly matured. If mildew should show itself, dust all of them over with flowers of sulphur at once. Any hybrid perennials that are kept in pots, and which are required for early forcing, must be treated in a similar manner to the Tea varieties.

STOVE PLANTS.

Finish the potting of all winter-blooming plants without delay, place the plants near the glass, keeping them rather close for a few days after potting, afterwards admit more air, so as to get them stocky and well matured, for on this depends the abundant flowering of the plants. *Gesneras* and *Tydeas* will want a warm moist temperature, but avoid the water getting on their foliage. Late batches of *Gloxinias* must now be in their blooming pots, and should be stood where they can attain their full development; other varieties of this class, such as *Goldschuis*, *Sericographis*, *Thyracanthus*, *Plumbago*, *Eranthemum*, *Rivina*, *Euphorbia Jacquinifolia*, &c., are best plunged in pits near the glass; shading lightly during the hottest part of the day, and shutting up early for a few hours, then putting on a little air later.

Poinsettias and *Begonias* are best kept full exposed to the sun, with plenty of air given; the *Poinsettias* require plenty of water at the roots, for if this be neglected red-spider will be sure to attack them. A quantity of the different varieties of *Coleus* should be potted on for late work, as these plants are found to be very useful for various decorative uses indoors; the persistent increase of insects at this season will render constant efforts needful to destroy them. All climbers that have done flowering should be well thinned out to get the wood properly exposed to the sun, reducing the amount of water at the roots—but not enough to cause them to flag. *A. Evans, Lythe Hill, Haslemere.*

FRUITS UNDER GLASS.

VINES.

THESE in every stage of their growth should have abundance of water given to the roots every week or ten days, providing the drainage is good, following the clear water with copious drenchings with liquid manure until the berries begin to colour; after which period clear water only should be applied, otherwise, in the case of black Grapes, size of berry will be secured at the expense of colour and finish. Vines should never be allowed to get dry at the roots until they have shed their leaves, and then only moderately so, but always inclining to the moist side, which is their natural condition. However, Vines of *Madresfield Court*, should, from the time the berries begin to colour, receive water less frequently at the roots than would be beneficial for other varieties of the Grape Vine. A buoyant and moving atmosphere should be maintained so as to prevent the berries of this fine Grape as far as possible from cracking, and to attain this object the Vines should be allowed to make lateral growth freely so that any superabundance of sap may find vent in the foliage, and thus be drawn away from the berries. As soon as all the Grapes are cut in the early and second early houses, syringe the Vines morning and afternoon so as to rid them of any red-spider that may be present, leaving the ventilators in fair weather at all times fully open, so that the wood shall become well ripened, and prevent the Vines in the early house from pushing into growth, as they frequently show a tendency to do when the atmosphere of the house is kept close and moist instead of moist and airy—moist, so far as the syringing of the Vines morning and afternoon, and damping the pathways, &c, about mid-day goes. Vines cropped light rather than otherwise, and kept well supplied with moisture at the roots, and a free circulation of fresh air maintained from the time the berries begin to colour, are sure to finish their crops well. During hot weather, the vineries containing ripe and ripening Grapes should have the pathways and surface borders damped over with the syringe about 11 o'clock in the morning, and again at 1 and half past 4 o'clock in the afternoon, so as to render the atmosphere congenial to the requirements of the Grapes and foliage alike.

EXPOSING WHITE GRAPES TO THE SUN.

Now that the danger of the berries of *Muscats* of *Alexandria* being scorched by the sun shining on to them is past, the bunches of this and other white Grapes should be gradually exposed to the sun's rays by tying back the leaves by which they are shaded a little at a time, with a view to the better and quicker colouring of the berries. *H. W. Ward, Longford Castle.*

FORESTRY.

DISEASE OF PINE SEEDLINGS.

I HAVE to tender you my sincere thanks for the interesting information that has been elicited on the subject. I have also received a late issue containing Mr. Worthington Smith's valuable report thereon. There seems, however, to have been a slight misunderstanding with regard to the varieties sent, which I selected from seeds of *Pinus Laricio*, Corsican, *P. austriaca*, *P. sylvestris* (*Hagueuau* variety). The Laurel and Fir seedlings have been unaffected. The disease has vanished as suddenly as it came, and thus left us unable to state whether the action of the sulphur was a preventive in the beds that were dressed. I have for some time been aware, through a long and painful experience, of the Coffee-leaf disease (*Hemileia vastatrix*), both on my own estate and those of my neighbours, that certain forms of fungus were inherent in the seeds of various trees; and on my first noticing the present fungus it struck me as bearing a marked resemblance to the *Hemileia* in many of its characteristics. Still in the present instance there is one circumstance which makes me think it may have been due to atmospheric rather than other causes, inasmuch as it has attacked a greater or less extent plants raised from seeds that were gathered in some seven or eight different localities all

widely remote the one from the other, when the parent trees could hardly have been simultaneously affected—viz., Riga, Scotland, Mayence, Corsica, Barres Vilmorin, Montpellier, and in the case of P. austriaca, some other German or Austrian source. I have observed in the case of Hemileia, that although it seems to be ever present in the trees' system, certain climatic conditions are necessary to its development to any serious extent, and that its appearance, therefore, at certain seasons, and in certain weather, can be predicted with some degree of certainty. In the case of the present subject we shall find, I trust and believe, that when the seedlings have passed the cotyledonary stage, they are capable of resisting its influence, or in the event of its existence in a latent form, of throwing it out of the plant's system. Instances of its having attacked, or having been detrimental to, plants of a more mature age, would be of great service. E. J. C. Brace.

PROTECTION OF TREES FROM STOCK.

One of the most difficult and perplexing duties devolving upon the forester at all seasons, but especially during the summer months, is that of protecting single trees from horses and other animals, to which they are most frequently and seriously exposed. It is often a source of deepest regret in passing through an otherwise beautiful district of country to find scarcely a tree to gladden the eye and diversify the landscape. In hot weather, too, how painful it is to travel under the scorching rays of the meridian sun, and the cooling shade is as much longed for by the weary footsore traveller as the bubbling spring or sparkling fountain. True it is we regard our park and avenue trees more as luxuries than as objects of utility, and more for the wealthy than the poor. This, to some extent at least, is true, but it is no fault of the rich, nor their desire it should be so, and but for the circumstance that roadside trees are so expensive and difficult to raise there might well be shady bowers and avenues for the poor as well as the rich, and for the public no less than for private persons. This want, however, might be amply supplied and the difficulties overcome but for the one reason, that single trees are so very expensive and difficult to protect and grow to perfection. That hedgerow and park trees can be made safe and secure by various kinds of fencing, there is no doubt; if it were otherwise we should not enjoy the pleasure of those few trees we have; but in these days of economy and utility the expense of erecting the guards is so great as to frighten many proprietors from even attempting it.

In these columns some years ago I described a plan of protection that appeared to be much thought of, and is becoming of general use. The plan was simply that of enclosing the stem or trunk of the tree in a sheet of wire netting, giving to each tree a kind of coat of mail to wear. There is very little skill or art required to put it on, but to those who may never have seen it done a few words of direction may be useful, and should the writer still fail to make the subject clear he will gladly answer any requisitions that may be put to him respecting it. The first thing to do is to procure the requisite quantity of wire netting, usually 30 inches broad, 1½ inches mesh, and No. 16 wire gauge. If the tree is a small one the netting may be put on the whole breadth and overlap the edges so as to take it in to the proper width, and thereby avoid cutting, except at the proper length to go as high up the tree as required. It requires to be securely tied by means of brass wire, and when it becomes too tight by reason of the tree enlarging the ties must be slackened and the netting let out. It requires to be securely and firmly fastened to the ground by means of bent pieces of common fencing wire thrust into the ground in the form of staples. This for sheep and cattle is usually quite sufficient, and is equally effective against hares and rabbits. Horses, however, sometimes (though rarely) catch hold of a slack part of the netting and tear it, and to prevent this a piece of barbed wire twisted round the trunk above the netting proves most effective. All this is done cheaply, expeditiously, and gives the utmost satisfaction wherever it has been applied. Both the netting and barbed wire can be so closely and neatly put upon the tree as to be invisible at a very short distance, and can be equally well applied to a limb or branch as to the stem or trunk. It does no injury to the stem if slackened at intervals of years varying according to the growth of the tree.

Apart from animals gnawing the bark of trees they also naturally rub themselves against them, and when

the barbed wire is put on they are completely prevented from doing so, but which, if not provided for in another way, would amount to actual cruelty. What, therefore, should be done in all parks and grazing fields is to erect rubbing posts, which consist simply of a section of a rough tree pruned of its branches (not too close), and sunk 2 or 3 feet into the ground. Such rubbing posts fulfil a twofold purpose—they prevent the animals from rubbing against the trees, gates, and fences, which they greatly destroy, and afford much pleasure and comfort to the animals, which in effect is to induce them to thrive better. C. Y. Michie, Cullen House, July 10.

THE BROWN, OR SMALL, SWIFT MOTH.

We here illustrate (fig. 23) the transformations of one of the most destructive of our native insects, the caterpillars of which are quite as injurious to many growing vegetables as the larvae of the Heart-and-Dart Moth, *Agrostis tritici* (or exclamationis). The caterpillar, here represented of the natural size, when full grown, at the close of the year and early spring, is of a white colour, with a bright chestnut-red head. It is of a



FIG. 23.—SMALL SWIFT MOTH LARVA AND PUPA.

more slender form than is usual with the surface grubs, as the caterpillars which feed on plants just beneath the surface of the earth are called; it is furnished with the usual number of legs, namely, three pairs of pectoral legs attached to the first three segments of the body after the head, four pairs of ventral clasper-legs, and two anal claspers; the body is very sparingly clothed with short single bristles. The head, and the first, second, and part of the third segments of the body, are represented in the upper right-hand figure of our woodcut more highly magnified.

One of our correspondents ("B. W.") sent us some portions of roots of the *Hoteia* (Spirea) japonica with several of these caterpillars, which had gnawed and riddled the roots, as shown in our upper left-hand figure. Another correspondent ("T. W.") sent a number of the caterpillars, which were "devastating many of his plants," of which he gave a list, including the following species:—*Acillia parmica* and serrata, *Campanula glomerata*, *dahurica* and *Van Houttei*, *Bupththalmum salicifolium*, *Ranunculus aconitifolius* and *amplexicaulis*, *Convallaria majalis*, *Trollius*, different varieties; *Scabiosa caucasica*; *Primula*, different varieties; *Thalictrum*, different varieties; and *Paeonia*, different varieties. They are also destructive to pot plants, Strawberries, Parsnip, Beans, Lettuce, Potato, Celery, and grass roots, and we have found them devouring the young and tender shoots of *Chrysanthemum* before they have found their way above the

surface of the earth. They form an elongate oval cell in the earth for the cocoon in which they change to shining reddish-brown chrysalids, which are longer than usual, and are furnished with short bristles on the rings of the body (see lower right-hand figure in our woodcut), which enable them to wriggle upwards to the surface, when ready to transform to perfect insects.

The moth is here represented of the natural size, but the specimen selected for representation is much more strongly marked with whitish spots and stripes than usual, being generally much more suffused with brown scales, whence the specific name of fuscus, or the brown swift, was given to the more common variety by the late Mr. Haworth. Other varieties have been named nebulosus, the spotted silver swift; obliquus, the silver swift; and angulum, the tawny swift, by the same writer, who was famous for making species out of varieties of common insects. The more ancient name of *lupulinus* given to the species by Linnaeus has, however, prevailed. The moth is extremely active on the wing, flying in the twilight with great velocity, whence all the species of the genus to which it belongs, are termed swifts. This genus was named *Hepialus* by Fabricius, and includes as its typical species the large species vulgarly known as the Ghost moth, *Hepialus humuli* of Linnaeus, the male of which is pure white, and the female tawny-orange with darker markings. The caterpillar feeds on the roots of Hops and grasses, and the common name by which it is known owes its origin to the white male being often seen in grassy churchyards, hovering, pendulum-fashion, over graves, amongst the rank grass among which, the female moth is quietly resting. I. O. W.

The Apiary.

TAKING THE HONEY.

I AM now going to address those happy people to whom is allotted the task of taking the honey. I say happy, in a twofold sense, for, firstly of the first, as Moses said in the *Picar of Wakefield*, some people will find there is none the bees can spare; and secondly of the second (that's my own), where they can spare it, we can get the honey without doing as my good old Wiltshire mother used to do—burn the bees. The season cannot by any possible means now be a good one, and only those who fed their bees during the cold and dreary days of June will find there is a surplus. The bees must be kept up in strength, and then if the honey season only lasts a fortnight amazing quantities will be brought in. One of the simplest ways of taking the supers off is to take a piece of calico and saturate it well in pure carbolic acid and warm water, one part of acid to twenty of water. Go to a hive, uncover the supers, and simply lay the wet rag over them. Of course, directly you uncover the bees they will come forward, and endeavour to inquire after your health, but do it with promptness and decision and the bees will beat a retreat. So much do they dislike the smell that the boxes will be empty, or nearly so, in a couple of minutes. Then take the box quietly off. You will be sure to find it stuck down. Do not pull it up suddenly, or you would pull up the frames as well, and then great anger would follow, but twist the box a little one way and then another till you find it quite loose, then lift it off and put it in a dark box. I keep a large box for the purpose. Light is excluded from every part of the box except a little hole about half an inch in diameter at the top. In this hole is inserted a pipe made of perforated zinc, and 16 inches long. You can put any amount of honey and bees in a box of this sort, and you could stand it in the middle of your apiary. The bees will soon fly out of the top of the pipe, and the box will not have a bee left in it. You might think that robber bees would get in, but they do not. Robber bees are something like human robbers, i.e., they make mistakes. They endeavour to get into the box, but have no sense to fly to the top of the pipe and go down it. They climb up some other way, and keep on endeavouring to get through the holes of the perforated zinc, which, of course, is impossible. When the bees are all gone you can carry the honey triumphantly away. My box is made to carry frames as well. If the frames contain any bees they depart out

of the pipe the same way as described above. Another time I hope to speak of other traps for bees, and also the best way to take out frames of honey-comb from the hives. *Walter Chitty, Fovey.*

HOME CORRESPONDENCE.

Seeds Transported by Insects.—It is always well to record singular facts that occur in Nature, and I would ask you to allow me to do so in this instance. Some fresh seed of *Cyanophyllum* was sown in the stove, and much to our surprise none appeared to germinate; in a short time we found that, in pots near to the pan and also in pots on the other side of the stove, there were healthy plants of the *Cyanophyllum* growing with other plants, showing that some insect had transported the seed. We put this action down to ants, and one is led to suppose that the seed contains some property that they are partial to or they would not have gone to so much trouble. *T. Christy, Matern House, Sydenham, July 14.*

Colour Inheritance.—Last autumn, when at Glen Eyre, Southampton, I obtained cuttings of one of the bluest flowered *Hydrangea* I ever saw. I purposed testing the effect of our soil here in respect of floral coloration, and have, now that one of the plants is in bloom, evidence that the beautiful blue tint has departed, and only the normal hue of pink remains. I must say I did not expect anything else, but still thought the experiment worth making. The question remains, What peculiarity is, there in the *Hydrangea* that diverse soils should thus affect coloration of its flowers? Are there any other plants, the flowers of which are similarly affected by diverse soils, and if so which are they? The soil which produces blue *Hydrangeas* has not yet been known to produce the anxiously-looked-for blue *Dahlia* or *Rose*. After all it seems uncertain [not at all] whether the coloured portions of the *Hydrangea* are really flowers called coloured bracts of foliage. If it be the latter then the curious variations in colour to which these are subject may be explained. With respect to the peculiarity alluded to at p. 82, of a black Grape producing white fruited progeny, no information is given as to the other parent—assuming that it had one other, and perhaps it was a white one. It is well known that the pollen parent as a rule exercises the greatest force upon the cross effected. I have a case now in which seed from a purple Potato crossed with a red Potato has produced seedlings having white tubers, but Potatoes in their progeny are very erratic. *A. D., Belfast.*

Iris filifolia.—Amongst many bulbs sent to me about this time last year, collected by my son near Gibraltar, were three bulbs of *Iris filifolia*, which he found growing in exposed crevices near the summit of the rock. I have heard that this species is not hardy in England, but I planted them all in sheltered crevices exposed to the south, and so narrow that the bulb touched the rock on both sides, and all flourished well at the end of June. *Iris filifolia* in general habit is not unlike *Iris (Xiphium) lusiatica*, but has slenderer leaves. The flowers are purplish-blue, with a line of clear dark yellow running down the centre of the falls. *C. Wolley Dod, London, July 17.*

Foxgloves.—At the Botanical Gardens, Hull, Mr. P. McMahon, the Curator, has a very fine strain indeed, and the long and massive spikes of blossoms are objects of great beauty just now. The variety of colours is as remarkable as the size and rich marking of the flowers, especially the spots and blotches in the throats of the blossoms; the white flowers are variously spotted with dark brown and black, and there are some other very pleasing shades. Mr. McMahon uses the Foxglove as an edging to clumps of shrubbery, and the spikes of bloom are thrust up and through the outermost fringes of branches. Some of the spikes of bloom would measure 4 and 5 feet in length. Foxgloves can be sown now, but it is best if done in March and April, so that the plants may be strong and thoroughly established by early summer the following year. *R. D.*

The Boiler Competition at Liverpool.—In your paper of the 10th inst. I observe an article on the subject of the recent horticultural boiler contest at Liverpool, in which my name is mentioned as a competitor, and inasmuch as the article contains statements which are somewhat erroneous, will you allow me a small space to correct them. In the first place, I must mention, in the 2000 feet contest the following rules should have been observed, namely:—Rule 5, that the rise in 100 feet should not be more than 6 inches; and Rule 6, that no boiler should have more than one flow and two returns. Both of these rules I strictly complied with, but my two competitors did not observe them, and whilst accom-

panying the judges taking the levels, they observed this infringement, and commented upon it; and why, under the rules, they were not excluded from competition, I was, and still am, at a loss to know. I protested against this noncompliance with the rules, both before and after the decision, but without effect, and should be glad to know why my protest has not been noticed, or some satisfactory reason given why these breaches of the rules in question were overlooked? I would also observe that my boiler is not a saddle, but a longitudinal tubular boiler of slow combustion. The size is 4 feet 4 inches × 3 feet 3 inches, compared with the other competitors, 6 feet long each. The following is a correct statement of the heat, ascertained by thermometers as taken on the ground, and which speaks for itself, showing by the heat obtained that each competitor did his utmost to ascertain the greatest heat each boiler was capable of producing:—

		Wood.				
Time.		Thermometer.				Total.
12.30 P.M.	.. ..	84	92	71½	71½	+
12.50 "	.. ..	88	92	74	74	328
1.10 "	.. ..	126	116	82	82	416
1.30 "	.. ..	132	116	92	92	442
2.30 "	.. ..	156	150	122	122	550
4.30 "	.. ..	168	162	130	130	560
6.30 "	.. ..	156	152	124	124	556
8.0 "	.. ..	153	138	125	125	566
Twelve hours' burning						
8.0 A.M.	.. ..	110	103	90	90	308

		Mee.				
Time.		Thermometer.				Total.
12.30 P.M.	.. ..	82	83	72	66	+
12.50 "	.. ..	105	100	77	74	350
1.10 "	.. ..	120	124	104	76	474
1.30 "	.. ..	156	126	84	68	410
2.30 "	.. ..	130	130	108	120	488
4.30 "	.. ..	148	146	124	114	512
6.30 "	.. ..	145	148	118	130	542
8.0 "	.. ..	156	156	116	130	578
Twelve hours' banking.						
8.0 A.M.	.. ..	98	104	92	92	266

<i>Foster & Pearson.</i>						
Time.		Thermometer.				Total.
12.30 P.M.	.. ..	82	80	73	75	+
12.50 "	.. ..	99	85	74	76	325
1.10 "	.. ..	120	108	78	78	384
1.30 "	.. ..	120	110	82	82	394
2.30 "	.. ..	146	118	106	102	496
4.30 "	.. ..	133	126	104	106	474
6.30 "	.. ..	146	134	118	110	494
8.0 "	.. ..	142	132	112	112	478
Twelve hours' burning.						
8.0 A.M.	.. ..	88	82	73	75	318

		Total Results.			
Mr. Wood, Bristol	3846
Messrs. Mee, Liverpool	3936
Messrs. Foster & Pearson, Beccles	3385

Thomas Wood.

Books on Colour.—One of the best and cheapest works on colour known to me is the new edition of *Field's Chromatography*, by J. Scott Taylor, B.A. (Camb.), published at 5s. by Winsor & Newton, Rathbone Place, W., or obtainable of any colourman. It has four coloured plates or charts of colours. At the same time there are no doubt some other good modern books or colour charts which might possibly prove of equal service to gardeners, botanists, or florists, were they as well known to them as they doubtless are to artists. Reichenbach adheres, I believe, to Winsor & Newton's standard. It must be remembered in all questions of this kind that colour is of relative value only as seen in flowers and pictures, every tint being either strengthened or weakened by that nearest to it; thus, while white heightens the tone of colours near it, black, on the other hand, weakens them. Again, as the Editor pointed out last week in a footnote, colour is so subtle in its variations that probably no two persons see colour exactly alike, and even if they do so, now and then there is the difficulty of nomenclature to be met and accounted for, since a blue person calls pale blue another speaks of as bluish lilac, another as slate colour or French grey, and so on *ad infinitum*. The

varieties of colours—i.e., tints or hues—being infinite, it follows that no one chart can serve to illustrate these, hence the difficulty of fixing a standard scale of both colours and names. The work mentioned above (Scott Taylor's edition) is the best I know on the subject, being a standard one amongst artists, and so of course not less useful to gardeners, botanists, and manufacturers. *F. W. Burbidge, R.L.S.* [We have received a copy of the work in question, on which we shall report later on. Ed.]

Darwinian Idea in Ancient Saxon Times.—The *Exeter Book*, published by the Society of Antiquaries, shows that there was a paraphrase in Saxon verse of a book of animals, dating from the early part of the eleventh century. There is a French metrical translation of this by Philip de Thau, an Anglo-Norman poet, dating about 1121. Philip de Thau, in describing the eagle, says that it can look straight at the sun, when at its brightest, without blinking. The author says the eagle has acquired this singular property by always taking the very young birds from the nest and compelling them to gaze at the sun; such young birds as could gaze at the light without flinching were preserved by the mother, and such as could not do so were discarded, and not brought up. By this continual process of selection a race of eagles was evolved capable of gazing straight into the sun! *W. G. S.*

Violas as Summer Bedding Plants.—Two notable illustrations of the value of *Violas* as bedding plants in summer have come under my notice of late, and they serve to illustrate the value of these hardy and easily managed plants in making an effective display. One is to be seen at Messrs. Collins Bros. & Gabriel's nursery at Hampton, Middlesex. The *Violas* here are really splendid and enduring masses of flower, and when planted by Mr. Jenkins, the foreman at the nursery, he placed a good dressing of cow-dung at the bottom of the bed, and planted the *Violas* over it. When the dry weather set in the soil about the *Violas* was covered with a surfacing of decayed *Narcissus* foliage, keeping the surface cool and moist. The plants are in a fully exposed position, and it may be accepted as a clearly ascertained fact, that *Violas* will stand a good deal of drought, provided they have something good to root into. The ruin of placing a layer of cow-dung or any good manure beneath the surface in a good one, it not only gives the plants something holding to root into, but it ensures a cool bottom also. The varieties used at Hampton are Queen of Lilacs, Countess of Kintore, deep blue-purple and white; Archie Grant, rosy-purple; True Blue, clear blue; Ardwell Gem, sulphur-yellow; Golden Queen of Spring, pale yellow, remarkably free; Countess of Hopetoun, pure white; Lady Polwarth, pure white; and Elegans, mulberry. In the beautiful public park at Wolverhampton, *Violas* are used by Mr. Thomas the Superintendent, with great effect. They are mainly employed as edgings to shrubbery borders, and they can be seen in long broad lines, blooming so freely that the foliage is almost hidden from view. Some were planted last autumn, others in the autumn of 1884 or the spring of 1885. Particularly striking and effective are the *Tory*—a very fragrant form of *Lutea grandiflora*, *Holyrood*, Queen of Spring, Dean's White Bedder, and one or two others. Beds are also filled in the same way, and they are very effective also. Some fancy Pansies are largely used, especially a well-known variety named Thomas Granger, which can be seen flowering in dense masses. Common annuals, Foxgloves, Sweet Williams, &c., the latter especially, are largely used, and one realised how valuable they are for decorative purposes when used in a mass. The admirable manner in which the park is kept reflects the highest credit upon Mr. Thomas. *R. D.*

Hardiness of the Himalayan Hemlock Spruce in Hampshire.—I enclose a few sprays with new and old cones of *Abies Brunonian*. The tree from which they were taken is about 20 feet high, and has been planted about twenty-five years in very good, rich, and well-drained soil, but somewhat sheltered by the trees. *Wm. Henry Rogers, Red Lodge Nursery, Southampton.*

FRUIT NOTES.

PINE-APPLE NECTARINE.

On looking over the gardens at Warwick Castle the other day I observed in one of the Peach-houses the above Nectarine, bearing a crop of wonderfully fine fruit. Mr. Christie informed me he had been gathering off the same tree for some time, and some of the individual fruits he had weighed had turned the scale at 8½ oz. Is this not an exceptional weight for Pine-Apple Nectarine? I send you by parcel

post two fruits gathered to-day, and which weigh 7½ oz. and 6½ oz. respectively; the samples sent are not picked, but the fruit all over the tree are in equally fine condition, and dozens could be gathered equal to what I have sent. *Robt. Greenfield, Priory Gardens.*

[Very fine samples indeed, but the heat and the cotton-wool had unfortunately made them uncatchable. The fruit measured 3 inches in diameter. ED.]

APPLE RAMBOUR MORTIER.

This Apple was raised by M. Mortier, and is, says the *Bulletin d'Arboriculture*, an excellent market Apple. The tree is vigorous, hardy, symmetrical, and prolific; the fruit large, slightly conical, yellow streaked with red. Flesh yellowish, juicy, soft, aromatic. Season February to April.

Reports of Societies.

HULL, EAST RIDING AND NORTH LINCOLNSHIRE: July 14, 15, 16.

THE annual exhibition of the Society took place in the Botanic Gardens, Hull, on the above dates, but under manifest difficulties, for, though the weather was fine and bright, the wind blew with terrific force from the Humber, and so affected the stability of the tents that all the fruit had to be removed from that in which it was staged; and one of the long plant tents, that containing the choicest plants, had a portion of the roof torn into strips to the great concern of the exhibitors, and damage to the visitors. The exhibits were arranged in four tents, two of them very large ones. Some good features were present, and the fineness of the day brought a good attendance of visitors. The mishap to the tents occurred just before the completion of the judging, and reporting became a difficult matter. The arrangements of the show were carried out by Mr. Philip MacMahon, the Curator of the Botanic Gardens, and his colleagues; and had the wind been less violent, everything would have proved enjoyable. The Botanic Gardens are extremely gay just now, and visitors had the privilege of walking about them.

STOVE AND GREENHOUSE PLANTS.

One of the leading classes was that for ten flowering and six foliated plants, Mr. James Cypher, nurseryman, Cheltenham, being the only exhibitor, and staged a fine lot, consisting of *Clerodendron Balfourianum*, *Erica venosa*, *E. ferruginea* major, *E. tricolor* major, *Ixora salicifolia*, *I. Pilgrimi*, *Anthurium Scherzerianum*, *Allamanda nobilis*, *Bougainvillea glabra*, *Croton Prince of Wales*, *C. Sunset*, *Kentia Cantherburyana*, *C. Fosteriana*, *Cycas revoluta*, &c. Mr. W. G. Nation, gr. to W. Glossop, Esq., Endleish, Hull, had the best six plants; and Mrs. Ross, Hull, was 2d. Mr. Nation also had the best three plants.

Mr. A. K. Greene, gr. to Sir A. K. Rollitt, Hull, had the best specimen plant in flower, staging a huge yellow *Picotete*, well grown, and laden with bloom; Mr. Nation being 2d, with a fine *Hydrangea hortensis*.

In the amateurs' classes small but nearly grown plants were shown; Mr. J. Melbourne, Hull, had the best twenty; and Mr. J. Long the best ten.

ORCHIDS.

Mr. Cypher was the only exhibitor of six plants, having neat and nicely-flowered examples of *Saccabium Blumei*, *Dendrobium infundibulum* and a darker centred variety; *Cattleya Mossiae*, *C. Mendelii*, and *Cypripedium Laureanum*.

FINE-FOLIAGE PLANTS.

Mr. Green had the best ten ornamental plants, staging fine examples of *Cocos flexuosus*, *Cibotium regale*, *Areca Verschaffeltii*, *Latania borbonica*, *Alsophila excelsa*, *Anthurium regale*, &c.; Mr. R. Simpson, nurseryman, Selby, was 2d, with smaller plants, Mr. J. Glossop, Esq., Hull, had the best three plants, Mr. R. F. Jamieson, Hull, being 2d. The best specimen plant was a superb specimen of *Phyllanthus nivosus* from Mr. Nation; Mr. Greene coming 2d with *Dasylium acrochroium*. Mr. A. Leadbetter, gr. to A. Wilson, Esq., Tranby Croft, Hull, had the best four Palms, very good specimens indeed, fresh and even, but unnamed; Mr. Greene being 2d. *Coleuses* were fairly well shown.

FERNS.

Some good tree Ferns were shown by Messrs. Greene, Simpson, and others; exotic Ferns were small, but clean and healthy; and *Lycopodiums* were nicely shown by the Rev. Canon Newton, of Hull. Mr. R. Simpson had the best twelve hardy Ferns.

GROUPS ARRANGED FOR EFFECT.

These were the leading feature, and made a fine display in one of the large tents. The best to fill a space of 200 feet came from Mr. Greene, and this showed much more artistic merit than either of the others, overwording being a common fault; Mr. G. Cottam, Hall Gate, Cottingham, was 2d; and Mr. R. Simpson 3d.

Mr. Cottam had the best group to fill a space of 100 feet; Mr. Simpson being 2d, and Mr. Greene 3d.

MISCELLANEOUS FLOWERING PLANTS.

These included *Pelargoniums* of various types, *Fuchsias*, tuberous-rooted *Begonias*, bedding plants, &c.; they were numerous, but not of a nature to call for special remark.

CUT FLOWERS.

Of these there were a good lot, but the unfortunate accident to the tent prevented the taking of notes. Cut Roses were a good feature, and some capital blooms were shown. Messrs. Harkness & Son, nurserymen, Bedale, had the best thirty-six Roses; Messrs. G. Swales & Son, Beverley, being 2d.

Mr. J. Fisher had the best twenty-four; Mr. H. May, Bedale, being 2d.

Mr. May had the best twelve; Mr. H. Norton being 2d. Mr. H. Stouton, J.P., Holme Hall, Hull, had the best basket of Roses, Mr. J. Fisher being 2d.

Bunches of hardy perennials, and also of hardy annuals, shown in twelves, made a pretty display. Mr. A. Wilson, J.P., and Mr. G. Cottam, took the leading prizes.

The only exhibitor of cut Orchids was Mr. J. Cypher, who staged a very fine lot.

Pansies, Phloxes, and Carnations, were also shown.

FRUIT.

Mr. Leadbetter was the only exhibitor of a collection of fruit. The best collection of eight bunches of Grapes, not less than four varieties, came from The Gardens, Dalton Hall, Hull, the gardener, Mr. J. Allsop; Mr. J. H. Shaw being 2d. Mr. Shaw had the best two bunches of white Grapes, Mr. Allsop being 2d, while Mr. Nation had the largest bunch of Grapes. Other fruit consisted of Melons, Peaches, Cherries, Strawberries, &c.

VEGETABLES.

were a good feature, some of the leading prizes going to Mr. Clark, of Studley Royal. Cottagers also exhibited vegetables, and very creditably too, notwithstanding the backwardness of the season.

NOTTINGHAM HORTICULTURAL AND BOTANICAL: July 14 and 15.

THE Society held its summer show in the picturesque grounds of Mapperley Park. The exhibition collectively was a good one, each department, including plants, cut flowers, and fruit, being well represented. One of the best features of the show was the groups of plants arranged for effect which filled the greater part of two large tents, and the winning groups were remarkably well arranged.

For group occupying 25 superficial square feet, first honours in this class went to Mr. Lyon, gr. to Viscount Ossington, Ossington Hall, Newark, who had a good group well put together, the plants used being suitable for the purpose, and well chosen as regards colour; 2d, Mr. S. Thacker, Nottingham, who also had a well-arranged group; 3d, Mr. Ward, gr. to T. H. Oakes, Esq., Kiddings Park, Alfreton, Derby. The smaller groups, occupying a space of 123 superficial feet, were also very well done; Mr. Massey, gr. to Alderman Lambert, Mapperley Hall, taking the lead with one of the best examples of this style of arrangement that has come under our notice—lightly and beautifully put together; 2d, Mr. Swanwick, gr. to Colonel Seeley, Sherwood Lodge, who likewise showed well.

STOVE AND GREENHOUSE PLANTS.

In the class for six, three flowering and three fine-foliage, Mr. Ward was well in front, staging a good *Ixora*, *Erica*, and *Kalanchoes*, associated with three handsome foliate examples; 2d, Mr. Meadows, gr. to C. J. Cox, Esq., Rock House, Old Basford; 3d, Mr. Lyon, both staging fresh, healthy specimens.

Single specimen flowering stove plant.—1st, Messrs. J. R. Pearson & Sons, Chilwell, Nottingham, with a large, well grown example of *Dipladenia boliviensis*.

Single specimen flowering greenhouse plant.—1st, Mr. Meadows; 2d, Mr. Attenborough, gr. to W. H. Farmer, Esq., Alexandra Park.

FINE-FOLIAGE PLANTS.

With six, Mr. Meadows was 1st, having in a nice collection good plants of *Kentia Belmoreana*, *Areca rubra*, and *Latania borbonica*; 2d, Mr. Lyon. Single specimen foliate plant.—1st, Mr. Thacker, with a large *Croton*.

Three *Coleus*.—1st, Mr. Edington, gr. to W. H. Ashwell, Esq., Woodthorpe Grange, Sherwood, with large specimens, the varieties remarkably distinct in their general character, an essential which many exhibitors of these and other plants, of which there are now such numbers of varieties, do not always keep sufficiently in view; 2d, Mr. Attenborough.

Three *Caladiums*.—1st, Mr. Massey; 2d, Mr. Collins, gr. to H. M. Baines, Esq., Elm Bank. Six dinner-table plants.—1st, Mr. Ward, who had well-matched examples, right as to size; 2d, Mr. Lyon, who also staged very pretty plants.

TUBEROUS BEGONIAS.

With a nicely flowered half-dozen, Mr. Attenborough was 1st; Mr. Collins being 2d.

Gloxinias were well shown. With six Mr. Sutton, gr. to J. Fisher, Esq., Fair Lawn, The Park, Nottingham, had 1st, staging erect varieties, beautifully flowered; 2d, Mr. Brown, gr. to Dr. Powell, who also had a meritorious collection.

ORCHIDS.

were few in number. 1st, Mr. Meadows with three, staging *Oncidium macranthum*, *Epidendrum vitellinum*, and *Cypripedium barbatum*.

Single Orchid.—1st, Mr. Kirk, gr. to W. J. Wightman, Esq., Nottingham, with *Stanhopea insignis*, nicely flowered; 2d, Mr. Meadows.

FERNS.

Mr. Lyon was 1st with six, staging a fresh well grown group, consisting of *Gymnogramma chrysophylla*, *Davallia Mooreana*, *Adiantum trapeziforme*, *Platycerium alcinore*, *Asplenium nidus avis*, and *Woodwardia radicans*; Mr. Meadows, who was 2d, also had a pretty group.

Three Ferns.—1st, Meadows. Two Tree Ferns.—With these, in a close run, Mr. Attenborough took 1st, having two beautiful medium sized examples of *Cyathea dealbata*; 2d, Mr. Ralphs, gr. to J. Booth, with two specimens of *Dicksonia antarctica*.

Lycopodiums were well shown by Mr. Collins, who had finely grown plants; 2d, Mr. Ralphs.

ZONAL PELARGONIUMS.

With six double varieties Mr. Ralphs took the lead, his plants being well grown and compact; 2d, Mr. Attenborough.

Three *Fuchsias*.—1st, Mr. Collins. Basket of plants arranged for effect.—These were well done; Mr. Mee, The Gardens, Wollaton Park, Nottingham, being 1st, and Mr. Walker, gr. to J. W. Lewis, Esq., Hardwick House, 2d.

Rustic stand arranged with Ferns.—1st, Mr. W. A. Edwards, Woodthorpe Grange.

Two hanging baskets.—1st, Mr. Attenborough, with *Hoya bella*, and *Platycerium alcinore*.

CUT FLOWERS.

Roses were very well shown, the flowers not having suffered as they have done further south for want of rain. With thirty-six single blooms, Mr. W. H. Frettingham, The Nurseries, Beeston, had 1st with a good stand; 2d, Mr. J. Howe, Nottingham, who likewise exhibited well.

Twenty-four single blooms.—1st, Mr. J. Howe, staging a beautiful lot of flowers; this stand contained the premier Rose in the show, a splendid bloom of Countess of Rosebery; 2d, Mr. Hallam. Twelve Roses.—1st, Mr. Hallam. Six Roses.—1st, Mr. J. Foljambé. Twelve bunches of stove and greenhouse flowers. Here Mr. Ward took the lead, putting up large bunches of good varieties; 2d, Mr. Mee.

Collection of hardy herbaceous flowers.—1st, Messrs. Pearson & Sons, Chilwell, Nottingham, who exhibited contained a fine assortment of Delphiniums and other favourite kinds very well arranged; 2d, Mr. Mee.

FRUIT.

The fruits shown were very well done and abundant, and were an attractive feature of the show. With six dishes Mr. Edmonds, gr. to the Duke of St. Albans, Bestwood Lodge, was 1st, having very good Black Hamburg Grapes, a Queen Pine, Royal George Peaches, Lord Napier Nectarines, Figs, and a Melon; 2d, Mr. Roberts, gr. to Hussey Pecke, Esq., likewise staging a good collection, the best of which were Black Hamburg and Muscat of Alexandria Grapes and a Queen Pine; 3d, Mr. Ward, who had two good bunches of Muscat Hamburg Grapes.

Two bunches of black Grapes.—1st, Mr. Ward, with Black Hamburg Grapes, medium sized bunches, perfectly finished in every respect; 2d, Mr. J. Forrest, gr. to J. P. Fenfield, Esq., Stapleford.

Two bunches of white Grapes.—1st, Mr. D. Roberts, with nice bunches of Muscat of Alexandria; 2d, Mr. Ward.

Single Pine.—1st, Mr. Edmonds; 2d, Mr. Roberts, both showing Queens.

Dish of Peaches.—1st, Mr. Edmonds, with fine Royal George; 2d, Mr. Roberts.

Dish of Nectarines.—1st, Mr. Edmonds, with Lord Napier; 2d, Mr. Ward, with Violette Hâtive.

Scarlet-fleshed Melon.—1st, Mr. Melville, gr. to W. Hornby, Esq., St. Vincent's, Grantham; 2d, Mr. Edmonds.

Green-fleshed Melon.—1st, Mr. Massey; 2d, Mr. Walker.

Mr. B. S. Williams, Upper Holloway, received a well merited commendation for a large and beautiful group of miscellaneous flowering and fine-leaved plants, including numerous Orchids, Ixoras, Heaths, Lilies, Amaryllis, Anthuriums, Palms, Ferns, Crotons, Nepenthes, &c.

Messrs. Pearson contributed a large and varied group of flowering and fine-leaved plants, and also a good collection of hardy Ferns, amongst them being some large and finely grown examples.

From Mr. W. Bardill, nurseryman, Stapleford, came a very good collection of evergreen trees and shrubs.

Mr. Don, seedsman, Chapel Bar, Nottingham, exhibited a number of wire stands, Fern cases and hanging baskets, nicely arranged with suitable plants, and also some galvanised handlights, durable and well adapted for the various uses to which appliances of this sort can be turned.

CHISWICK HORTICULTURAL: July 15

THIS Society again received permission to hold its show in the gardens of the Royal Horticultural Society. The weather being fine and not too hot there was a fair attendance of visitors. The show itself assumed proportions larger than those of any previous exhibition of the Society, and was generally acknowledged to be the finest show held in the district during the present season. There were two large marquees, besides the great vinery and another large house, which were well filled with exhibits.

GROUPS.

One tent was almost completely devoted to the groups of plants arranged for effect, which are always a charming feature at the Chiswick show, the smooth, well-kept lawn (on which the tent was erected) serving to display their beauties with great effect.

In the 1st class, for a group occupying two square feet, the 1st prize was awarded to Messrs. Hooper & Co., Twickenham, for a very pleasing arrangement of Palms, Crotons, Orchids, Liliiums, Ferns, &c., with clumps of their fine rosy-pink coloured Petunia Empress, which was particularly telling. Messrs V. Fromow & Sons, Sutton Court Nursery, Chiswick, were 2d, with a group almost equally good, the objects being especially noticeable; 3d, Mr. W. Brown, Richmond.

For a group of 60 square feet Mr. J. Hudson, gr. to H. J. Atkinson, Esq., Acton, was 1st, and Mr. Chadwick, gr. to E. M. Nelson, Esq., Ealing, was 2d. Both groups were of good quality.

Amongst groups not for competition Messrs C. Lee & Son, Hammersmith, contributed a very large and extremely interesting collection of Palms, *Aracaria excelsa*, *Dracena*, *Aspid. dactylifera*, standard *Eucynmus* and variegated *Ivies*, *Kalanchoes*, *Roses*, and *Statice floribunda*, &c. Mr. Roberts, gr. to Messrs. Rothschild, also sent a remarkably pretty group, which was highly commended, *Gladioli Colvillei*, the *Pancratium* being very prominent. Mr. May, gr. to the Marquis of Bute, Chiswick, also sent a good group.

STONE AND GREENHOUSE PLANTS.

These were well shown, Mr. Bates, gr. to Mrs. Meek, Twickenham, being 1st, *Bougainvillea glabra* and *Dendrobium claviger* being the best plants. Mr. Chadwick showed a particularly fine plant of *Statice profusa* in his collection. This exhibitor also staged a fine lot of six fine-foliated plants, securing 1st prize with them.

ORCHIDS

were fairly well shown, the 1st prize being awarded to Mr. H. James, Lower Newwood—*Cattleya Gaskelliana*, *Acries Fiedlingi*, *Cattleya Leopoldi*, and *Cypripedium barbatum* being his best plants; 2d, H. Little, Esq., Kingston.

SELAGINELLAS

formed a splendid feature. Mr. Wright, gr. to E. H. Watts, Esq., Devonhurst, Chiswick, staging a remarkably fine lot of six pyramidal plants some 3 feet in height, *S. caesia*, *S. uncinata*, *S. Mertensi*, and *S. Kraussiana* being the best.

SCARLET GERANIUMS AND GLOXINIAS

were well shown by H. G. Lake, Esq., and Messrs. Hooper & Co., Twickenham.

CUT FLOWERS.

Roses were fairly well shown, the best stand of twenty-four coming from Mr. Rumsey, with the

usual show varieties; Mr. Bunyard, Ashford, Kent, being 2d. Messrs. C. Lee & Son and Messrs. J. Veitch & Son exhibited large collections of fine blooms not for competition.

A special prize, offered by the Marquis of Bute, for York and Lancaster Roses, brought three competitors, the 1st prize being awarded to Mr. Fountain, gr. to Miss Woods, Ealing. It may be remarked that although these prizes have been offered by the Marquis for six years in succession, this is the first time that there has been any competition for them. *Gloxinias* were particularly well shown.

Prizes, to be competed for by the Board School children, were offered for the best arranged bunch of flowers, and another for wild flowers, and brought forward a large number of youthful competitors.

TABLE DECORATIONS AND BOUQUETS

were extensively shown, and created great interest. The class for three stands suitable for the decoration of a dinner-table brought seven competitors, the 1st prize being awarded to Mrs. Hudson, Gunnersbury, for a very elegant arrangement; 2d, Mr. Chard, Clapham; and 3d, Mr. Prewett, Hammersmith.

In the class for three bouquets a keen competition took place, Mr. Chard being awarded the 1st prize; 2d, Mr. J. A. Morris, Acton; and 3d, Mr. Brown, Richmond.

FRUIT AND VEGETABLES.

Fruit was not very largely shown, and calls for no special remark. Vegetables on the other hand were largely and well shown, the chief prizes being carried off by Mr. J. C. Waite, Glenhurst Gardens, Esher.

MEDALS.

The Royal Horticultural Society offered two Silver Medals for the exhibitor who had the most meritorious aggregate display of plants and flowers, and of fruits and vegetables. Mr. Wright, Chiswick, secured that for plants, and Mr. Waite the one for fruits, &c.

COLONIAL NOTES.

BRITISH COLUMBIAN TREES.

THE following table, prepared by Mr. Mohun, shows the mean breaking loads of some of the British Columbia woods. The pieces tested were 1 inch square, with a span of 1 foot, supported at both ends and loaded at the centre, and were fair average specimens of building timber, partly seasoned, but free from knots and flaws. The tests were made through the courtesy of Mr. R. Jones, at the office of the Dominion Inspector of Weights and Measures:—

Description of Timber.	Mean Breaking Load.	Specific Gravity.	Weight of a Cubic Foot in Pounds.
	lb.		
Yellow Cypress (<i>Chamaecyparis nutkaensis</i>)	632	.5005	31.21
Birch (<i>Betula papyrifera</i>)	650	.6025	37.57
Red, or Doug- las Fir } (<i>Pseudotsuga Douglasii</i>)	638	.5453	34.
Alder (<i>Alnus rubra</i>)	567	.5158	32.16
Maple (<i>Acer macrophyllum</i>)	580	.5099	31.41
White Pine (<i>Pinus monticola</i>)	473	.4457	27.95
Cedar (<i>Thuja gigantea</i>)	453	.4001	24.95
Spruce (<i>Picea sitchensis</i>)	427	.415	25.88
Hemlock (<i>Tsuga Mertensiana</i>)	400	.5037	31.41

The results given by exceptionally good specimens have been eliminated from the above table. It may be mentioned that one piece of Douglas Fir only broke under a load of 850 lb., to have included which would have raised the mean breaking load to 660 lb.

SPORTING IN FRUITS.

Mr. C. E. Hogg, of the Survey Department, brought us this week an unusual specimen of Grapes. The bunch weighed 1 lb., and was in two divisions, one of which was of the Black Hamburg variety, the other part were Muscats. The two varieties were growing from the one stem. The amalgamation is unusual, and was a result, no doubt, of hybridisation, brought about by bees while the parent Vine (the Hamburg, evidently) was in flower [?]. The circumstance is suggestive of what can be done by the very useful and most interesting process of hybridising—a process which, by the way, is not followed so much as it might be by fruit growers. Florists amongst us devote more attention to the subject, and secure very

peculiar, and at times valuable results in their floral favourites. The main value of hybridising in fruit culture would be in securing varieties with desirable qualities of richness, hardness, &c., which can be got by hybridising one or more varieties. *Australian Town and Country Journal*, April 10.

—In your issue of the 10th inst. is mentioned an extraordinary bunch of Grapes, consisting partly of Black Hamburgs and partly of Muscats—whether black or white is not stated. The cause of this phenomena is attributed to the operations of bees, as I read it, on the bloom to which the fruit in question succeeded, as the bunch does not appear to have been borne by a seedling Vine. It would be interesting to me, if to no one else, to learn whether the fertilisation by insects or any other means has been proved to alter the form or character of fruit or seed vessel on the parent plant. The case referred to appears to me to be one of those freaks of Nature commonly called "sports." The presence of Novel Oranges on common Orange trees has also been attributed to bees, but I believe this conclusion has been jumped at, as I have not heard of any one who has worked out the experiment for himself, which might be easily accomplished. I heartily endorse your recommendation to practise hybridising, as I have seen the immense benefits which result, but they must be looked for in the seedlings. I have found with flowers that, provided the parents be distinct in some respects from each other, the offspring, however numerous, will not contain two producing flowers exactly alike. The late Mr. C. Darwin proved that it is a general though not infallible rule that cross-fertilisation is beneficial to the offspring, some of his experiment being conducted through twelve or more generations. *C. Bennet, Gordon, April 14*, in the *Australian Town and Country Journal*. [See our issue for Jan. 30, where there is an account of a curious Lemon, the supposed result of hybridisation. Ed.]

Florists' Flowers.

AURICULAS.

UP till now the portion of our Auricula plants set apart to save seeds from are still in the Auricula-house; but we will report them, and place in frames behind a north wall as soon as possible after the seeds have been saved. The usual practice is to sow the seedlings soon as they are ready; many persons, on the other hand, wait until the spring. I am amongst that number, preferring to wait, because the largest proportion of the seeds do not vegetate until the spring, and it requires considerable patience to attend to the 'seed-pots' for six months, keeping the soil moist, &c. The small seedling plants raised from seeds in the spring must also be grown on without any check. We usually flower them in large 60-sized pots, using good rich compost, and carefully attending to their wants as regards supplying them with water. They must also be kept quite free from greenfly by fumigating, or dusting with tobacco powder.

CARNATIONS AND PICOTEES

are coming into flower out-of-doors. The recent very hot weather has caused the flower-buds to swell at a very rapid rate, they will therefore not be more than a week later than usual. The flowers are constantly attacked by thrips when the weather is so hot as this has been recently; they attacked the flower-buds even before the flowers show their colour, and it is very difficult indeed, to destroy them in any other way than by taking the plants into a glass house and smoking them, or by dusting the opening pods with dry tobacco powder will also destroy them. Attend to tying the pods of those likely to burst with a strip of matting. Tree Carnations should now be placed out-of-doors, and must not be allowed to suffer from want of pot-room. Place sticks to the plants, and syringe them on dry hot days.

Pinks are yet in still flower, and besides their sweet perfume are certainly very pretty. This week, we shall take off the pipings, and if it does not rain the bed will be well watered; the pipings do not form roots well unless they are brittle with moisture at the time of taking them off. Those who have no frames or hand-glasses to spare will succeed in propagating the Pinks out-of-doors if they take off

pipings in rainy weather, plant them in fine sandy soil and shade from bright sunshine.

The forcing Pinks of which cuttings or pipings were put in during April, are now ready to be planted out in the open ground. Let the plants be 9 inches apart, in light, deep, and rich soil. They will make very good growth if they are kept supplied with water during dry weather. I like to have large specimens by the end of September or first week in October, when they are dug up and potted for forcing.

DAHLIAS.

The effect of the hot weather has been to force the plants into bloom. If we had not removed the flowers the whole collection would have been in flower. Some plants that were left alone have each fully developed flowers upon them. The right treatment for the plants at present is to pinch off all the flower-buds, water the plants when they require it, and attend to training the shoots to sticks as they advance in growth. Earwigs are already plentiful and searching for food; they prefer the fresh petals of the half-opened flowers, but failing these, they are content to nibble the young leaves. It is best to destroy them now, and thus save the flowers from injury. Plant cuttings in small pots, when they can be obtained.

POLYANTHUSES.

These are becoming great favourites, but many people fail to grow them well owing to improper management. They ought to be parted and replanted about the end of the present month, or potted if desirable. In doing this, replant deep enough to cover the young rootlets, which are produced an inch or more above the ground; they ought, therefore, to be planted about an inch deeper than they were before. These plants are frequently attacked with greenfly and red-spider, especially during hot weather. When parting the plants take a handful firmly by the roots, and dip the leaves in a solution of soft-soapy water and tobacco liquor.

RANUNCULUSES.

have suffered much from the dry weather, the leaves becoming yellow before the flowers were fully open; indeed, as I write—July 10—they are not more than fully in flower, with the leaves quite yellow. The tubers must be dug up before rain comes, else they would start into growth, and their flowering for next year be quite spoiled.

ANEMONES.

ought to be treated much in the same way as the Ranunculuses. They stand dry hot weather rather better—the leaves remain longer in a green state, but as soon as they take the yellow tinge of maturity the tubers should be taken out of the ground; and the best place to store them is a cool airy room, not a damp place where the atmosphere is close like that of a cellar.

TULIPS.

were taken out of the ground about June 20; the roots were not allowed to dry too much in the sun, but were placed—each variety—in a clean and dry pot, and the pots were placed on a shelf in the fruit-room. The room is dry and airy. We do not clean the roots until a few weeks before planting them out.

YELLOW CARNATIONS AND YELLOW GROUND PICOETES.

I scarcely touched upon this section of the Carnation and Picoete at p. 13, but it does seem that they are very popular. Their scarcity in the trade can be accounted for by the fact that after a few years' culture they degenerate and produce very few weak layers. The variety Prince of Orange (Perkins) is an exception; it has not degenerated to any appreciable extent, and I have grown it since it was first sent out twenty years ago, but I have grown it in pots. I do not think any of the yellow Picoetes are adapted for planting in borders out-of-doors, although some of the yellow selfs are harder and endure the winter out-of-doors in mild winters. To be quite successful with any Carnations out-of-doors they ought to be thoroughly established before the winter. The best time to plant them out is about the end of September or not later than the first week in October. Messrs. Standish, of Ascot, sent out a yellow ground Picoete about the same time as Prince of Orange was sent out, but that variety degenerated, and has, I suppose, gone out of cultivation. Mr. Charles Turner, of Slough, raised a very fine batch of seedlings a few years ago from Prince of Orange, one or

two of them being superior to that variety. *Ne Plus Ultra* is very fine; they are all of vigorous constitutions, but do not succeed well unless they are grown all the year round in pots. All these yellow ground Picoetes have the fault of Prince of Orange—the yellow colour is not a deep rich yellow, but a pale yellow, or in some cases a straw colour. Some of the yellow selfs have a richer yellow colour, the best of all in this respect being *Pride of Penshurst*; it is also a vigorous grower, but is remarkable, and to many persons objectionable, on account of its total lack of perfume.

Mr. Turner had no less than thirty-four varieties of yellow ground Picoetes in his catalogue of 1881, but in 1885 not one was included, owing, doubtless, to the great demand for them, and the decline in vigour after a time. I grow still a few of the best of them; they are *Alice*, *Flavius*, *Ne Plus Ultra*, *Princess Beatrice*, *Princess Marguerite*, and *Prince of Orange* (Perkins). *F. Douglas*.

RANUNCULUSES.

A box of beautiful Ranunculuses blooms reached me a few days ago, sent by Mr. Samuel Barlow from the bed in his garden at Shimda Hir, Llandudno. Here in the fertile and rather stiff loam, mingled of course with which are certain ingredients favourable to the well-being of these beautiful flowers, the Ranunculus grows freely, and produces blooms of such exquisite and varied beauty that one wonders how it is the Ranunculus is so little grown in these days. Mr. Barlow still cultivates a collection of Ranunculuses; he has given up retaining them under name; the varieties are mixed together, and this blending of different forms does not in any way detract from the general effect. The flowers of the fine varieties in Mr. Barlow's possession are not so large as those grown by the Dutch bulb cultivators, samples of which were produced by Messrs. Paul & Son at a recent meeting of the Royal Horticultural Society, but they have a refinement and regularity of marking which do not appear in the Dutch types. Years ago the growers of these flowers, conspicuous among them the late Mr. Carey Tyso, took great pains to raise new varieties; and thirty years ago, even though the Ranunculus had then begun to decline in the public estimation, the published lists were formidable ones. Hundreds of these must have become lost to cultivation, and it would perhaps be difficult to find anywhere in the United Kingdom a collection of varieties grown under name as they formerly were.

The box of blooms from Llandudno contained about twenty varieties. One was almost white, of the most delicate cream shade; there were white with a slight edging of purple to the petals like that seen on a Picoete; one with a darker purple edging, and with more colour, also creamy-white tinted with rosy-pink; soft pink, pure yellow, yellow flaked with red sulphur, edged with crimson, bluish heavily edged with deep red, and the same flaked with red, also heavily suffused with the same colour, yellow, heavily edged with reddish-brown, rosy-purple, orange-red, &c. All the grounds of these varieties, and especially the whites and yellows, are pure, like those seen in the Picoetes. A few were of handsome self colours, but all beautiful, and among the choicest of hardy flowers, and yet they are sadly neglected.

To have good Ranunculuses they must be well cultivated, and this is probably one reason why they are not more grown. The general flower-loving public likes something that can be cultivated without much trouble, that is, when they have to do it themselves. A florist must needs be a "hobbyist," and ride his hobby hard, if he would be successful. A man who grows Tulips, Auriculas, Carnations, and Picoetes, *Roses*, &c., and aspires to have them good, must work hard and unceasingly in order to attain this end. The Ranunculus is no exception to this rule; it is one of those flowers that require a good deal of attention; but it is labour well invested. A good bed of Ranunculus is an excellent return for some trouble and anxiety.

One who had essayed to grow Ranunculuses, and failed, mentioned the matter of his failure to the late Mr. George Lightbody, at the time when he was famous for the fine strain of Ranunculus he possessed; and said that he and others had given up their culture because they found it so difficult to get a fine head of bloom. Mr. Lightbody replied that to grow them successfully was a comparatively easy task, provided the following directions were observed:—The Ranunculus must have something to live upon; in the

autumn throw out a trench from 1 foot to 11 inches in depth, according to the nature of the soil, putting at the bottom some well-rotted cow-dung, or old hot-bed manure, filling it up again with the soil taken out. In the month of February the bed to be raked very fine, and the roots planted $\frac{1}{2}$ inch deep, destroying all vermin, pressing the soil firmly about the necks of the roots, and then keeping the beds free from weeds, top-dressing occasionally with a little well decomposed manure.

The surface soil of a bed of Ranunculus should be kept firm; the old growers would walk through their beds treading the soil down with their feet. Then good waterings are necessary when the weather is drying. On no account must the plants suffer from want of moisture.

One most important point in Ranunculus culture is not to allow the roots to remain in the ground after the foliage has changed in colour. After this happens they get more harm than good. The roots should be taken up, carefully dried, and then put away in a cold dry place in paper bags, until required for planting another season. *R. D.*

TROPICAL FRUITS.*

AMONGST objects of productive industry receiving attention at present in our Colonial possessions, tropical fruits are at once the newest and most interesting of all. Many of these fruits are practically unknown in England in a fresh state, and hence before tropical fruits are largely consumed here, it is necessary to diffuse knowledge respecting them, and to render them as familiar to English home people as they are to their Colonial friends.

At the present Exhibition, owing to the suggestion of the Council of the Royal Horticultural Society, fresh fruits are shown from nearly every part of the British Empire. Thanks to the Colonial Market established in connection with the Exhibition, Oranges, Lemons, and Grapes are shown from the Australian Colonies; Oranges of several kinds from Natal, fresh Cocoa-nuts from the West Coast of Africa, Pine-apples from Antigua, Bananas from Jamaica, Naseberries (*Achras sapota*), Avocado Pears, Papaws, Bread-fruit and Limes from British Guiana; Melons from Barbados, Prickly Pears and Dates from British India, and most luxurious Pine-apples from Singapore.

Although not exclusively a tropical fruit, the Orange is found and flourishes throughout the eastern and western Tropics. Taking this fruit as an example, it is remarkable what a large increase has taken place in the consumption of this fruit in the United Kingdom during the last fifteen years. In 1870 the number of Oranges imported into the United Kingdom was 80,000,000. In 1885 this number had increased to 500,000,000, or at the rate of fourteen per head of population. Dates are consumed to the extent of 5000 tons per annum, while Cocoa-nuts are imported by the shipload.

Being the nearest to England, as well as the most productive in the way of tropical fruits, the West Indian Islands naturally supply, and should supply, the English market more readily than any other. At the present day in the West Indian Islands the value of the fruit exported is nearly £400,000 per annum.

In Jamaica alone fruit is annually exported to the value of over a quarter of a million sterling—consisting chiefly of Bananas, Oranges, Pine-apples, and Cocoa-nuts. The Bahamas export chiefly Pine-apples, both fresh and canned, to the value of £50,000 per annum. Trinidad grows and exports chiefly Cocoa-nuts. British Honduras, connected by a mail route with New Orleans, exports Bananas, Cocoa-nuts, and Plantains to the value of £15,000 per annum. Montserrat is chiefly interested in Limes, and exports Limes and lime-juice to the annual value of £11,000. Dominica exports Limes, Tamarinds, and concentrated lime-juice to the value of £4000; while flat and sugary Antigua exports only Pine-apples, but those, though small, of very superior quality. From their geographical position it is only natural to suppose that a large proportion of the fruit of the West Indian islands finds its way to the United States and Canada, where there are nearly fifty millions of people, with all of whom fruit enters largely into their daily food.

* Abstract of a Paper read at a Conference held at the Colonial and Indian Exhibition on Tuesday, July 26. Mr W. T. Thistleton Dyer, F.R.S., C.M.G., in the chair.

The Banana (*Musa sapientum*) is the chief fruit at present cultivated in the West Indies, and this fruit is the one which in the future will be more largely offered in the English market than any other. There are numerous varieties of this fruit under cultivation, the Martinique Banana is found the most profitable to grow for export, although a smaller fruit, known as the Fig Banana, is more luscious and more highly esteemed locally as a dessert fruit. Jamaica exports Bananas to the value of nearly £200,000 per annum, and is capable of growing fully three times the quantity now exported without any diminution in the larger staples.

The Pine-apple (*Ananas sativa*) is no doubt indigenous in Jamaica, where an inferior kind, known as the "Cowboy macca," is still found wild. The Pine-apple is incorporated in the arms of Jamaica, and certainly nowhere, except perhaps at Pernambuco, can Pine-apples of such size and delicacy be grown as in some parts of this island. Antigua is noted for its Pine-apples, the pitch-lake Pine of Trinidad has at least a local reputation, but the Bahamas export more Pine-apples in the fresh and cured state than any other part of the world. The chief supply of Pine-apples for the English market at present comes from Madeira, the Canary Islands and the Azores. Should the interesting experiments now being carried on by Messrs. Scrutton & Sons, who have fitted up one of their ships with a refrigerating chamber, be successful, we shall before long have large supplies of Pine-apples direct from the West Indies, and at very moderate cost.

The West Indian Lime (*Citrus medica*, var. *acida*) is a fruit which is not much known in England. It is possibly little grown anywhere else except in the West Indies, where a large industry is arising in connection with the preparation of raw and concentrated lime-juice for the manufacture of citric acid.

The Mango (*Mangifera indica*) is the "Apple" of the Tropics, and is a most nutritious and wholesome food as well as a dessert fruit. Originally an East Indian tree, the Mango has become thoroughly naturalised in the West Indies, and is forming large groves in waste places in Jamaica, where negroes, horses, pigs, and fowls feed upon the fruits for nearly four months of the year. The West has given to the East the Anona fruits, known as Sour-sop (*A. muricata*), the Custard-apple (*A. reticulata*), Sweet-sop (*A. squamosa*), and the Cherimoya (*A. cherimolia*), but practically only the second and third appear to have become established in their new home. The Guava fruits (*Psidium Guayava*) are very common everywhere, and utilised chiefly for making the well known Guava jelly, and for flavouring cordials and syrups. The Litchi, Rambutan, and Longan of the East Indies are co-related by the Genip (*Genipa americana*) of the West Indies. The fruit of the spine-armed Zizyphus jujuba, allied to the "seductive-sweet fruit"—the Lotus of the ancient Lotophagi, has become cosmopolitan in its distribution, and will soon find its way to England from the West as well as from the East. The Passion-fruits are amongst the most delicate and refreshing of tropical fruits, and some of them have been successively introduced to England. The most common are the Granadilla (*Passiflora quadrangularis*), the Pomme d'Or or Water Lemon (*P. laurifolia*), the Sweet-cup (*P. edulis*), and the Calabash Sweet-cup (*P. maliformis*).

Of tropical fruits known generally as nuts, we have a long list, some of which are seldom seen in England. The Cocoa-nut is too well known to need description. It is computed that over three million acres of land are under cultivation in Cocoa-nuts in tropical countries, and the annual export value of nuts, oil, copra and coir is estimated at nearly two million and a quarter pounds sterling. The Brazil nut (*Bertholletia excelsa*) is obtained entirely from wild trees which are of immense size; and the same may be said of the Sapucaia nut (*Lecythis sapucaia*), and the Souari or Butter-nut (*Caryoca nucifera*).

India is so badly off for fruit herself that she is not likely to be able to export any to this country; but the wild Apricot of the Himalayas, of the Punjab and North-west Provinces, is produced in such immense quantities, and so easily cured by simply drying in the sun, that it might be imported at a very low price. It is the Prunus americana of botanists, known in India as the Mish-mush or Moon of the Faithful. This latter appellation it has obtained from the fact that it is sometimes pressed out into sheets or "moons" and kept in that state until required for use. The delicious fruits of Singapore and the Malay

peninsula, amongst which the Mangosteen and the Lurian are the best known, are not likely to come direct from those countries. The former has, however, been fruited both in Trinidad and Jamaica, and large trees of the latter exist at these islands as well as at Dominica, Grenada, and St. Vincent. Hence West Indian Mangosteens and Durians are objects not impossible to be seen in England during the next decade. *D. Morris, Assistant-Director, Royal Gardens, Kew, July 21.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JULY 21, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DE- DUCTIONS FROM GLAISHER'S TABLES 7th Edition.	WIND.	RAINFALL.
	Mean Reading 3rd Fair.	Departure from Normal 18 years.	Highest.	Lowest.	Range.	Mean for Day.	Mean from Average of 30 years.		
July 15	29.62	-0.20	69.5	59.3	10.2	58.1	0.46	S.W.	0.00
16	29.63	-0.19	69.5	59.0	10.5	59.6	0.31	S.W.	0.02
17	29.83	-0.03	69.3	54.0	15.3	60.2	0.25	W. S.W.	0.03
18	29.65	-0.25	80.1	54.0	26.1	67.5	0.95	S.W.	0.00
19	29.61	-0.19	72.0	57.0	15.0	63.1	0.63	S.W.	0.04
20	29.90	-0.11	71.1	53.2	17.9	62.6	0.93	S.W.	0.20
21	29.66	-0.12	84.0	57.2	26.8	70.0	0.63	S.E.	0.00
Mean	29.70	-0.11	74.1	53.3	20.8	63.1	0.54	S.W.	0.09

July 15.—Dull morning; fine bright afternoon.

16.—A shower of rain in early morning; very fine morning; overcast in afternoon.

17.—Fine and bright in early morning; dull from 9 A.M.; rain about 11 A.M.

18.—Very fine day.

19.—Dull day; rain falling in afternoon.

20.—Very fine day.

21.—Very fine and bright till noon; overcast at times afterwards.

LONDON: Atmospheric Pressure.—During the week ending July 17, the reading of the barometer at the level of the sea increased from 30.15 inches at the beginning of the week, to 30.18 inches by 9 A.M. on the 11th, decreased to 29.48 inches by 9 A.M. on the 14th, increased to 29.81 inches by 1 P.M. on the 15th, decreased to 29.75 inches by 9 A.M. on the 16th, increased to 30.04 inches by 9 A.M. on the 17th, and was 29.99 inches by the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.88 inches, being 0.21 inch lower than last week, and 0.12 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 73° on the 13th; on the 12th the highest was 66°. The mean of the seven high day temperatures was 70°.1.

The lowest temperature was 49°.0, on the 11th, 13th, and 16th, on the 12th, the lowest was 57°.5. The mean of the seven low night temperatures was 51°.7.

The greatest range of temperature in one day was 24°.0, on the 13th; on the 12th the least, was 9°.0. The mean of the seven daily ranges was 18°.4.

The mean temperatures were, on the 11th, 61°.0; on the 12th, 60°.3; on the 13th, 59°.2; on the 14th, 59°.4; on the 15th, 58°.1; on the 16th, 59°.6; and on the 17th, 60°.2; and these were all below their averages by 1°.3, 2°.1, 3°.3, 3°.2, 4°.6, 3°.1, and 2°.5 respectively.

The mean temperature of the week was 59°.7, being 5°.6 lower than last week, and 2°.9 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun, was 134° on the 11th. The mean of the seven readings was 112°.9.

Rain.—Rain fell on five days to the amount of 0.97 inch.

ENGLAND: Temperature.—During the week end-

ing July 17, the highest temperatures were 74°. at Liverpool, 73° at Blackheath, 72°.5 at Brighton; the highest at Newcastle was 67°, at Nottingham 67°.5, at Wolverhampton 68°. The general mean was 70°.3.

The lowest temperatures were 39° at Sheffield, 43°.9 at Wolverhampton, 44° at Hull; the lowest at Plymouth was 52°.5, at Truro 52°, at Liverpool 51°.6. The general mean was 48°.2.

The greatest ranges were 30° at Sheffield, 26° at Hull, 24°.1 at Wolverhampton; the least ranges were 18°.1, at Plymouth, and 19° at Truro, Preston, and Newcastle. The general mean was 22°.1.

The mean of the seven high day temperatures was highest at Blackheath, 70°.1, at Brighton 69°.3, at Plymouth 68°.4, and was lowest at Newcastle, 63°, at Bradford 63°.6, at Liverpool 64°.4. The general mean was 66°.2.

The mean of the seven low night temperatures was highest at Plymouth, 56°.4, at Truro 56°, at Bristol 54°.8; and was lowest at Sheffield, 45°, at Hull, 49°, at Wolverhampton 49°.4. The general mean was 52°.

The mean daily range was greatest at Sheffield, 22°, at Blackheath 18°.4, at Hull 17°.4; and was least at Liverpool, 10°.2, at Bradford 10°.5, at Bristol, Preston, and Newcastle 11°.8. The general mean was 14°.2.

The mean temperature was highest at Plymouth, 60°.5, at Truro 60°.1, at Blackheath 59°.7; and was lowest at Sheffield, 54°.1, at Newcastle 55°.1, at Sunderland 55°.5. The general mean was 57°.3.

Rain.—The largest falls were 1.73 inch at Bristol, 1.38 inch at Brighton, 1.32 inch at Plymouth; the smallest falls were 0.34 inch at Hull, 0.38 inch at Sheffield, and 0.68 inch at Nottingham. The general mean fall was 0.99 inch.

SCOTLAND: Temperature.—During the week ending July 17, the highest temperature was 70°.8, at Dundee and Aberdeen, at Greenock the highest was 64°.2. The general mean was 69°.1.

The lowest temperature in the week was 43°.0, at Aberdeen; at Leith the lowest temperature was 46°.9. The general mean was 45°.0.

The mean temperature was highest at Dundee 57°.1, and lowest at Greenock 55°.0. The general mean was 56°.3.

Rain.—The largest fall was 1.93 inch at Greenock, and the smallest fall was 0.25 inch at Edinburgh. The general mean fall was 0.87 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, July 19, 1886, issued by the Meteorological Office, 116, Victoria Street, London, S.W.—The weather has been very changeable with one or two heavy falls of rain and frequent showers. Thunderstorms were experienced in the east and south of England on the evening or night of the 19th.

The temperature has been below the mean in all districts excepting the Channel Islands, the deficit varying between 1° and 3°.

The highest readings were observed in England and Ireland on the 18th, and in Scotland on the 19th, when the thermometer rose to 79° in the Midland Counties and "England, S.," and to 80° in "England, E.," The lowest of the minimum readings occurred either on the early morning of the 15th or 16th, when the thermometer fell to 41° in "England, E.," and "Ireland, S.," and to between 42° and 44° in all other districts excepting "Scotland, W.," where it did not go below 45°.

The rainfall has been everywhere more than the mean, and in the northern parts of Scotland and Ireland, and the Channel Islands, the excess has been considerable.

Bright sunshine has been less prevalent than it was last week, especially in "Ireland, S.," The percentages of possible duration have ranged from 12 in "Ireland, S." to 30 in "Scotland, N.," and "England, N.W.," 46 in "England, S.," 51 in the "Channel Islands."

Depressions observed.—During the greater part of the week pressure was high over Spain or France, while numerous depressions passed over, or to the northward of our islands. The prevailing winds were, therefore, westerly. The only depression of importance which appeared was a rather deep system, the centre of which crossed Scotland on the night of

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5-in.	3	5	8	7
6-in.	3	5	8	7
7-in.	3	5	8	7
8-in.	3	5	8	7
9-in.	3	5	8	7
10-in.	3	5	8	7
11-in.	3	5	8	7
12-in.	3	5	8	7
13-in.	3	5	8	7
14-in.	3	5	8	7
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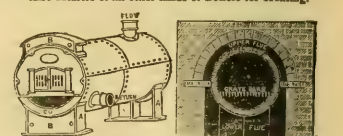
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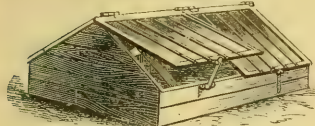
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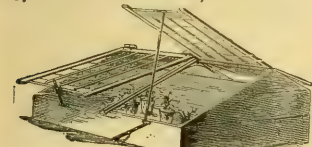
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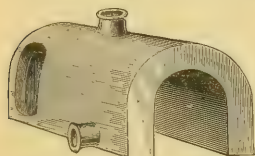
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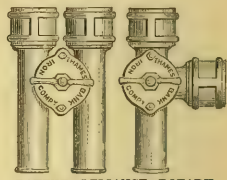
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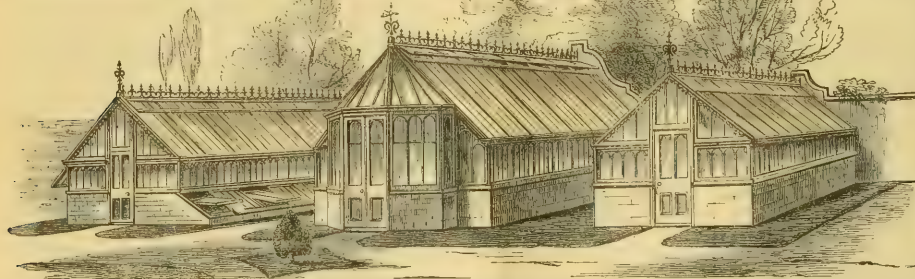
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and SEVENTY POUNDS will be offered. Amongst others
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In Bankruptcy.—Re JOHN HEV.

MR. FRANK SMITH is instructed by Mr. John Haigh, Esq., the Official Receiver and Trustee herein, to SELL by AUCTION, at the Premises as above, on WEDNESDAY and THURSDAY, August 11 and 12, the extensive COLLECTION of CHOICE STOVE and GREENHOUSE PLANTS, Garden Exhibition VAN, GARDEN TOOLS, and EFFECTS, including—Begonias (various kinds), Camellias, Pot Roses, Dracenas, Arales, Geraniums, Pelargoniums, Ixoras, Crotons, Bougainvilleas, Chlorodendrons, Euphorbias, Greenhouses, Rhododendrons, Aralias, Kalocanthes, Lilioms auratum, lonicifolium, and longifolium; Richardias, Orchids, Fuchias, Petunias, Ferns, Eucharis, Coleus, Gardenias, Marantaceae, Alocasias, Passion flowers, and a large quantity of others too numerous to mention.

Also the whole of the CHOICE EXHIBITION STOVE and GREENHOUSE PLANTS, including large specimens of Bougainvilleas, Lælia, and Begonias, Rhododendrons, Kalocanthes, Anthuriums, Lapagerias, Gleichenias, Ferns, Palms, Cycads, Crotons, &c.

Also a large EXHIBITION PLANT VAN, 23 feet long by 7 feet wide, with Waterproof Top, and in very good condition; GARDEN TOOLS, GARDEN ENGINE, PLAT, SAND, GARDEN POTS, BONE DUST, and other requisites.

THE STOVE and GREENHOUSE PLANTS will be SOLD on WEDNESDAY, the first day, and the Exhibition STOVE and GREENHOUSE PLANTS, VAN, &c., on the second day. Sale to commence each day at 11 o'clock in the morning.

Catalogues may be had from the Auctioneer, 22, Ramsden Street, Huddersfield.

Thursday Next, August 5.

IMPORTATION OF VALUABLE ORCHIDS.

MR. J. C. STEVENS has received importation. ODONOTOGLOSSUM FLORENTINUM, large and fine pieces. ADA AURANTIACA, large pieces, in fine condition. ODONOTOGLOSSUM BLANDUM.

Also—ANGULO CLOWESII, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, August 5, at half-past 12 o'clock precisely, fine specimens of the following Rare and Valuable ORCHIDS—*VIOLA*, *CATTLEYA*, *EPIDENDRUM*, *ONCIDIUM*, *PRÆTEXITUM*, *CATTLEYA VELUTINA* (true), *ONCIDIUM* SARCOIDES; also many other rare and valuable ORCHIDS.

Rare and Valuable Orchids.

MR. J. C. STEVENS has received instructions from Mr. H. Strauss, Ehrenfeld, Germany, to include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, August 5, at half-past 12 o'clock precisely, fine specimens of the following Rare and Valuable ORCHIDS—*VIOLA*, *CATTLEYA*, *EPIDENDRUM*, *ONCIDIUM*, *PRÆTEXITUM*, *CATTLEYA VELUTINA* (true), *ONCIDIUM* SARCOIDES; also many other rare and valuable ORCHIDS.

Special Sale of Orchids in Flower.

MR. J. C. STEVENS wishes to announce that his NEXT SALE of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, August 11, and he will be glad if Gentlemen desirous of ENTERING PLANTS for this SALE will please send particulars of name not later than THURSDAY NEXT.

Dutch Bulbs—Trade Sales.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, August 14, at half-past 12 o'clock precisely, his first consignment this season of DUTCH FLOWER ROOTS, from some of the leading Growers in Holland, specially selected to suit the Trade and other Large Buyers.

On view the morning of Sale, and Catalogues had.

THE LIVERPOOL HORTICULTURAL COMPANY (John Cowan), Limited.

Have a large and fine stock of EAST INDIAN, MEXICAN, and other ORCHIDS; and they are constantly receiving fresh Importations from various parts of the world.

Full particulars of Orchids in stock, and also of fresh importations, can be received, forwarded on application.

The Company have also a large stock of TEA and other ROSES in pots, GRAPE VINES, FERNS, and other ORNAMENTAL PLANTS.

Lists with full particulars on application.

THE VINEYARD AND NURSERIES, GARSTON, LIVERPOOL.
ADDRESS for TELEGRAMS—"COWAN, LIVERPOOL."

Florists or Gardeners.

5 minutes' walk from Ryndon Station, G.E.R.; 17 miles from London.

TO BE SOLD, a Plot of excellent LAND, Walled-in, and with Double and Single Gates, and the frontage of 59 feet 6 inches, and having a well-built Glass House, each 32 by 12 feet, and a large and comfortable house-house. Highly adapted for horticultural purposes, or for the erection of a Villa residence.

Apply to **HENRY BENNINGFIELD**, Ware, Herts; or 16, Union Court, Old Broad Street, E.C.

FOR IMMEDIATE DISPOSAL, a FLORIST'S BUSINESS.—The Proprietor of a large and highly lucrative business, in full swing, which has been established for over twenty years, and is beautifully situated in the main road, Bayswater, known as Bayswater Hill, and commands the traffic from the principal entrance to Kensington Gardens, is desirous of disposing of the same. There is an unexpected term of fifteen years to run, the present lease, at an exceptionally low rental, and the trade return represents a large amount per annum. The books show various records of Royal patronage, and a *chronicle* which includes a great number of the Nobility and Gentry of London, also of numerous Country patrons. To those seeking a good Floral Business this is confidently recommended as a first-class investment. It is especially suited to a partnership where the combined energies of two or more practical men would conduce to a great extent, as a large portion of the business is in Ball and Kout furnishing, and in the increasing demand for floral decorations for social society at all seasons of the year. The whole stock, plant, goodwill, and lease, will be sold together as a going concern, as the Proprietor, being practically single-handed in the management, now finds it much too great a strain upon him, and he wishes to retire in consequence of ill-health. Further particulars will only be furnished to Principals or the Solicitors. Apply to **J. A. KING**, 29, Queen's Road, Bayswater, London, W.

To Florists and Others.—Chelsea.

TO BE LET, a Large Walled Garden, GLASS, and GARDENER'S COTTAGE. Apply to **N. G. GODFREY**, 13, Beaufort Street, S.W.

To Noblemen and Landed Proprietors.

C. H. HAWKES, of Great Queen Street, Westminster, S.W.—Established over twenty years—PREPARES DESIGNS for Laying out New Gardens, Parks, Lakes, Roads, &c., or Altering Existing Grounds. Estimates supplied.

To Landed Proprietors, &c.

A. MCINTYRE (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELLING existing GARDENS. Plans prepared. 115, Lister Park, Stamford Hill, N.

CABBAGE SEEDS to offer:—

Dwarf York	Large York
Esneff Market	Early Rainham
East Ham	Ellam's Early
Offenham	Dwarf Nonpareil
Wheeler's Imperial	Leeds Market
Flat Dutch	Drumheads

All are our own home-grown choice stocks. Prices on application to **TAYLOR and CULLEN**, Seed Growers, Rivenhall, Witham, Essex.

SAMUEL SHEPPERSON, FLORIST.

Prospect House, Belper, Derbyshire, begs to offer the following, of which he makes a specialty:—

PRIMULAS—PRIMULAS—PRIMULAS.

—Grand Premier Prize Stain of the finest new colours, as White, Carmine, Rose, Salmon, Crimson, Mauve, &c. Fine large trusses and beautifully fringed flowers. Strong Plants to bloom well, 12. 3d. per dozen, extra strong 12. 6d.; 9s. per 100, all free.

CINERARIAS—CINERARIAS.

—Bull's celebrated Prize Strain, dwarf compact habit, and most brilliant colours, cannot possibly be excelled. Good Plants, 12. 3d. per dozen, extra strong 12. 6d.; 9s. per 100, all free.

SAMUEL SHEPPERSON, Florist Prospect House Belper, Derbyshire.

Bulbs for Early Forcing.

FIRST CONSIGNMENTS OF ROMAN HYACINTHS.

DOUBLE ROMAN and PAPER-WHITE NARCISSUS, to hand. Finest quality and in splendid condition.

Early Orders solicited. Complete CATALOGUE OF DUTCH FLOWERING BULBS. Grains and Post-free on application.

F. & A. DICKSON & SONS, The Queen's Seedsman, Chester.

W. GORDON, IMPORTER OF ORCHIDS STOCK, from ALL PARTS OF THE WORLD.—AN IMMENSE STOCK of recently imported Plants complete a SALE of the Established Plants to make room. These have not yet flowered, but are all flowering plants, and must be sold at a great sacrifice. VERY VALUABLE VARIETIES are certainly to be obtained, and great bargains; see Public Journals for high prices recently obtained. THE SPECIAL OFFER affords a PAYING INVESTMENT to any one with glass at command, which should not be overlooked. SUCH PLANTS may never again be offered to the PUBLIC and the TRADE. Apply to **W. GORDON**, The Nurseries, Amarynd Park Road, Twickenham, Middlesex.

Tree Carnations.

H. B. MAY invites an inspection of his immense stock of the above, in 48, consisting of *Miss Joliffe*, *Andalusia*, and all the leading varieties, perhaps one of the finest lots ever offered. The Plants are full of bud, and in the most robust health. Also a quantity in 60's, fit for immediate forcing.

Silver Street and Angel Road Stations, G.E.R., are within a few minutes' walk of the Nursery.

Dyson's Lane Nursery, Upper Edmonton.

First Prices, Magdeburg, 1880 & 1885.	SOW NOW For Early Flowering in Spring.	First Prices, Berlin, 1884 & 1885.
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ROEMER'S SUPERB PRIZE PANSY.

THE Best Strain in the World. Fancy and Show Varieties, fine mixed, per pound 35s. 1 per ounce, 35s.

Carefully saved only from named Exhibition Flowers, splendid mixed, highly recommended, per 10,000 seeds 22s. 1000 seeds 2s. 6d.

Assortment of eighteen varieties, containing each one packet, 2s. Giant Prize Show, splendid mixed, enormous flower up to 4 inches in diameter, per 10,000 seeds 45s. 1 per 1000 seeds 5s. 50 per packet 12s.

Prize Show, bright golden-yellow, very fine for bedding, per 10,000 seeds 50s. 1 per 1000 seeds 10s. per pkt. 12. 6d.

Prize Fancy, splendid mixed, very fine and attractive, per 10,000 seeds 50s. 1 per 1000 seeds 10s. per pkt. 12. 6d. Net per Cash. Catalogue free on application.

FREDERIC ROEMER,

SEED GROWER, Quedlinburg, GERMANY.

EARLY FORCING BULBS.

B. S. WILLIAMS'

Well Ripe and Heavy Bulbs of
ROMAN HYACINTHS,
From 5 to 3½ inches in circumference, 15s. per 100.

PAPER-WHITE NARCISSUS,
From 5 to 6 inches in circumference, 10s. per 100.

DOUBLE ROMAN NARCISSUS,
From 5 to 6½ inches in circumference, 10s. 6d. per 100.

Early Orders Solicited.

Special Prices will be given for large quantities.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

AFRICAN TUBEROSES

AND LILUM HARRISII,

Grown by **WM. RISLEY**, Marlburg, Natal.

THE TRADE and GROWERS

are hereby informed that the reports of this season's growth are of the most hopeful description. The Bulbs promise to be superior to any hitherto offered in the market.

Orders are now being booked freely for delivery in AUGUST and SEPTEMBER, and Buyers are advised to make an early application. Quotations very low. Terms—net cash. For prices and full particulars apply to

WM. G. MAC GREGOR,

17, Fenchurch Street, E.C.

Come and See

THE HOME OF FLOWERS will be found the most interesting SHOW of FLOWERS in ENGLAND, and to all Lovers of the Garden intensely pleasing. All Plants are supplied in good stuff, at the very lowest price consistent with quality and correctness. Send for a CATALOGUE.

QUEEN LOBBIA BLUE KING (Paris) has been sent to the Great Show, (Liverpool) is alone worth a journey to see.

H. CANNELL & SONS,


SWANLEY, KENT.

CUTBUSH'S MILL-SPAWN CRACK BUSHROOM

WIS. CUTBUSH'S MILL-SPAWN CRACK BUSHROOM is well known and requires description. Price 6s. per bushel (1½ extra per bushel for package), or 6d. per cake; by post, post 4s.

None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.

WIS. CUTBUSH & SONS (Limited), Nurserymen and Seed Merchants, Highbury Nurseries, N.



FOR SALE, 30,000 GENISTAS, in thumbs, good plants for cutting to 4s., at 12s. per 100; 1s. 6d. per 100 for cases and packing; for Cash only. Post-office orders payable at Leyton Green.

T. ALDWIN and SON, Edith Nursery, Burchall Road, Leyton.

There is but one

CLEMATIS (WHITE JACKMANN), and CHARLES NOBLE is its Raker.

PRICES ON APPLICATION.

SPIRÆA PALMATA, The finest forcing clusters in the Trade.

CHARLES NOBLE, BAGSHOT.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks 25s.; 5 sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack; 5 sacks 22s.; 5 sacks, 4d. each.

COARSE SILVER SAND, 12s. 6d. per bushel; 15s. per half ton, 26s. per ton in 2-bushel bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 12s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Price List.—H. G. SMYTH, F.R.H.S., 21, Goldsmith's Street, Drury Lane (late 17A, Coal Yard), W.C.

Two Prize Medals.

Quality, THE BEST in the Market. (All sacks included.)

PEAT, 1st brown fibrous .. 5s. per sack; 5 sacks for 22s. 6d.

PEAT, best black fibrous .. 4s. 6d. " 5 sacks for 20s.

PEAT, extra selected Orchard 5s. 6d. " 5 sacks for 25s.

LOAM, best yellow fibrous .. 12s. 6d. per bushel.

PREPARED COMPOST, best .. 1s. per bush, 5s. per sack.

LEAF MOULD, best only .. 12s. (sacks included).

PEAT MOULD, .. 12s. 6d. per bushel.

SILVER SAND, coarse, 12s. 6d. per bush, 14s. half ton, 24s. ton.

RAFFIA FIBRE, best only .. 12s. per lb.

TOBACCO CLOTH, finest imported .. 8d. lb., 2s. 10s. 18s.

TOBACCO PAPER .. (Specialist) 8d. lb., 2s. 10s. 18s.

MUSHROOM SPAWN, finest Multrack .. 5s. per bushel.

SPHAGNUM MOSS, all selected, 2s. per bush, 6d. per sack.

CHUBB'S "PERFECT" FERTILISER, the Best Food for all kinds of Plants, Flowers, Fruits, Vegetables, &c. Tins, 12s. 6d.

Bags—7 lb., 3s.; 14 lb., 5s.; 28 lb., 8s.; 56 lb., 14s.; 1 cwt., 22s.

VIRGIN CORK, best quality only—5s. 6d.; 28 lb., 5s. 6d.; 56 lb., 10s. 6d.; 1 cwt., 17s. [per bushel]

HORTICULTURAL CHARCOAL, best quality only, 2s. 6d.

COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 12s. each; to sacks, 9s.; 15 sacks, 13s.; 10 sacks, 17s.; 30 sacks, 25s.; 40 sacks, 30s. Truck-load, loose, free on rail, 25s. Limited quantities of G. special quality, granulated, in sacks only, 2s. each. Terms, strictly Cash with order.

CHUBB, ROUND & CO., WEST FERRY ROAD, MILWALL, LONDON, E.

J. JENSEN & CO'S

NORWEGIAN

FISH-POTASH MANURE.

Fish Manure is composed of flesh and bone—the best of all fertilising materials, and in combination with pure Salts of Potash and Magnesia forms a perfect fertiliser, as it contains the important ingredients of Ammonia, Phosphates and Potash in their most concentrated and available form. It is equally valuable for Farm Use, for Fruits, Flowers, and Vegetables, and produces wonderful growth, especially with Vines.

The Average Manurial Constituents are as follows:—

Cod Fish and Potash. Herring and Potash.

Per Cent. Per Cent.

7.0 Ammonia .. 8.30

20.0 Phosphates .. 10.00

15.0 Potash .. 15.00

10.0 Magnesia .. 10.00

Or, in other words, a ton of COD FISH and POTASH is composed, approximately, of—

10 Cwt. of Dried Fish Flesh—Organic Matter.

4 " of Dried Fish Bone—Phosphates.

3 " Sulphate of Potash.

3 " Sulphate of Magnesia.

1 " of Moisture, and ingredients not of manurial value.

The Prices are £10 per Ton (bags included) for the COD, and £9 for the HERRING, on Rails in the Docks, subject to Discount for prompt Cash.

Retail Prices, Carriage Paid, upon receipt of P.O.O.

IN TINS—2 lb. for 1s.; and

IN BAGS, 7 lb., 2s.; 14 lb., 4s.; 28 lb., 6s. 6d.; 56 lb., 10s. 6d. 1½ cwt., 20s.; 2 cwt., 30s. Bags free.

Apply to all Nurserymen and Florists, or to

J. JENSEN & CO.,

10, ST. HELEN'S PLACE, LONDON, E.C.

For Perfect Tennis Lawns, Bowling Greens, and CRICKET PITCHES, use

"BELLICIDE."

the DAISY and WEED ERADICATOR. Manufactured by HURST and SON, 125, Houndsditch, London, E.

To be obtained (with useful instructions) from all Seedsmen and Florists everywhere. Sample Dredger-canister, 1s. per post.

HORTICULTURAL SOILS, MANURES, SUNDRIES, and BERSKIRE POTTERY. Catalogue Free per post, of every Horticultural Requisite.

BENJAMIN FIELD, F.R.H.S. (Son-in-law and Successor to J. Kenmar), Swan Place, Old Kent Road, London, S.E.

Established 1854.

IMPORTANT TO GARDENERS.

BENTLEY'S WEED DESTROYER.

Invaluable for the Destruction of Weeds and Moss on Garden Walks and Carriage Drives.

Particulars sent Post-free.

BECK CHEMICAL WORKS,

BARROW-ON-HUMBER, HULL.

Soluble Paraffin GARDEN INSECTICIDE

Fints, 12s.; Quarts, 12s. 6d.; Gallons, 5s. 6d.

R. M. PHILLIPS & CO., DARTFORD, KENT.

SMITH'S WEED-KILLER.

The Original and Only Genuine.

A True Gardener's Friend.

Effectually Destroys Weeds, Moss, Dandelions, &c., on Garden Walks, Carriage Drives, Stable Yards, &c.

For Prices and full particulars, apply to

MARK SMITH,

Manufacturing Chemist,

LOUTH, LINCOLNSHIRE.

CLAY & LEVESLEY,

TEMPLE MILL LANE,

STRATFORD, LONDON, E.

C. & L. also supply Crushed Bones, Bone Dust, Peruvian Guano, Sulphate of Ammonia, and Nitrate of Soda, in best qualities only.

GISHURST COMPOUND, used by leading

Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft water; 1 to 10 ounces as winter dressing for Vines and Orchard-house Trees; and in latter from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 12s., 3s., and 10s. 6d.

GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s. from the Trade.

Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

BEST TOBACCO ROLL PAPER and CLOTH, at Lowest Price.

J. DENNY, Manufacturer, removed to 77, Downs Road, Clayton, E.

BAMBOO CANE.—No Nursery or Garden should be without it. Ten times more durable than wood, and easily manufactured.

P. B. HARKIN, Importer, Dutton Street, Liverpool.

PURE WOOD CHARCOAL

FOR VINE BORDERS, FRUIT TREES, STRAWBERRIES, ROSES, FLOWER BEDS, POTTING PURPOSES, AND GENERAL HORTICULTURAL PURPOSES.

HIRST, BROOKS & HIRST, Manufacturers, Leeds, YORKSHIRE.

First Arrival New Archangel Mats this Season.

J. BLACKBURN and SONS are now prepared to quote Prices to Buyers on application at 4 and 5, Wormwood Street, London, E.C.

To Nurserymen, Seed Merchants, and Florists.

J. BLACKBURN and SONS are offering

J. Archangel MATS lower than any other house in the Trade. Also Petersburg MATS and MAT BAGS, RAFFIA FIBRE, TOBACCO PAPER, and Shading Materials. Prices free on application.—4 and 5, Wormwood Street, London, E.C.

Protect your Strawberries.

TANNED NETTING, 1 yard wide, 3d.; 2 yards, 1s. 6d.; 4 yards, 3d. A considerable reduction on quantities of 500 yards and upwards.

JAMES T. ANDERSON, 149, Commercial Street, London, E.

NEW SEASON'S ARCHANGEL MATS.—

My first parcel has now arrived in good condition and prime quality. Prices on application.

JAMES T. ANDERSON, 149, Commercial Street, London, E.

REGISTERED TELEGRAPH ADDRESS: LATEA, LONDON.

TRADE ONLY. JOHN SHAW AND CO., 30 and 31, Old Street, Manchester, MANUFACTURERS OF TIFFANY, NETTING, and all other SHADING and PROTECTING MATERIALS. No. 1 TIFFANY, 20 yards long, 38 inches wide, in not less than 10 pieces, 2s. each. No. 2 TIFFANY, 20 yards long, 38 inches wide, minimised, in not less than 10 pieces, 2s. 4d. each. Cash with order. Price Lists on application. Special prices for large quantities.

VAN—Box-covered, for Market Work.

Well made and nearly new. Price, 43s.

Apply, COWLES, Woodford Green, Essex.

EXTRA STRONG TANNED NET.—Ripe

Fruit, Tennis Court, or Poultry Run, 1-inch mesh, 2 yards wide, 15d. per yard; 3 yards wide, 3d. per yard; or 3 yards wide, 2s. per 100; 4 yards wide, 2s. per 100 yards.

NEW TWINE NETTING, 1 yard wide, 2d. per yard; 2 yards wide, 4d. per yard; 4 yards wide, 8d. per yard. COUGH NET, 1/2 inch mesh to square inch, 1 1/2 yard wide, 7d. per yard run.

W. CULLINGFORD, Forest Gate, E.

Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS

are made in materials of great durability. The

plainer sorts are especially

suited for KITCHEN

GARDENS, as they har-

bour no Slugs or Insects,

take up little room, and

once put down, incur no

further labour or expense,

as do "crown" Edgings, consequently being much cheaper.

GARDEN WALKS, FOUNTAINS, in Artificial Stone,

very durable and of superior finish, and in great variety of design.

F. ROSHER and CO., Manufacturers, Upper Ground

Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.

Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME" FRAMES,

PICTURE COVERS, and PROPAGATING BEDGES, also

for FOXLEY'S PATENT BEADED GARDEN WALL

BRICKS.

Illustrated Price LISTS Free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES,

for Conservatories, Halls, Corridors, Balconies, &c.,

from 2s. per square yard upwards. Pattern Sheet of Plain or

more elaborate Design, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies,

Larders, Kitchen Ranges, Bath &c. Grooved and of Slipable

Paving of great durability, Wall Copings, Drain Pipes and Tiles

of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.

F. ROSHER and CO., Brick and Tile Merchants.

See Addresses above.

SILVER SAND,

fine or coarse grain as desired. Price, by post, per Ton

or Truckload, on Wharf in London, or delivered direct from

Pile to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BATS for Roosters or Perneries.

KENT PEATS or LOAM supplied at lowest rates in any

quantities.

F. ROSHER and CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves.

A liberal Discount to the Trade.

GISHURSTINE

14x12 15x12 20x15

18x12 22x15 24x18

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20x14 24x18 28x20

22x16 26x18 30x20

24x18 28x20 32x22

26x20 30x22 34x24

28x22 32x24 36x26

30x24 34x26 38x28

32x26 36x28 40x30

34x28 38x30 42x32

36x30 40x32 44x34

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58x52 62x54 66x56

60x54 64x56 68x58

62x56 66x58 70x60

64x58 68x60 72x62

66x60 70x62 74x64

68x62 72x64 76x66

70x64 74x66 78x68

CARTERS' SEEDS

FOR PRESENT SOWING.

CABBAGE—Carters' Early Heartwell.

Proven to be the finest early Cabbage in cultivation. Very distinct. The heads are extremely firm, weighing from 4 to 6 lb.
In Sealed Pkts. only—Per Packet, 12. and 6d.; per ounce, 22. All Post-free.

CABBAGE—Carters' Mammoth Beefheart

The best rain-crop Garden Cabbage in cultivation; very large firm heads of exquisite flavour, very few outside leaves, and does not readily run. The finest Summer Cabbage known.

In Sealed Pkts.—Per Pkt., 12. and 6d.; per ounce, 12. and 6d.

LETTUCE.

CARTERS' GIANT WHITE COS .. 6d. and 10
DUNNETT'S GIANT WINTER COS .. 6d. and 10
HARDY NORTHERN KING COS .. 1 16
ALL THE YEAR ROUND CABBAGE .. 6d. and 1 3

ONION.

GIANT ROCCA .. s. d. s. d.
GIANT WHITE TRIPOLI .. 1 6 0 6
EARLY WHITE NAPLES .. 1 0 ..
GIANT MADEIRA .. 1 0 9 ..

SEEDSMEN by Royal Warrants to H.M. the QUEEN and H.R.H. the PRINCE OF WALES.

237 & 238, HIGH HOLBORN, LONDON.

DANIELS' SEEDS

For Present Sowing.

CABBAGE.

DANIELS' DEFIANCE, the finest Cabbage in cultivation, early, large heads, 7 lb. to 10 lb., each, post-free .. 1 0 .. 1 6
DANIELS' LITTLE QUEEN, a superior dwarf, early variety .. 1 0 .. 1 6
ENFIELD MARKET .. 1 0 .. 0 6
DWARF NONPAREIL .. 1 0 .. 0 8

ONIONS.

DANIELS' GOLDEN ROCCA .. 1 0 .. 2 6
" WHITE ELEPHANT TRIPOLI .. 0 9 .. 2 0
" GIANT ROCCA .. 1 0 .. 1 0
" CRIMSON ROCCA .. 0 6 .. 1 3
" NEW WHITE GLOBE .. 1 0 .. 2 6
" IMPROVED WHITE SPANISH .. 1 0 .. 2 6
Other kinds, 6d. to 8d. per ounce.

LETTUCES.

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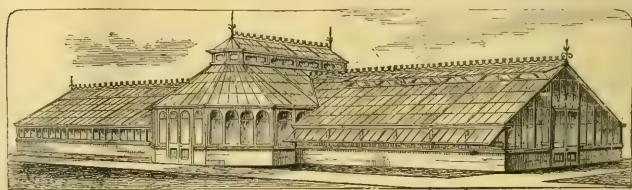
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THE Gardeners' Chronicle.

SATURDAY, JULY 31, 1886.

LETTUCES.

DURING the present generation almost all garden vegetables and flowers have been greatly modified, and, as we may well say, improved, since their usefulness and beauty have been very much increased. Years ago, before the modern horticultural epoch had commenced—before the days of great seedsmen and nurserymen—the forms of Lettuces were few, and they remained in season only a short time. We had a best sort for standing the winter, coming into use tolerably early in the spring, and a best sort for the summer, but the season was soon over. In this, as in other respects, the Lettuce has been greatly altered, and it has become a much more useful vegetable than it was of old.

Its forms are now so numerous that sixty-five varieties, including all the leading forms, and several sorts which as yet await the verdict of experience on their qualities, were grown this season in Messrs. Sutton's trial grounds at Reading. The seed was all sown on the same day, and on July 15 the earliest sorts had already quite "run away," while the latest were just coming into season. This is a great improvement, and it is not too much to say that there are Lettuces now which may be made available for every period by changing the times of sowing and, in the winter months, by the aid of glass. But besides the different habits of maturing much else has been evolved by selection. On these and other points a most useful and indeed a wonderful lesson may be read in the trial grounds of our leading seedsmen.

Lettuce seed is grown in different districts to prevent mixing, for the Lettuce resembles the Cabbage tribe in cross-breeding freely if the varieties are not kept wide apart. Formerly, when our summer sun was more reliable than it has been lately, the Lettuce was seeded in England; the seed has since been grown—say for ten years past—almost entirely in France. An effective hold is kept on the reins of this important branch of a seedsman's business in this way. A pinch of seed from each grower is sown in the trial grounds. A grower may be a breeder and selector, and presently, perhaps, he evolves something new. There can be no such thing as the best all-round Lettuce. Commodore Nutt may be the best early sort, which you may plant 4 inches apart, and have delicious little Lettuces the size of cricket balls. It is like Tom Thumb, or Sutton's Golden Ball, an incomparable Cabbage Lettuce of the dwarf section. Other sorts have other qualities, and when we pass to the Reading Mammoth White or the Champion Brown we reach, one might say, quite another world; for, apart from other differences, these are Cos Lettuces, upright in their habit of growth instead of being round like an ordinary Cabbage Lettuce. But the breeder claims an improvement, and sends some seed, which is at once subjected to the test of the trial-ground.

The 160 plots of Lettuces grown here are all

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numbered, and each number, with full historical and other particulars, is entered in a large book like a merchant's ledger. "What is this?" we ask, noticing a plot of curious blotched Lettuce. We are at once told the whole story. It is a Lettuce with leaves splashed with stains like those of the spotted Orchis. It was sent from Italy on trial, and must be discarded, however excellent, on account of its objectionable colour.

Of course the testing plots exhibit both defects and excellences, in whatever degree they may be exhibited, and the expert who makes himself responsible for the credit of his firm in this department proceeds to France to inspect the seed crops with the lessons of the "ledger" impressed upon his mind. This year an older expert accompanied the younger one, and he mentioned to the writer that he had been reading the lessons of the trial grounds for the last thirty years, and they still possessed their former interest. Studies of this kind create enthusiasm, and lead on to the knowledge and success which various firms possess in different departments of horticultural enterprise.

In the course of a walk along the long border of trial plots devoted to Lettuce we noted down anything that caught the eye, and although we cannot hope to exhaust the list of superior Lettuces, or to describe their diverse merits within our allotted space, we shall at any rate inform the reader of several facts, which he too may obtain by the simple process of sowing for comparison next autumn and spring several sorts of seed. Perhaps he may like mixed Lettuces, for there are buyers of such, and in the salad season of next year the pricked-out plants, true to their kind, will bring a succession from the same bed. The old adage, "Tell me what company you keep and I'll tell you what you are," does not apply to Lettuces, whose individuality is stamped upon them so indelibly by Nature's law and the selector's art as to be utterly unaffected by companionship.

Most persons will prefer to sow their Lettuces separately. There are three or four sorts, each excellent, as the experts assure us, and as they are all the smallest, earliest, and most dwarfed of the Cabbage or spreading section, they are specially suitable for forcing. So you will sow for that purpose Tom Thumb, Early Dwarf, Marvel, and Commodore Nutt, which last is well known for its delicious nutty flavour. In fact such Lettuces as are now produced should not be mixed together promiscuously, but sown separately and their differences observed. Among those beautiful small Lettuces which have won such favour lately, Golden Ball is unrivalled for early forcing and summer use, says the thirty years' student—and his knowledge must be complete. Its habits are excellent, for it does not run quickly to seed and it may be left thick in the rows. "We absolutely gathered them by the bushel," writes an enthusiastic gardener, and then follows a minute description of the peculiarities of this "crisp and tender Lettuce," whose golden colour is another of its attractions. In regard to colour, Blonde de Berlin, which is popular in Germany, is the palest yellow we met with in the whole field, and recalls very agreeably the colour of a sovereign. The last of the Cabbage Lettuces which we shall very briefly mention is Standwell, a sort which does stand well, running late to seed, besides possessing other merits.

Other sorts, novel or otherwise, are The Queen, partaking of the character both of a Cos and Cabbage Lettuce, and which requires tying, when it becomes exceedingly tender. All the Year Round is a well known sort, standing the winter well and lasting a long time. Drumhead is, as the name indicates, a large Lettuce; Neapolitan Drumhead is similar to it, but darker in colour. A well known and widely distributed sort is the Hammersmith, a good

winter Lettuce for sowing in July and early in August, and largely grown for market.

We now pass on to the Cos tribe, and here our friend the old expert, with due reverence for the reigning king of the Lettuces, remove his hat to Sutton's Mammoth. So large—the biggest of the Cos Lettuces—and yet so crisp and tender! Not one of the Cabbage tribe is so tender as this. "A grand summer Lettuce," says a well known correspondent of the *Gardeners' Chronicle*. Mr. Rust, of the Eridge Castle Gardens, and another good gardener and correspondent, Mr. Miles, of Wycombe, says that in the peculiar property of withstanding drought and hot weather it excels all the other sorts that he tried against it. But here is another sort that takes the eye, and the Paris White is still more tender, it is said, smaller, with a good heart. As sometimes happens in inspections of this sort, time is up, and we must now touch upon the other plots very lightly. Here is Brown Cos, rather later than either the White or Green Cos, and it does not run to seed quite so soon. Recognition in passing of Sutton's Winter White, an exceedingly hardy, valuable sort, large, with every merit, including flavour, and one of the very best sorts whose history is written in the expert's "ledger." This that follows is the All Heart, a very compact good sort, with this distinction, that it sometimes weighs 6 lb. to 9 lb., and claims to be the biggest hearted Lettuce. The Green Ground Cos has the peculiarity of growing close to the ground. It is dwarf and compact, with pointed, dark green leaves, and is excellent for forcing. The last on our list is the old Black-seeded Bath, one of the oldest sorts, exceedingly hardy, and requiring a little labour, which in many sorts is avoided, since its habit of growth is open, and it must be tied. There is always novelty in an inspection of this sort which can never fail to increase one's respect for the experts and one's desire that success may still attend them. *H. E.*



New Garden Plants.

MR. HILL'S MAUVE CATTLEYA.

MR. C. G. HILL, Arnot Hill, Nottingham, has kindly sent me, through Mr. J. C. Stevens and Mr. Harry Veitch, the "blue or mauve Cattleya." It is well known that the "blue Cattleyas," are now expected by some lucky enthusiasts from the Congo! and we expect that *Lissochilus* and *Angraeca*, are among the most cherished of dreams, matching the blue Roses of the Rhodites.

The plant of Mr. C. G. Hill is a zephyrian beauty. It has a short furrowed bulb, a dark, shining, fine leaf and flowers, which I compare to the original flowers of *Cattleya labiata* Roellii, as they are in my herbarium widely distinct from the few fresh ones I saw under that name. The petals are rather broad, yet by no means in the way of those of *Cattleya trianae*. Like the sepals, they have a light blue of a certain light purple passing into light mauve, apparently more so when fading; and so is the anterior part of the wide lip. There is the swallow-tail yellow mark of *Trianae*, wherein the two rows of superposed narrow, oblique yellow lines go from disc to base. Column strong, white. Vestiges of only one spathe. I hear there were four flowers.

Of course such a Cattleya, lovely as it is, purchased as an imported plant of uncertain origin, cannot be satisfactorily named from two flowers and a bulb. For such cases of obscure individuals, unavoidable in consequence of the immense importations that take place, the system (advocated by Dr. Masters should be thankfully followed. It is quite a refreshment, a benefit, a consolation, to avoid the direct naming of such an individual plant [in botanical form]. *H. G. Rehb. f.*

PORTULACA SOMALICA, N. E. Brown, n. sp.

Plant 8–10 inches high, quite glabrous, except in the axils of the leaves, and at the base of the flowers, where there are some whitish hairs, those in the axils of the leaves being 3–4 lines long, and conspicuous, those at the base of the flowers very short and inconspicuous. Stem fleshy, terete. Leaves fleshy, subterete, spreading, slightly recurving towards their tips, 1–1½ inch long, 1 line thick, the shorter ones acute, sub-mucronate, the large ones very acuminate. Involucres of four leaves, longer than the flowers. Flowers in terminal clusters of three. Sepals ovate-acute, persistent, submembranous, tinted with pale reddish, 4 lines long, 2–2½ lines broad. Corolla an inch in diameter, bright light yellow inside, pale pinkish outside; petals contiguous, and overlapping each other, ovate-acute, 7 lines long, 5 lines broad. Stamens numerous, filaments yellow in the basal half, orange above; anthers and pollen yellow. Stigmas six (always?), only one open flower seen), yellow.

A native of Somali Land, East Tropical Africa, where it was collected by Messrs. James and Thrupp, who presented it to Kew, where it flowered in May of this year. It is allied to the West African *P. foliosa*, Lindl., but is readily distinguished from that species by its more pointed leaves, with long hairs in their axils, by the absence of a dense mass of woolly hairs at the base of the flowers, and especially by the broader, overlapping, acute petals, which in *P. foliosa* are narrow, distant, and emarginate. *N. E. Brown.*

NEUMÜNSTER, ZÜRICH.

MESSRS. FROEBEL'S NURSERY.—Alpine plants!—who does not love them that cares for a flower at all? It is not only because of the vividness of their colours, and the variety of their forms, but they are reminiscent of the mountain breeze and the glittering snows, and they quicken reminiscences of many a long expedition and happy climb to their peaceful solitudes.

Of course it is best if it be possible to look for them in their own native habitats. To say nothing of the fact that many alpine flowers should be seen in great breadths if they are to be appreciated at all, it is well to study their own way of growth, and they look infinitely better when they are set off by their natural surroundings than they ever can appear in any other way. But short of this, where can a few hours' instruction and gratification be better found than they can be in a good nursery garden? And such an one I met with at Zürich when I was visiting the place. M. Froebel had been known to me, through correspondence and by his plants, for years. I was glad at last to make his personal acquaintance, and to inspect his treasures. From one point of view, a walk round his garden is more remunerative than a visit to any alpine district can ever be. He draws upon so many mountainous regions in Europe and other parts of the world that alpine plants are focussed here, if I may use the expression, and you can take them all at once. A very rare *Saxifraga* and one of the most beautiful of all—*Saxifraga catalanica*—from the mountains of Catalonia; *Omphalodes luciliae*, from Mount Taurus in Asia Minor; *Gentiana bavarica*, *Ramondia pyrenaica* (both the white and blue varieties), *Silene elizabethae*, and other gems from the Apennines; from the Tyrol, from Switzerland, from the Pyrenees, and many more places where these things can be found, meet together here, and can be studied in union. And there is more to be thought of than this by the grower of alpine plants. It is undeniably true that any of these alpine favourites which are raised from seed or grown on from cuttings and are afterwards judiciously moved in the borders from time to time are much more likely to do well than the original plants, which were taken from the mountain side, and are then reduced to captivity. The constitution of the seedling or the cutting becomes improved, and they have no reminiscences of other days to keep them back; they take to their enforced conditions at once. This is the great and special advantage which the nursery of M. Froebel presents. Difficult and tender plants which come from him have a good set-off at the beginning. They are likely to do well where anything of the same sort will succeed. At Neumünster I met with three plants which are so infrequently to be seen that they

would by themselves repay a long pilgrimage at once. They were all in a flourishing condition, and to meet with these three in one place was quite an event. Their names are these:—*Saxifraga florulenta*, *Dianthus neglectus*, and the third, which of course makes no pretence to being an alpine, is *Rosa berberifolia*. Not one of these in anything like good condition have I ever seen before; they are all apparently doing well under M. Froebel's care.

Saxifraga florulenta has been with me for a long time like a vanishing Will-o'-the-wisp. I believe it can be grown in England, and I have occasionally heard of it in one place and another, but it has always been my lot to hear where it has been, and never until now to see it where it is. At Neumünster, in two or three places, it seems to be quite established, and to be very happy. Of course it is grown horizontally, and in the chinks of a rock, and from its flourishing appearance no one would judge that it is a misfit subject at all. I was sorry to hear from M. Froebel that it is fast becoming excessively scarce in its own native habitats. What a pity it is that so many good things seem doomed to extermination, and the rarer they are, and the more precious, so much the faster does their destruction come upon them. In this case it would appear that botanical collectors are especially at fault. Who would not like to have *Saxifraga florulenta* that cares for an alpine at all? This seems to be the only thought that is entertained—then let it be pulled up ruthlessly, and scattered here and there remorselessly; and thus they are going on, and that very soon the inaccessible crag will be the only spot where this precious *Saxifraga* can abide.

I was glad to meet with *Dianthus neglectus* at last, undeniably true. How often has its counterfeit been made to do duty in its stead? Not that any fault can be found with *Dianthus glacialis*; it is pretty enough, but then it is not *neglectus*, and one should not be passed off for the other—they are very plainly distinct. I think Mr. Wolley Dod (to whom we are all so much indebted) called attention to this in your columns some little time ago. He was perfectly right in what he said, and *Dianthus neglectus* (true) quite bears him out. It differs from *glacialis* in its height of about 5 inches, and also it is of a more slender habit, and beyond everything else it conspicuously differs from it in the fact that the under sides of the petals are yellow, and they almost look as if they were covered over with gold dust. There is no chance of any further confusion when the right thing has at last been discovered. *Rosa berberifolia* was grown from seeds which were sent direct from Persia. Herr Max Leichtlin informed me the other day that this was the only chance of getting it to do well. He raised some plants in this way a little time ago, and one of them did well for a time, and was the glory of his garden at Baden-Baden; but, alas! like so many other triumphs in other parts of the world, it went off, and now it only lives in remembrance.

It remains to be seen how long M. Froebel will be able to say that he is the possessor of this glorious rose, but it is certain that he has it now, and it looks as though it would live with him. May it be so, indeed, and when next I go to Zurich may *Rosa berberifolia* appear in all its beauty, naturalised and quite content in his garden, and no longer a stranger in the land. It is odd that a Rose which grows in thousands in the shifting sands of Persia should be so excessively difficult to handle elsewhere. The soil, we are told, is quite matted with its roots in some parts. Why should it not bear transportation as *Iris Susiana* does bear it and other good things as well? There was one little gem which caught my eye at once on M. Froebel's rockery, and which must have a word of praise. I refer to *Alpine verna flore-pleno*.

Alpine verna is common enough, and the pretty green cushion with numerous white flowers is most recommendable; but *Alpine verna flore duplici plenissimo* is an unheard-of variety, of very great merit, and entirely new. M. Froebel met with it in only one instance on the mountains of Engadine; his quick eye told him at once what a treasure he had come across, and he has gone on practically increasing it till now, it may be hoped, it will never be lost to the world. Each flower (to use M. Froebel's own words) is formed of two very double flowers embraced one in the other in the way of *Primula Hose-in-hose*, but with the difference that the inside flower has conserved his green calyx. There are most charming little heads of the purest white studded over a carpet of the most brilliant green. *Alpine verna flore-pleno* is a plant which is

very much to be desired. A white form of *Ramondia pyrenaica* is sent out from this nursery. It came originally with the ordinary blue sort, but it far transcends it in beauty, and is considered to be one of the very finest of all alpine plants. *Ramondia serbica* and *R. Nuttalliae* are also growing by its side, and are very worthy companions of it.

On the rocky *Lithospermum petreum* and *L. graminifolium* called for instant attention. They are much alike in blossom, and differ only in habit; the latter is more low lying but of an equally intense blue colour. I am assured that they are both quite hardy; and daintier, prettier little plants could hardly be imagined than they are. *Potentilla speciosa*, from the Lebanon range; *Ononis fruticosa*, *Helichrysum frigidum*, from Monte Rotundo, Corsica; *Daphne Philippi*, from the Pyrenees; *Dianthus cinnabarinus*, from Greece; *Lithospermum oleifolium*, from Persia; *Eriocaulon hispanicum*, *Dianthus spinosus* (of which M. Froebel possesses only a single plant), *Vella spinosa*, from Spain; *Iberis saxatilis*, *Hypericum cuneatum*, *Saponaria pulvinaris*, and several others besides, have found their way into my note-book; but I think I have said enough to show what an interesting nursery this is, and especially in the way of alpine rarities. Many other plants might of course, be noticed as well. Perhaps M. Froebel sets as much store on a glorious red Water Lily (*Nymphaea alba var. rosea*) as he does upon anything else in his possession. It is indeed very fine, and of a dark red colour. It is a great improvement on the scarce red Water Lily, and it is only a pity that such good things are so often difficult to increase in stock.

Large glasshouses were full of Begonias and such like; but I could not pay any attention to them. Let those who can tolerate bedding-plants where alpine can be seen instead of them go where I failed to go. I was surfeited with Flora's choicest gems—they put clean out of sight, in my mind, for the time being, everything else besides themselves. It just remains to be noticed in these rough notes that M. Froebel, who is such a very successful grower of alpine plants, does not trouble his head much about the chemical composition of the compost in which he grows them. He does not pretend to any nice imitation of the soil in which his plants originally were found. Peat and sand are his staple commodities, and with these he is generally content. *A Wanderer*.

THE SEED TRADE.

TIME OF SEED SOWING.—A series of visits paid to different parts of the country where the growing crops can be seen has led to my noticing one peculiarity as a prevailing feature of the season, and as throwing light on the subject of the time of seed-sowing. The unpropitious weather in the early part of the present year necessarily prevented in great part the usual practice of early sowing for main crops of most sorts of vegetable seeds, and the greater portion of these were not placed in the ground until the end of March or the beginning of April—decidedly later than is usual. Some might be led to think this a matter for regret, but all through the country there is a general appearance of excellent crops, secured from one sowing, with scarcely an appearance of failure.

This fact seems to point a moral to the effect that, having regard to our uncertain and precarious springs, early sowings for main crops are not desirable. More than that, past experience has shown in many instances that too early sowings frequently end in disappointment and loss. Of course it is only natural that growers for market will risk a crop for the sake of obtaining a first consignment that will command extra prices; but they know their risks, and if a particular crop falls a succeeding one is at once sown. A private grower who depends upon his main crops for the season's supply can hardly venture to be so daring.

I know an old grower who for thirty years past has never failed to sow his main crop Peas in April, and he has never failed to secure a good produce. On the other hand, I have known many to hurry in their seeds the first fine day or two in February, and have often had to sow again a month or two afterwards, thus losing seed crops, and having to incur additional expense in the way of labour, besides loss of time. In such cases when a burst of fine weather in February has induced the grower to sow, and failure has followed, the season is blamed as being unkind and killing. This year early sowings

were in most instances impossible, and many a grower, looking upon luxuriant crops, has blessed where in other seasons he has been ready to curse. The seeds and the seedmen are often blamed, but the too anxious sower should have a large share of it.

Many gardeners, and especially those who may be termed amateurs, appear to labour under the delusion that early sowing necessarily means early crops. The experience of a thoroughly competent judge is to the effect that the end of March is soon enough to sow Peas, Beans, Parsnips, Onions, Leeks; Cabbage, Kales, Cauliflowers, Broccoli, and Brussels Sprouts; while Beet and Carrots should not be sown until April, as they are apt to run to seed when sown earlier, and the roots are thereby rendered useless.

Some blame is rightly due to the recommendations of seed catalogues. If any one will look over the directions running through these they will find that almost everything in the way of seeds is recommended to be sown at the earliest time, and the effect of the advice appears to have been to encourage some to sow even before the time named. Probably the intention is to give a kind of starting-point when sowing should commence, with the margin of three weeks or a month in reserve to do it in.

The foregoing remarks are intended to apply only to outdoor main crops. But some of your correspondents must have had considerable experience bearing upon the subject of early *versus* late sowing, and if they can be induced to give it will no doubt prove helpful in reaching something like correct conclusions. *Fisum*.

WHERE TO FIND ALPINE PLANTS.

THE Pennine or Valaisian Alps are, together with the Upper Engadine, the richest parts of Switzerland as to their flora. Some few hints to intending tourists may, therefore, be acceptable. Of all the Valaisian Alps Zermatt possesses the greatest attraction, the most beautiful landscape, and the richest flora. Of all the Swiss cantons the Valais has the richest and most characteristic flora. Haller called it with reason the Spain of Switzerland. It is a country remarkable on all accounts, and nowhere else can be found within so limited a space a more striking contrast than that which is presented to the eye on passing from the Bernese Oberland to the Rhone valley. It is the sky of Italy after that of the icy meadows of the North. It is the flora of the South suggested that of Lapland.

The vegetation of the Valais is that of the borders of the Mediterranean. All these barren slopes, burnt up in autumn by the sun, are covered with a vegetation different from that of the rest of Switzerland. There are numerous *Artemisia*s, of which *A. valesiaca* (Allioni) is characteristic, not being found elsewhere. *Sempervivum arachnoidum* form immense patches covered with white cobweb-like threads with which the red blossoms contrast effectively. *Opuntia vulgaris* covers the rocks in the vicinity of Sion in company with *Ephedra helvetica* and *Clypeola Ionthalpi*. *Iris germanica* is so abundant that the rocks over Sion are in spring empyreus with the flowers; here also are found *Iris virens* and *Tulipa oculis solis*. Among other plants of the Rhone valley may be noted *Juniperus Sabina*, *Ononis columnae*, *O. natrix*, *Astragalus monspeliensis*, *Oxytropis Halleri*, *O. pilosa*, *Astragalus Orobrychis*, *O. arenaria*, *Kentiphiyllum lanatum*, *Lactuca vineana*, *Silybum Marianum*, *Hieracium lanatum*, *Aschillea tomentosa*, *A. nobilis*, *Lolium multiflorum*, *Rosa graveolens*, *Vincia major*, *Lichnis coronaria*, *Silene arenaria*, *Calepina Corvini*, *Clematis recta*, *Euphorbia Gerardiana*, *Anemone montana*, *Stipa pinnata*, *Gagea saxatilis*, *Ceterach officinarum*. The Almond grows wild (?) on the rocks of Saillon near Sierre, where also *Pergonates* may be found. This vegetation is very different from that of Canton Ticino, for while in the Canton Tessin the plants are tall, robust, bright green; in the Valais the foliage is stunted, grey, covered with woolly down. In Tessin the plants are full of sap, and respond to the humidity of the air and soil; in the Valais the dryness of the air and the force of the wind are denoted in the character of the vegetation.

THE VAL D'AOSTA

has many analogies with the Valais, and on that side of the Alps, as on the other, the base of the mountains is dry and arid, and possesses a similar

flora. But what a difference becomes apparent as one mounts the immense mountains which separate the two valleys. On the Furca and on the Simplon the rocks are carpeted with *Matthiola valesiaca*, *Saxifraga corydolia*, and *Asplenium septentrionale*.

ZERMATT.

If we go to Zermatt we find another change. There we do not take two steps without finding something new. Ten minutes above the village, along a path which starts from the English church, may be found *Viola pinnata*, *Silene valesiaca*, *Thalictrum minus*, *Alyssum alpestre*, *Stipa pinnata*, *Astragalus Leontinus*, *aristata*, *exscapus*, *Gnaphalium Leontopodium*, &c. To the left of the village, and on the borders of the cascade, which falls from the Findelen glacier, is a rich station for *Aquilegia alpina*. Higher up are found *Primula longiflora*, *Gregoria Vitaliana*, *Gentiana purpurea*, *Chamaeorchis alpina*, *Lloydia serotina*, *Gagea Liottardi*. In ascending to the Riffl, in the forest of *Pinus Cembra*, may be found *Gentiana purpurea*, *Clusii*, *Rhododendron ferrugineum*, &c. If, instead of following the ordinary path, the tourist goes to the right along the ravine, the most characteristic plant of the district may be found; this is *Anemone Halleri*, which is only found in the upper part of the valley of S. Nicholas. It is probably only a form of *A. Pulsatilla*, but has a very large corolla, velvety on the outside, dark blue inside, and with a dense tuft of yellow stamens. Its deeply-cut leaves are densely covered with a silky white tomentum. It is a superb plant, which should be generally cultivated, as it succeeds well in cultivation, and is very effective. It is easily raised from seed. In its native locality it grows in light sandy soil, fully exposed to the sun. Near the Riffl large patches of *Colchicum alpinum* may be seen. This also a special Valaisian plant, not being found out of the canton. Then there are *Anemone vernalis* and *Baldensis*, *Saussurea alpina*, *Ranunculus pyreneus*, *Phyteuma hemisphaericum* and *P. pauciflorum*, *Lychnis alpina*, *Gentiana purpurea*, *punctata*, *bavaria* and *brachyphylla*. In ascending from the Riffl to the Gorner Grat, *Aretia Vitaliana*, *Androsace carnea*, *A. glacialis*, *A. imbricata*, *A. obtusifolia*, *A. septentrionalis*, *Senecio uniflorus*, *Ajuga pyramidalis*, *Gentiana utriculosa*, *Linaria alpina*, *Ranunculus parassifolius*, *R. rutefolius*, *R. glacialis*, &c. On passing over the Theodule to Breuil may be found the famous *Saponaria lutea*, *Saxifraga retusa*, and *Sempervivum Gaudinii*.

THE VAL D'ANNIVIERS,

which is reached either by the Col de Meiden, or by the Triftjoch, is of richness nearly equal to that of Zermatt. Up to the present, this valley has been less frequently visited than that of Zermatt, Saas, or S. Nicholas, but since the Grand Hotel Weisshorn has been built at an elevation of 2300 metres, the stream of tourists begins to be directed to that quarter. The Val d'Anniviers is certainly one of the finest in Switzerland, and offers in its upper end a truly superb panorama. Zinal is situated at the foot of the great glacier of Durand, and in a beautiful situation. On one of the flanks of the Tounout, at an elevation of 2300 metres, is the fine hotel, erected last year by two members of the Italian Alpine Club—Messrs. Moroni. It is reached from Vissoye or Zinal by a path which winds through a superb forest of Larch, *Pinus Cembra*, and *Rhododendrons*. *Pyrola uniflora*, *Vaccinium*, *Vitis Idea*, *Arbutus uva ursi*, many Orchids and Gentians, cover the soil of this forest. Arrived at the upper limits the hotel is reached, situated on a sunny terrace enamelled with flowers. Among them may be mentioned *Androsace carnea*, *A. obtusifolia*, *Gentiana brachyphylla*, *Clusii* and *purpurea*, *Azalea procumbens*, *Empetrum nigrum*, *Arnica montana*, *Senecio inaequalis*, *Leucanthemum alpinum*, *Phyteuma hemisphaericum*, *Primula viscosa*, &c. These grow in the turf immediately round the hotel.

In the clefts of the rocks of Tounout may be found the Edelweiss, *Saxifraga oppositifolia*, *S. Rudolphiana*, *S. biflora*, *Lycopodium Selago*, *Artemisia spicata*, *Gentiana brachyphylla*, &c. At the Forletaz, one hour from the hotel, are *Androsace glacialis*, *Edithicum nanum*, *Allosorus crispus*, *Braya pinnatifida*, *Arabis corymbosa*, *Draba tomentosa*, *Geum reptans*, *Potentilla nivea*, *Lloydia serotina*, and large breadths of Edelweiss such as I have never seen elsewhere.

To those who wish to cultivate these alpine plants

I repeat that the best method is to collect seeds, or if transplantation be imperative, then the month of September should be chosen for the operation, because then the plants establish themselves much more readily than when in full vegetation. I need not remind the readers of the *Gardeners' Chronicle* that rare plants need protection, and that the smallest possible number of specimens should be taken in cases where the plants are rare. Henry Correvon, Director of the Alpine Garden of Acclimatization, Geneva.

PINUS MONOPHYLLA

(alias FREMONTIANA).

THE NUT PINE OF NEVADA. Fig. 24.

I FIRST met with *P. monophylla*, when travelling with Dr. Gray in Nevada, growing on the rocky banks of a stream below Virginia City. I was struck with its resemblance in size and habit to *P. edulis*, which we had just left behind us in Colorado, and at the same time with the great difference in colour, *edulis* being of a dull leaden-grey with green, whereas *monophylla* was more glaucous with a silvery sheen. On attempting, however, to sketch it, I found I was only repeating the trials that I had made to do justice to its ally, and that without colour nothing was left whereby the two could be distinguished at a moderate distance. Professor Sargent, in his account of the forests of Central Nevada, says of *P. monophylla*, that "it is easily distinguished from all other North American Pines by its solitary glaucous terete leaves." This singular anomaly in the foliage is due to the cohesion of the two semiterete leaves of each sheath by their adjacent faces, and is far from being a constant character. In the plants at Kew the two leaves are as often free as connate; and on making a transverse section of any connate pair, it will be seen that the vascular bundle traversing the centre of the cylinder is, in fact double, and that the two parts are sometimes separate.

In the *Gardeners' Chronicle* (N.S., vol. xx., p. 44) is a figure (8), showing the young and adult foliage of *P. monophylla*, and which are alluded to on p. 48. The figure contains transverse sections of leaves as free and as connate, but the vascular bundles are not shown.

It has been doubtfully suggested by the late Dr. Engelmann, and more recently insisted upon by Professor Newberry, in the *Bulletin* of the New York Torrey Botanical Club (see *Gardeners' Chronicle* August 29, 1885, p. 271), that *P. monophylla* is a form of the Rocky Mountain *P. edulis*. This view is not supported by my own recollection of the two trees as they grew in their native countries; and as grown at Kew they appear to be entirely different. *P. monophylla* is as conspicuous as *edulis* is inconspicuous, and its leaves, besides being so different in colour, and so frequently connate, are much longer, stouter, firmer, and pungent at the tip; the sheaths are much larger, and not revolute in age as they are in *edulis*. No doubt the two are next of kin, and they inhabit adjacent areas in the same continent that run parallel with one another at 500 miles distance; so also they attain, each in its own area, nearly the same limits of both north and south latitude, namely, 32° N. to 39° N., which are all reasons for suspecting them to be geographically limited forms of one species.

Professor Newberry states that, "Where in districts where *edulis* and *monophylla* meet, it is very common to find trees in which the foliage is about equally divided between the single and double forms; hence, it would seem that the single-leaved variety is a somewhat dwarfed and depauperate form, the effect of aridity of climate, and the single solid leaf is apparently an exhibition of the tendency, so conspicuous amongst desert plants, to reduce the ratio of surface to mass in the leaves, or the parts of the plant which perform the functions of leaves." This reads very well, but it is not supported by facts. If either is a depauperate form, it is assuredly *P. edulis*. The so-called solitary leaf of specimens of *monophylla* from Nevada, Arizona, and of those grown at Kew, are exactly the measure of the two combined, in all that I have examined; and I find no tendency in larger suites of herbarium specimens of both species to deviate from the characters of leaves and sheath, colour, &c., that distinguish them. I am not aware whether their male and female flowers and cones have been critically compared.

P. monophylla forms a small tree 20 to 50 feet high, with a reddish scaly bark, short trunk, some-

times 6 feet in girth, and irregular ramification. It extends southward from Carson City to the mountains of East Arizona, growing in dry gravelly slopes and rocky elevations of 5000 to 6000 feet, and often, according to Professor Sargent, characterising, along with *Cercocarpus*, a region which presents the minimum of North American forest development.

P. monophylla is a very slow-growing tree; the wood is very fine-grained, white, and soft to cut, and, though close in texture, brittle; Professor Sargent states that in this respect it resembles the *Juniperus californica* var. *utahensis* of the same region, and that a specimen he examined from the same locality as the *Juniper*, though only 5½ inches in diameter, showed 113 rings of growth; nevertheless, he suggests its introduction into the South of Europe "as a subject for forest planting, as it might flourish there on the dry hills and exposed hill-sides which it has been found so difficult to recover with any evergreen tree." To make such plantations successful in Europe, this Pine must grow a great deal faster than it does in Nevada; the attainment of a height of only 30 feet, and a diameter of trunk of half a foot in ten years, is not an encouraging prospect for the forester. It is, however, worth the trial; rate of growth is determined by favourable conditions of soil and climate, and if in these respects the dry hills of the Mediterranean are not all that could be wished, they are incomparably better than those of Nevada; still, it must be borne in mind that, favourable as the climate of Kew must be in respect of soil and moisture, as compared with either Nevada or the South of France, the *P. monophylla* has made very slow growth at Kew, not attaining 6 feet in height in twenty years. It grows faster, however, than *P. edulis*, and appears to be on every account better worth cultivation than that tree.

The only two qualities that recommend *P. monophylla* to the dweller in the district it inhabits are those attributed to its ally, namely, the abundance of edible seeds afforded by its cones, and the value of its timber as firewood. The latter quality threatens its extinction, for it is in great demand as fuel for the engines at the mines, and is hence, as I was informed, rapidly becoming a scarce tree. J. D. Hooker.

REMARKS ON THE FRUIT CROPS, 1886.

[For Tabulated Summary, see p. 107.]

SCOTLAND.

ABERDEEN.—Apples had very little blossom, on some trees none; what there was did not set. In this district it may be said to be a complete failure. Pears never do well, but this season is the worst I have seen during fifteen years. Plums are a large crop on Victorias, Jeffersons, and Coe's Golden Drop; other sorts are under average. Cherries are also a poor crop. Small fruits have suffered from high winds, but though under average are of good quality. Early Strawberries are a large crop; late sorts not quite so good. J. Forrest, Haddo House.

BANFF.—Apricots, Peaches, and Plums are our best fruit-tree crops. The latter, though having a light crop last year, have generally a good crop, both on walls and standards, Damsons (Shropshire) being the lightest. The heavy crop last year of Apples, together with the influence of a cold, wet, ungenial autumn, prevented wood and buds becoming properly developed. The display of blossoms this spring showed so weak and imperfect that it failed to set. Pears, especially upon walls, are somewhat better. Cherries are a light crop and poor. Bush fruit, with the exception of Gooseberries, is good. John Webster, Gordon Castle.

EAST LOTHIAN.—We never had a better appearance for fruit than we had this year, but the cold, damp, sunless weather and frosty nights when the trees were in bloom had told heavily against standard Pears and Apples. Lord Suffield, Worcester Pearmain, and a few of the more hardy varieties of Apples have a good crop. Pears on walls are pretty fair. Plums are very thin, except Victorias. Morello Cherries are excellent. Apricots will be poor. L. Dow, Newbythe, Prestonkirch.

FORFAR.—There is a fair crop of all outdoor fruits this year. Last summer was dry, and the wood was better ripened than it has been for years. Although the temperature only twelve times exceeded 70°, the highest on July 25 was 77°; the rest of the twelve times was only from 71° to 75°. The winter was

long and cold, which kept vegetation at rest till far on in the spring, and since then it has been dry and cold, with more than ordinary brilliant sunshine. Clear and bright both night and day on July 2 the temperature stood at 80° for four hours. I do not recollect of it standing so long at that figure during all the thirty-three years I have been here. Nevertheless all kinds of fruit are rather late. We only got the first dish of Strawberries yesterday. *J. Mitchell, Panmure, Carnoustie.*

—The crop of Apricots, except under glass, is under rather this season. Plums an average, especially the Victoria, which seems able to withstand the spring frosts better than other kinds. Cherries about an average, but only cultivated in gardens. Peaches and Nectarines are rather under, and are only cultivated on walls and under glass. Apples are miserably poor; only once before have we seen so poor a crop.

most of the free-bearing sorts, such as Warner's King, Ecklinville, Duchess of Oldenburg, Lord Suffield, Stirling Castle, Hawthornden, King of the Pippins, Worcester Pearmain, Golden Spire, Lane's Prince Albert, Loddington, Court of Wick, and Keswick Codlin, are bearing excellent crops. Pears are a better crop on standards than on the walls, Beurré d'Amanlis, Hacon's Incomparable, Louise Bonne of Jersey, Napoleon, Catillac, and Hesse, all bearing fine crops on standards. On walls Beurré d'Arenberg, Doyenné du Comice, Comte de Lamy, Easter Beurré, Marie Louise, Beurré Diel, Williams' Bon Chrétien, Hacon's Incomparable, Beurré Bosc, and Jargonelle, are bearing best. Plums are generally a fine crop, but they have suffered a good deal from insect attacks. Cherries are a good crop, but have also suffered from insects. Apricots, Peaches, and Nectarines suffered much from the cold wet weather

Raspberries are also heavily cropped. Currants, Gooseberries, and Strawberries are all good. Peaches and Apricots have heavy crops, and look well. Sea Eagle Peach is a grand outdoor Peach, being strong and healthy. *D. Inglis, Howick Hall.*

DURHAM. — Fruit generally, though not abundant, is quite equal to what may have been expected, considering the unripe state of last year's growth, and the long continuance of severe weather both winter and spring. I do not remember a later spring. Apricots were three weeks behind the usual time of blooming, and no doubt the one principal cause of the buds' slow development was the result of the land being so long saturated with snow-water, which produced slow and sturdy growth; and had it not been for the unusually late and severe spring frosts there would have been a 'good crop, judging from the amount of bloom. *R. Westcott, Raby Castle, Darlington.*

— Apples and Pears are very poor crop in our county. The late frost cut up the blossom, that all fell off. Only late flowers set their fruit, this being very noticeable in the Jargonelle Pear, consequently they are small, owing to being so late. Strawberries are finer than we have had them for some time. Gooseberries are a heavy crop, and other small fruits are a good average. Raspberries terribly cut by late frosts. *J. Hunter, Lambton Castle.*

LANCASHIRE. — There was once every prospect of a good all-round fruit crop, but the cold and violent wind that blew chiefly from the west, as late as the middle of June, shrivelled both fruit and foliage. Even the leaves of forest trees on the wind side were brown and looked starved, and the ground was more than once covered with battered leaves. As I write the wind is blowing cold and with such force that such crops as Brussels Sprouts in the garden, which falls westward, are nearly twisted out of the ground. Pears on west walls are all gone. *W. P. Roberts, Cuerdon Hall, Preston.*

All fruit trees upon walls are very disappointing this year. There was a good show of bloom: Pears and Apples a failure, and Plums only a partial crop. Although we had no frost at the time the trees were in bloom, we had very cold and wet, dull weather, bringing out the blooms in a weak unhealthy state, and so spoiling the set of fruit. The trees likewise were late in showing active growth. Taking crops in general this is the latest and worst season we have had for years. Early Strawberries are a good crop, but one night's frost, whilst the later varieties were in bloom, spoilt the crop of these. *H. Lindsay, Huntroyd Park, Burnley.*

MIDLAND COUNTIES.

CHESHIRE. — In this district there was a good show of bloom on fruit trees of nearly all descriptions, and the absence of frost when the Plums were in flower caused large crops of fruit of these to set. Damsons also, which are largely grown in this county, are more abundant than for many years previously. The cold weather, with frost and snow, which prevailed through a great portion of the spring, destroyed a great part of the flowers and embryo fruit of Apples and Pears, so that the crops of these are generally thin; small fruit, plentiful; Strawberries, a moderate crop. *W. Whittaker, Crewe Hall, Crewe.*

SHROPSHIRE. — Apples and Pears gave great promise of an abundant crop, but on May 27 we had a tremendous hailstorm, which literally cut things to pieces, and anything that was in flower at the time was destroyed. Lord Suffield, Stirling Castle, Cellini, and Small's Admirable are bearing heavy crops, while others are a blank, so that on the whole Apples are decidedly under average. With the exception of Beurré Diel, Beurré d'Espérance, Williams' Bon Chrétien, and Beurré d'Amanlis, Pears are in the same condition; while Damsons and Plums are overloaded with fruit. Bush fruits are plentiful, while Strawberries are in great want of rain. *J. Louder, The Quinta, Chirk.*

— The fruit crops in this district are under the average. Pears are very thin indeed, and especially on wall trees. Louise Bonne of Jersey, Brockworth Park, General Toddle, Winter Nellis, Beurré Rance, and Huyshe's Prince of Wales are the only varieties which are carrying an average crop, whereas most of the other leading varieties are almost nil. Apples are also very light, and also Apricots. Plums are over the average, and trees are very free from blight. Peaches and Nectarines are also bearing



FIG. 24.—PINUS MONOPHYLLA. (SEE P. 136.)

(Sketched in Nevada by Sir Joseph Hooker.)

Pears are a little better, but by no means an average. Small fruits, such as Gooseberries and Currants, in many places are fairly good where any attention to culture has been given. Strawberries we reckon to be an average. Nuts are not cultivated in the Carse. *Carrie of Govrie.*

KINKOS. — This is a poor season for fruit, indeed we have not had the like of it for a great many years. Cherries did not set, and are only about the fourth of a crop. Apples are very scarce and very small; Pears the same. Gooseberries two-thirds of a crop, but of a fine size. Currants of sorts rather poor, Raspberries are an average crop. Strawberries, some sorts good, others a poor crop. *J. Fortune, Blair Adam.*

MIDLOTHIAN. — The cold, wet spring retarded the flowering of fruit trees for nearly a month later than the usual period, and the blossom escaped injury from late frost; still the "set" of fruit was not over-abundant, and was considerably thinned by the cold raw weather in the end of May. The crop, on the whole, is a bare average. Apples are a fair crop, and

in May, and the crops are light, but the fruit clean and fine. Strawberries are a good crop, but very late. Gooseberries, Currants, and Raspberries are abundant and fine. Generally, fruit is large, fine, and clean; and if favoured with fine weather to bring it to maturity the crop will turn out well. Vegetable crops are also very late, but, of excellent quality, and promise abundance for the rest of the season. *M. Dunn, Dalkeith.*

ENGLAND.—NORTHERN COUNTIES.

WESTMORELAND. — Owing to the cold autumn last year wood did not get ripened, consequently we did not have much show of blossom, and the blossom that did show was destroyed by the fierce winds we had in May. This last spring has been the coldest and most sunless we have ever experienced. *W. Miller, Underley, Kirkby Lonsdale.*

NORTHUMBERLAND. — Apples, Pears, and Plums are very much under what we had last year, which is certainly due to the wet and sunless autumn we had. Fig trees of Brown Turkey are very heavily cropped.

heavy crops of fruit. Strawberries are a good crop, but smaller than usual through the want of rain. All small fruits are good. Nuts quite a failure. *R. Milner, Sundorne Castle, Shrewsbury.*

STAFFORDSHIRE.—With a few exceptions the fruit crops in this district are good. Owing to the severe weather in March, which retarded their blossoming, we have a fair crop. Pears and Apples being abundant last year around this district, we could not expect a heavy crop. Small fruits are very good. Peaches and Nectarines set well, and look promising. Damsons are abundant—the best crop for many years. Apricots are very small, and much under average. *G. Wythes, Teddesley Park.*

LEICESTERSHIRE.—Taken as a whole the fruit crop round here may be considered a good one. Apples were very full of blossom, but it was very wet and cold at the time of blossoming, so that only a small portion set, and a great many trees, especially of the Codlin sort, are infested with a kind of red rust. Peaches and Nectarines are looking well and a good crop, but late Plums are a very heavy crop. Currants and Raspberries are a good crop. Strawberries are good, rather smaller than usual, and about three weeks later. *G. C. Maynard, Cole Orton Hall, Ashby-de-la-Zouch.*

WARWICKSHIRE.—Fruit crops are generally good this year, more especially Cherries and Plums, as compared to last year. Pears and Apples are an average, and in some districts in this neighbourhood they are above an average; but there are to be found orchards which are comparatively bare, another proof that there is no rule without an exception. Peaches and Nectarines are not much grown here out-of-doors, indoors they are very fine. Small fruits are everywhere plentiful, clear of aphids, and of excellent quality. Strawberries are very fine, and where they were liberally mulched before the commencement of the late drought they suffered little, and in these cases the fruit was large and fine. *W. Miller, Coombe Abbey.*

BEDFORDSHIRE.—The Apple crop, which once looked so promising, will, in this district, be below average. The trees, although free from aphids, are blighted and unhealthy. Cherries are a fair average. Apricots very scarce, no bloom from the first. Plums: Victorias and Damsons a heavy crop in some places. Pears average, but in want of warmer nights to swell them off. Strawberries the worst failure for years. Currants and Gooseberries plentiful and clean. Raspberries giving up for want of rain. *A. Mackay, Woburn Abbey.*

BUCKS.—Peaches and Nectarines very good this season; trees look well and have not been troubled with greenfly. The same applies to Plums, which are a very good crop. Morello Cherries are very fine, and scarcely any black aphids. Pears very thin, and Apples scarcely any in this locality. Strawberries promised well, but the exceptionally dry weather has injured the crop very much. Figs (out-of-doors) are a good crop. Gooseberries, Currants, and Raspberries are abundant. *T. Bailie, Shardeoles, Amersham.*

—Apples, although very late in flowering, are almost a failure, I think owing to so much dull wet days when in flower, combined with a low temperature, prevented the bloom setting. Plums are a very heavy crop, the trees are breaking down, we are tying up the branches with tarred string. Cherries are also a good crop. Small fruits of all kinds are abundant and good. *J. Smith, Mentmore.*

—Apples here, and in this district, are very scarce. Plums are here under average, but in other places in the locality they have a full crop both on wall trees and standards. Of Pears we have none, and they are rather under average in the neighbourhood. Filberts are not half a crop, and very much blighted. Walnuts are a total failure. Bush fruit is very abundant; but Strawberries, that flowered abundantly in some places, are about an average crop. Morello Cherries have cropped fairly well, and sweet varieties are abundantly cropped. *W. Waters, Bulstred Park, Garsington, Gerrard's Cross.*

HERTFORDSHIRE.—The frosts on April 30 and May 1 reduced the fruit crops generally very much. We have an average crop of Pears, but the fruit does not promise to be so good as usual, which I attribute to the heavy crop of last year, and the fruit is much damaged by caterpillars. Strawberry plants were much weakened by the dry weather last summer, and the first blooms were spoiled by the frosts on the above dates. *G. Norman, Hatfield.*

—Apples very short crop, except on trees sheltered from cold winds, on which there is a fair

crop. Trees of all kinds suffered from the caterpillar. Lord Suffield, Lane's Prince Albert, Worcester Pearmain, and Lord Grosvenor Apples are amongst the best crops. Pears are a fair crop, trees and fruit very clean and healthy. All small fruits are a very abundant crop. Gooseberry trees almost denuded of foliage by caterpillars, and it is impossible to keep them under by syringing, hand-picking, and the various other methods tried. Strawberries, since the rain on July 11, 12, and 13, improved better than any. James Veitch has stood the drought better than much other variety. The crop on the whole is less than it has been for the past ten years. *J. C. Mundell, Moor Park.*

EASTERN COUNTIES.

LINCOLNSHIRE.—The lateness of the season encouraged the hope of an Apple crop, but the prolonged occurrence, even in June, of cold, ungenial weather, checked the growth, chilled the blossom, and resulted in an almost total failure in this fruit. Pears suffered in the same way, and the crop is thin and partial. Apricots scarcely recovered from the exhaustion of a heavy crop last year, and the bloom was scanty. Peaches are bearing well. Cherries suffered from the blighting influence of a cold spring-time, but are recovering. The crop of Gooseberries is very great; Currants equally good. Raspberries, checked at the moment of producing bloom, have not recovered, and the canes are yellow and unhealthy. Drought has diminished the Strawberry crop. *W. Ingram, Belvoir Castle, Grantham.*

—The worst crop of Apples and Pears that has been in the whole neighbourhood for twenty-one years. Gooseberries, Currants and Raspberries—the last named will be much benefited by some good showers. *G. B. Tillyard, Brockley Park.*

NORFOLK.—The crops of fruit of all kinds are very light, and mildew seems very prevalent owing to the cold nights succeeding hot dry days. The wind has been N. and N.E. most of the summer, and a very small rainfall, which is also detrimental to everything. *T. Wynne, Wratton Hall.*

SUFFOLK.—Apples are a poor crop in this locality. Orchard trees almost a failure, but nice crops on espaliers. Plums in abundance. Peaches and Nectarines again carrying average crops, though foliage terribly cut up with long cold spring, but now healthy and growing. Pears will be an average. Gooseberries in abundance. Currants and Raspberries very good. Strawberries good crop but late, Filberts and Walnuts under average. The recent rain was most acceptable, and will crown us with a good fruit season. *G. W. Eden, Henham, Lowestoft.*

—The fruit crop, taken altogether, in this neighbourhood is not considered to be up to the average. We suffered somewhat from spring frosts and strong winds just as the Apples and Pears were in full flower, and great damage was done. Both Apples and Pears will be under average, but all kinds of stone fruit is most abundant. Strawberries, too, are poor on light soils, but that is chiefly owing to our having had two very arid seasons in succession. I never remember seeing the Cherries, Plums, Peaches, and Nectarines so free from aphids. *J. Mill, Rendlesham Hall, Woodbridge.*

—Apples and Pears generally thin; good show of Apple blossom, which were starved by a long continuance of cold weather rather than by any exceptionally severe frosts. Peaches, Nectarines, and Apricots exceptionally plentiful, as well as Cherries. Plums variable—abundant on standards, and scarce on walls. Bush fruits, especially Raspberries, very fine; Gooseberries and Currants generally plentiful—black less so than white and red Currants. *D. T. Fish, Hardwich.*

ESSEX.—Apples are likely to be very limited in quantity. Orleans, Victoria, Prince of Wales, and Day's Seedling Plums are already breaking the trees down with the weight of fruit. Morello Cherries are abundant, and recent rains are ripening them well. *William Earley, Ilford.*

SOUTHERN COUNTIES.

BERKSHIRE.—Apricots not a good crop, branches dying off more than usual. Plums plentiful on wall trees, particularly cordons; on standards irregular. Peaches and Nectarines much subject to blight. Apples promised well, but are generally a very light crop, especially orchard trees. Pears on walls, notably on cordons, look well, and carry good crops;

standards and pyramids in cold and exposed places have irregular crops. Small fruits of all kinds are very abundant, and of good quality. Strawberries suffered very much from dry weather. Walnuts very few. *G. Stanton, Park Place, Henley.*

MIDDLESEX.—Apricots are very thin indeed. Peaches and Nectarines fairly good. Apples have not at all come up to the promise of the bloom, but there will be relatively about half a crop, and probably a fine sample. Pears are fairly abundant, though now much thinner than originally promised. Cherries of sweet kinds, especially May Dukes and Bigarreaux, very good crops, and Morellos abundant. Plums are plentiful, especially Damsons; and of small fruits, red and black Currants, Gooseberries, and Raspberries are heavy crops. Strawberries promised well, but suffered from the exceeding heat later. *A. Dean, Bedford.*

SURREY.—In this district trees of all kinds were well set with bloom, the continued frost and general low temperature affected the Apples, Pears, and Plums, after setting their fruit. The best crops of Apples and Plums are to be found on south-east aspects in the orchards. The wall trees are heavily cropped. Bush fruits are excellent. Strawberries suffered from the intense heat, although well watered and mulched. Trees on the whole are very free from blister and insects. *A. Evans, Lytlye Hill, Haslemere.*

KENT.—Three excessively dry years in succession told on the fruit crops, many trees dropped both their fruit and leaves, so that it is feared that all top fruit will be very small this season. Although the weather was as unkind, all through the spring and early summer, as could be remembered, yet everything looked promising; and those who had gone largely into fruit and vegetable growing in this part were sanguine that they would recoup themselves most of their outlay, are now sorely disappointed. *H. Cannell, Swanley.*

—The Cherry crop is especially good in this district. Apples and Pears are generally thin in the orchards, with the exception of some few trees which are bearing good crops. Gooseberries are an exceedingly heavy crop, and the berries large and good. Black and red Currants in large plantations are, generally speaking, good. Plums are plentiful and good. The Kent Damsons are unusually abundant. Kent Cob-nuts are very thin. Strawberries and Raspberries have suffered very much from drought. Peaches and Nectarines a thin crop; much blistering of leaves, but trees are now looking healthy and well. *C. Haycock, Barham Court, Maidstone.*

SUSSEX.—In this district Apples are under the average in the orchards; in the gardens, on bushes and pyramid trees, we have a fair crop—such as Keswick Codlin, Lady Henniker, Warner's King, Flower of Kent, Tower of Glamis, Melon Apple, Adam's Pearmain, Cox's Orange; of Pears, a good average crop, on such as Marie Louise, Beurré Cluigne, Chaumontel, Broom Park, Uvedale's St. Germain. Plums are an average—Victorias and Pond's Seedling, Kirk's Golden Drop. Strawberries have been abundant; all small fruits in great abundance. Nuts are very good. Cherries—Morellos, very good; Cherries in this district are of all kinds over the average. *Sydney Ford, Leonardslee.*

WILTSHIRE.—The Apple and Pear crops are not quite so good as they promised to be eight or ten weeks since, the blossoms having been severely thinned by the frosts which they were subjected to early in May, and the easterly winds and low temperature which prevailed during the last three weeks of that month checked growth in the trees to such an extent as to cause a large percentage of the embryo fruit and the blossoms which had only been slightly touched by the frosts to drop. Plums are a very good crop, also Cherries; although trees of the Morello, which were very heavily cropped, have dropped a goodly number of fruit during the last two weeks, notwithstanding the fact of their having been heavily mulched and watered at the roots. Sea Eagle and Alexandra Noblesse Peaches, and Elruge and Pine-apple Nectarines, are the best cropped varieties of these fruits. Small fruits are abundant and good. *H. W. Ward, Longford Castle.*

SOMERSETSHIRE.—Apples blossomed very abundantly, but set badly. Lord Suffield, Tower of Glamis, Duchess of Oldenburg, Adam's Pearmain, Cox's Orange Pippin, and King of the Pippins, are most abundant. Pears on all kinds of trees, and in nearly all positions very abundant, and promise to be of good size. Many Plums dropped, but there are still heavy

crops. Apricots did not blossom strongly, and I suppose the cold frosty winds are to blame for this. Strawberries bloomed strongly and abundantly, but the long spell of dry weather spoilt the crops. Nuts were crippled by frosty winds. *W. Iggulden, Marston Gardens, Frome.*

DEVONSHIRE.—Apricots, Peaches, and Nectarines are generally good; the opening of the blossom was much retarded in the spring, so that when they did expand the weather was more propitious than usual. The Apple bloom was very abundant, but did not set well, consequently not half a crop is found in many gardens and orchards. Pears, both on walls and bush trees, set good crops. Plums are very abundant in many places. Early Cherries have done well, but Morellos failed at the stoning period. Medlars, a good crop. Figs a fair crop on bushes. Small fruits are a good average, but on our light soil everything is suffering much from the lengthened drought, and any of the above fruits named are only saved by mulching and watering. Strawberries though doubly mulched with short and long litter, are poor, though the early crop was all that could be desired. *D. C. Powell, Powderham Castle.*

—Almost all kinds of fruits are this year very abundant, Peaches and Nectarines especially so. Nearly every flower must have set its fruit, and in all the gardens I have visited the same prevails. Plums and Pears are a large crop, and also all small fruits. Apples are a light crop generally, though many sorts are bearing freely in gardens. A noteworthy feature has been the almost entire absence of insect pests; scarcely any aphid having been seen on Cherries, Plums, &c., or Rose trees. The reason of this doubtless is the temperature having been uniform in a marked degree. No sudden changes influenced growth or retarded it, and the result is a healthiness and vigour beyond what is generally seen. *J. Enstone, Wear, near Exeter.*

CORNWALL.—The fruit crops in this district must be considered to be under an average, as Apples and Pears are scarce. There was not a good show for the former, and owing to cold dull weather at the critical period great quantities fell off; but with Plums and Cherries the reverse is the case, for at the time of their setting the weather was fine, and what frost we had was not severe, and had there been plenty of bloom there would have been abundance of fruit. Plums have not set so well for several years. This I find is the case in most places. Figs are plentiful. *C. Leigh, Boconnoc Park.*

WESTERN COUNTIES.

HEREFORDSHIRE.—Apples are a very thin crop, owing partly to the heavy crops borne during the two last seasons, and the heavy rains that fell during the period of blooming. This season in the month of May, 7½ inches of rain fell here. Plums and Damsons are plentiful, and the trees fairly clean from aphides. Small fruits are good. Amongst Raspberries, Baumforth's Seedling is one of the earliest and best. Strawberries have suffered during the late dry weather on poor land, but are very good on well manured land; Loxford Hall with us is one of the best grown. *W. Nash, Bryngwyn.*

—Severely punished by the drought last year, many fruit trees could not form the flower-buds properly; others broke into latent growth and did not ripen their wood well. A sunless—I may say a frostless spring followed a cold depressing winter, with the natural result—one of the most partial fruit years we have experienced for a long time. Apples and Pears blossomed well, but exposed to terrific storms of rain at the time, and, the subsoil being cold and saturated, some failed to set, others have dropped a large percentage of their fruit, and not a few trees would be greatly benefited by thinning. Many of our orchards bore immense crops last year, and where not well manured and managed they are now thin. On the whole the crop will, no doubt, prove heavier than many people anticipate, and what we lose in quantity may be gained in quality. It is gratifying to find the better varieties of Apples, including Ribston, Cox's and Blenheim Orange bearing freely. Stone fruits of all kinds, with the exception of Apricots, set abundantly; the latter with me cast their flower-buds in their infancy, but the few that escaped set to a flower, and are swelling well. Cherries have thinned themselves, still the crop is heavy, but the fruit lacks size, juice, and sweetness. Peaches and

Nectarines—a magnificent crop—required much thinning. The fruit is still backward, but very promising, and the trees are still free from insects. Bush fruit of all kinds is abundant, and the trees are clean; indeed, the general freedom from insects, at the remarkable aphid year of 1885, is a phenomenon both surprising and unaccountable. Raspberries suffered through the hot, dry weather, but the showers of the past few days have set them up; and late Strawberries, notably Oxonian, are heavily cropped, and doing well. *W. Coleman, Eastnor Castle.*

WORCESTERSHIRE.—Crops on the whole very good, with trees healthy and clean. Apples flowered profusely, but trees have dropped very many fruits. Pears excellent, both in quantity and quality. Wall and open-ground Apricots very thin. Plums an enormous crop of nearly all kinds—Cherries also; fruit very small, and but little flesh. Peaches and Nectarines have excellent crops, and trees healthy. Much less fly than is usual. Strawberries have proved the most unsatisfactory crop, although at one time they looked very promising. The drenching rain, and nearly frosty nights of May, and the tropical drought of June, will account for such poor results. Oxonian, usually our best late, quite failed to put up any flower. Raspberries and other bush fruits abundant and good. *W. Crump, Madresfield Court.*

—Apples and Pears are, upon the whole, fair average crops; there was an abundance of bloom, which set and promised well, but the cold weather and continued heavy rainfall throughout June caused the young fruit to drop considerably, and in some instances to clear the trees completely; they are now clean and healthy, and the fruit promises to be of good quality. Apricots are thin everywhere in this locality, except under glass copings; the bloom in spring was remarkably small and weak, and consequently set badly. On the other hand, Plums, Damsons, and Cherries are most abundant, the fine warmer weather we are experiencing coming just in time to save the latter. Peaches and Nectarines are fairly good, and the trees healthy and free from blight, and making rapid growth. Strawberries are, on the whole, an average crop, but not up to the mark in size and quality, and will soon be over. Gooseberries, Raspberries, and Currants are most abundant and fine. *John Austen, Witley Court.*

WALES.

GLAMORGANSHIRE.—Apples are a fair crop in sheltered situations, where they ensured an early set, but thin in exposed positions. Apricots, Plums and Cherries do not do well here in the best of seasons, therefore are very little planted. Peaches and Nectarines we have a remarkably good crop of—have had to thin out several times. Pears are promising, good; and bush fruits are generally good and plentiful; the same remark applies to Strawberries. *G. Harris, Singleton, Swansea.*

IRELAND.

KILKENNY.—In this district large fruits in general are under an average crop. Amongst Apples, Stirling Castle, Ecklinville Pippin, Scarlet Pearmain, and Dumelow's Seedling are bearing good crops; other sorts scarce. Of Pears, Jargonelle, Louise Bonne of Jersey, and Williams' Bon Chrétien are good crops. Victorias, amongst Plums, are good, other sorts scarce. Small fruits in general are abundant and of good quality. *W. Gray, Woodstock Park, Innishnee.*

CHANNEL ISLANDS.

JERSEY.—The crop of stone fruits will be below the average, owing to the cold nights during the month of May, much of it having fallen off the trees after it appeared set and in a fair way of doing well. Apricots, Peaches, and Nectarines did not set freely, but Cherries and Plums have suffered most. Pears and Apples will be a medium crop, but where the trees were in exposed situations they are bare of fruit. Strawberries have been fine, but the season has been short, owing to the dry weather. Small fruits are abundant, but small, owing to the same cause. Grapes promise to be an abundant crop; the erection of glass-houses in the islands for the growth of Grapes and Tomatoes is gradually extending. High culture is becoming the rule of the times. *C. B. Saunders, St. Saviour's.*

MANURES.

REVERTING to the subject treated of at p. 624, vol. xxv., and assuming that the constituents, nitrogen, phosphoric acid, potash, and lime, are the most important ingredients in a manure, and are those in which our soils are the most likely to become deficient, we see from the tables previously given (p. 624, vol. xxv.), how the stores of them within the soil would be affected by the removal of one ton of each of the crops enumerated.

We now give the amount of these several constituents extracted from the soil by the growth and removal of one ton of each of the following kinds of fruits, in the fresh state as gathered for use.

Amount of Selected Constituents in 1 ton of various kinds of Fruit.

Description of Fruit.	Nitrogen.	Phosphoric acid.		Potash.		Lime.
		Lb.	Lb.	Lb.	Lb.	
Strawberries..	2.2	37.0	11.0	39.0	16.0	
Figs ..	2.2	0.0	0.0	14.6	5.2	
Green Grape Plums..	0.2	1.1	5.4	5.4	0.0	
Apples ..	1.3	1.1	3.1	0.5		
Walnuts ..	4.4	8.1	10.3	7.4		
Chestnuts ..	2.0	1.5	8.7	1.8		
Plums (Orléans) ..	0.2	3.6	6.9	2.2		
Cherries ..	0.4	1.1	4.9	0.7		
Pears ..	1.1	0.9	3.8	0.5		
Gooseberries..	1.3	1.4	3.4	1.1		

These facts teach us that it is not enough that the land we cultivate is in a good condition to begin it; if it is to continue productive and yield a fair return for the labour expended upon it the fertility must be maintained by a gradual development of the immense store residues which lie in a dormant condition within the soil, assisted from some external source in the form of manure.

The poorer the soil in what may be termed its natural fertility, the more complete must be the restoration of the ingredients carried away in the crops, if productiveness is to be maintained or increased. When land is in good heart, a much smaller proportion of manure will keep it up, but even the best of our soils can be made to yield larger crops by the aid of manure than they will without it.

If we proportion our supply of manure to the waste caused by the growth and removal of vegetation, we shall keep up the fertility of the soil to the degree in which we found it; if we give more judiciously, we gradually increase the fertility; but we may give too much at a time, and thus, instead of assisting vegetation, we may impede it by over-nourishment, and much of our manure will be lost by dissipation in the atmosphere, or be carried off in solution by the waters which pass through the soil. These principles should be kept in view in the practical application of manures, and if experience confirms their truth we shall have obtained a clearer insight into the mode in which different kinds of manures assist vegetation, and increase fertility in the soil we cultivate.

On soils of open texture and small retentive power preference should undoubtedly be given to manures of little solubility, in order to diminish, as much as possible, the loss occasioned by heavy rain; bulky organic manures, as stable dung or sea-weed, are in such cases the most suitable.

Judiciously used special manures, such as guano, superphosphate of lime, nitrate of soda, ammonium salts, potash, &c., are the agents which bring into useful activity the dormant resources of the soil; they restore the proper balance between the different constituents, and supply the excessive demand for some particular element. And, in addition to the particular food-supply contributed by them they are, as a rule, more active, and give quicker returns than farmyard manure.

But to the ordinary gardener farmyard or stable dung is the sheet-anchor, mainly because it is easily applied, and most of the more important ingredients of plant food are thus provided, although these may not always be in the best proportions. To prevent a deficiency arising in the soil of any one element, farmyard manure has to be employed in much larger quantities than special manures, and by this means furnishes an excess of certain constituents of what is actually required by the growing crop. These inert matters of farmyard dung may influence the fertility of the soil by amending its texture or otherwise modi-

fying its physical character. Most gardeners are aware of the vastly important practice of mulching with partially decomposed stable dung, and especially is this to be recommended to fruit-trees, shrubs, Roses, Raspberries, Strawberries, &c. The benefit to be derived from the practice in the cultivation of Peas we have observed more than once. To have a vigorous and uninterrupted growth, it is necessary to have moisture in the soil in immediate proximity to the mass of root-fibrils which branch out from the stock of the plant. Therefore, in periods of hot scorching sunshine, and with sandy or light soils, it becomes essential to retain the water from rain to rain.

Liebig teaches this doctrine, for he says:—"Though the soil be ever so much richer in the elements of food for plants, still the latter will not grow in hot weather if there be a deficiency of moisture in the soil; for the moisture in the soil is the channel through which mineral food has to reach the interior of plants." Further, farmyard manure in its office of mulching yields a direct supply of carbonic acid, which may act on the mineral constituents of the soil, and liberate their fertilising properties.

In a ton of well-made farmyard manure there is contained about 12 lb. of nitrogen, 11 lb. of potash, 8 lb. of phosphoric acid, and 16 lb. of lime. The composition is of course variable, according to the animal producing it, the food of the animal, and the kind and quality of the litter used.

The after-treatment of the manure is also most important. A large proportion of the nitrogen is voided by the animal in the form of urine, and generally the richer the diet the higher will this proportion be. If, therefore, the manure is frequently washed by rain, and the washings are allowed to drain away, serious loss will occur. Hence the superiority of box manure to that made in an open yard.

As the whole object of manuring is to supplement the deficiencies of the soil, it is highly desirable that the gardener should ascertain by trial, both in the greenhouse and in the open garden, what is the actual amount of increase and effect which he obtains from the application of the manure he uses. A few carefully made experiments will teach him what his land and crops are really in need of.

The following table, compiled from the numerous and invaluable experiments of Sir J. B. Lawes, at Rothamsted, will give some indication of what may be expected:—

Table showing the Produce per Acre obtained with Potatoes, Swedish Turnip Bulbs, and Mangel Wurzel Bulbs, over a series of years, by the application of different Manures on the same land, year after year, at Rothamsted:—

Manures per acre every year.	Potatoes, average of five years.		Swedish Turnips, average of fifteen years.		Mangel Wurzel, average of five years.	
	Tons.	Cwt.	Tons.	Cwt.	Tons.	Cwt.
Without manures ..	2	6½	0	11	4	6
Farmyard manure, 14 tons ..	4	1½	6	4	14	12
Superphosphate of lime, 3½ cwt. ..	3	1½	2	12	5	1
Farmyard manure and superphosphate ..	5	6½	6	7	15	1
Ammonium salts, 400 lb. ..	2	10½	0	13	8	3
Nitrate of soda, 550 lb. ..	3	4	0	13	13	16
Mixed mineral manure* and nitrate of soda (complete fertiliser) ..	7	6	5	2	17	8

Some of the lessons to be learnt from these experiments, are that whatever stores of food the soil may have naturally, it fails to furnish enough material in an available form for the production of large crops. A general manure such as farmyard dung may be used year after year in a perfectly routine manner, but when a special manure is employed, the importance of watching its effects and altering it as circumstances indicate, cannot be overestimated. This forces upon us, further, the necessity for studying the succession of manures as well as that of crops. In many cases in which ammonia salts or nitrate of soda when first used will prove beneficial, after a time loses its effect, and the reason, no doubt, is that by its means the phosphates existing in the soil becomes reduced in amount, so that change of manuring is rendered necessary. John J. Willis, Harpenden.

* Mixed mineral manure composed of sulphates of potash, soda and magnesia, and superphosphate of lime.

FUNGUS ON POPPIES.

PERONOSPORA ARBORESCENS.

THE accompanying illustration (fig. 25) shows the effect of *Peronospora arborescens* on *Papaver dubium*. The engraving was taken from one of a large number of examples found in a bed of *Papaver dubium* growing on a chalky bank on Dunstable Downs. The fungus, which in this instance attacked a wild Poppy, is of considerable importance to gardeners, as it frequently grows on garden Poppies; it also destroys the cultivated opium Poppy in Asia and Europe. In the instance here described the *Peronospora* chiefly attacked the peduncles of the flowers and fruit; its effect was to destroy and in some instances to quite strip off the epidermis. This skinning process had the effect of making the peduncles curl and writhe with all sorts of strange contortions: one of the contorted peduncles is here shown. Some of the peduncles were only slightly curled, others very much so, whilst some were twisted in the style of long corkscrews 16 inches long. The peduncle illustrated may appear to be an unusually long one, but amongst the attacked examples it really was a short one, as the length just mentioned shows. The peduncles seem as if they grew to

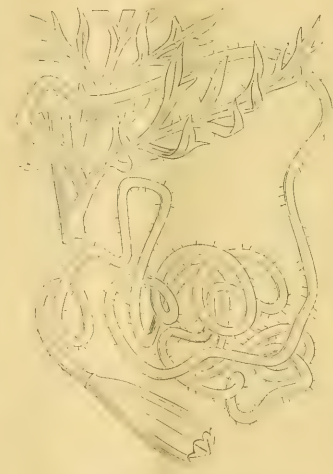


FIG. 25.—EFFECT OF PERONOSPORA ARBORESCENS ON PAPAVER DUBIUM.

abnormal length in an apparent attempt to rid themselves of the unwelcome parasite. In the attacked peduncles all the flowers and seed vessels pointed downwards. Dr. Trail of Aberdeen has found the resting-spores of *Peronospora arborescens*. Instances similar to the one here illustrated are not uncommon; for instance, Charlock is frequently attacked by a fungus named *Cystopus candidus*; the fungus not only twists the stems in an extraordinary manner, but inflates them (as well as the leaves and flowers) to abnormal proportions. Nettles are often attacked by the orange coloured fungus named *Æcidium urticæ*. This attacks the stem, and by its injury to the epidermis causes the stem to bend sharply downwards towards the ground, the fungus itself on the top of the elbow looks like a large yellow caterpillar in the act of feeding on the stem. The two examples shown by me at the Scientific Committee (see *Gardeners' Chronicle*, p. 824, vol. xxv.), are now in the British Museum collection. W. G. Smith, Dunstable.

BLETIA VERECUNDA.

How does it happen that we so seldom see this fine old Orchid in bloom? Surely it cannot be scarce, for it is not difficult to grow, and the stock in the country ought to be considerable by this time, for it was, perhaps, the first Orchid introduced into English gardens, dating back as far as 1733. The fact is that Orchid growers do not put the value on its good

qualities which it merits, and it has to be content with a corner in general collections of plants in some of our old gardens, where it is not looked well after or cultivated, so as to bring it to that perfection which it displays when properly treated. We recommend all who have this fine old plant to look it up and give it careful treatment, as it is certainly one of the finest of terrestrial Orchids, its large branched spikes of fifty or sixty rose and purple blooms being much more beautiful than many a costly new-comer. All the *Bletias* thrive well potted in turfy loam to which a little peat and sand has been added. They are almost marsh plants when growing, but require but little water while at rest. For enumeration of the species see *Gardeners' Chronicle*, vol. xviii., p. 681, 1882 (fig. 26.)

A TRIP TO CHIRIQUE.

LEAVING Kingston, Jamaica, on November 8, we entered the lagoon of Chirique on the 14th by a zigzag course between an island and a point of the mainland through a passage known to navigators as Bocas del Drago, or Mouth of the Dragon, but locally known as "Boque's Mouth." Once inside, a broad expanse of water was before us almost deserving the term of inland sea, for certainly the term lagoon, as it is generally understood, is not an appropriate name for these waters.

On arrival at the settlement called Old Bank, at the north end of Providence Island, we found that a house was set apart for us. This was a well erected wooden building, clean, well-furnished, with polished floors, stained ceilings, and papered walls, and provided with many conveniences not to be looked for in houses belonging to the same class of people in Jamaica. The weather was fine, and the heat not at all oppressive, although the night temperature ranged from 80° to 85° Fahr.

It was arranged that we should pay a visit to the provision grounds of some members of the settlement early the next morning, and for that purpose a boat or "dug-out," capable of carrying eight persons, was to hand soon after daylight. Some half-hour afterwards we were afloat, and, propelled by two paddles only, were soon gliding at a rapid rate down the lagoon. There being no wind, the water was as clear as crystal, and at depths of 10 to 15 feet we could see the bottom covered with innumerable forms of aquatic organisms. An hour spent in this delightful occupation brought us to Mariana Creek. This was a channel about 10 feet wide, which, at a short distance away, was scarcely observable. It was covered with Mangroves, and reminded one very forcibly of the descriptions by Mayne Reid of the hiding places of Indians in some of the tales of our boyhood.

Further inland the creek narrowed somewhat, and we passed through tracts of marshy land covered with a luxuriant growth of the "Swamp Fern," *Acrostichum aureum*. From the roots of a Mangrove, some 3 feet above water, we collected plants of *Brassavola nodosa*, Lindl., a fine white-flowered Orchid, which yielded such a delicate perfume as to effectually banish the thoughts of a dead alligator we had recently passed. At the landing-place I observed a fine specimen of a *Coniferus* tree (*Pinus occidentalis*). On inquiry I found this had been brought from Bluefields, on the Mosquito Coast, and planted here by one of the settlers.

In the provision fields we found Plantains, Bananas, Pumpkins, Cassava, Sweet Potatoes, Yams, &c., growing in the greatest profusion; the only enemy they appeared to have to contend with being the "We-we," or Umbrella Ant. This insect—although very destructive, it is true—did not appear to affect the general results of the cultivation, and the groves of Cacao on the outskirts of the field were in most instances untouched by it.

We found large colonies of this insect in every part of these islands, and it is without doubt in a great measure due to the labours of these little creatures, assisted by the numerous land crabs, that the probably once barren coral rocks which form the foundation of these islands are raised from sea-level to become fertile fields adapted for the production of food for the human race. Enormous trees from 50 to over 100 feet high were common objects, but their identification had to be deferred until reference had been made to authorities on the subject. Wishing to procure seed of one of these trees, I expended several cartridges from a good fowling-piece, in the endeavour

to bring down a few seed-pods, but fruitlessly, for the lower branches of this tree must have been at least 90 feet from the ground.

Plantains and Bananas produce large bunches, which meet a ready sale on the spot, at the hands of captains of trading schooners running to and from the Isthmus of Panama. "Sarse," the roots of a species of *Smilax*, known to commerce as *Sarsaparilla*, also meets a ready sale, large quantities being grown at various places in the lagoon, and not a little is produced and brought down by the Indians from the mainland.

The varieties of Cacao (*Theobroma Cacao*) were

spare no pains to introduce it into Jamaica, in which endeavour I am glad to say we were primarily successful, as growing plants reached Kingston in safety, and are now contributed to the Castleton Botanical Garden. The plant has not as yet been scientifically determined, but I may venture to state that it will probably prove to be *Theobroma bicolor*.

The tree itself is of a stout spreading habit, its trunk and branches being much thicker than those of the ordinary kinds; but it is not so erect in its mode of growth.

In the Cacao groves we saw many trees of the ordinary kind reaching a height of over 40 feet, while

ive as they would probably be at other seasons. The *Aroidæ* were very abundant, and covered the trunks of trees to the very top, one of these, particularly noticeable on account of the bright scarlet colour of its spadix, though situated at a height of 50 feet from the ground, was soon brought down by one of our guides; who easily reached it by help of the numerous "lianas" which surrounded the trunk.

Several *Carulodovicas* also attracted attention, especially a small climbing one, with deeply 2-fid leaves, and also one of larger growth; they are probably *C. gracilis* and *C. latifolia*. *C. Plumieri*. The "*Epiappa*" of Jamaica was also abundant.

Ferns were plentiful, though the genera and species represented were few. One of the handsomest was *Lygodium digitatum*, a graceful climbing Fern which hung in immense festoons in many places. Several *Polypodiums*, *Adiantums*, and *Trichomanes* were found, among the latter the curiously proliferous *T. elegans*, which was met with in large quantities in deep shady woods and in several localities. *Lindsaya quadrangularis*, a Fern indigenous to Jamaica, but rarely found, was met with on our trip in one instance only. On our return from the morning's outing we examined the locality around the settlement in which we were residing, and it was found that little cultivation was attempted near the dwellings, but that groves of Cacao and Cocoa-nuts abounded everywhere, while many of the inhabitants took great pride in showing me their "Sooa" trees. This is a Palm well known under the name of *Gulielma speciosa*, Mart., but now referred by the authors of the *Genera Plantarum* to the genus *Bactris*. Wallace in his *Palms of the Amazon* thus describes it:—"This most picturesque and elegant Palm has the stem slender, cylindrical, and thickly set with long needle-shaped spines disposed in rings or bands. It reaches 60 feet in height, and grows quite erect, though in exposed situations it becomes curved and waving. The leaves are very numerous, terminal, pinnate and drooping, forming a nearly spherical crown to the stem; and the leaflets growing out of the midrib in various directions, and, being themselves curled and wavy, give the whole mass of foliage a singularly plummy appearance."

"The fruit is the size of an Apricot, of a triangular oval shape, and fine reddish-yellow colour. In most instances the seed is abortive, the whole fruit being a farinaceous mass."

"This Palm appears to be indigenous to the countries near the Andes. On the Amazon and Rio Negro it is never found wild." It is most commonly known as the "Peach Palm," from the similarity of its fruit, in size and colour, to some species of the genus *Amygdalus*, to which the Almond, Peach, and Nectarine belong.

The fruits are eaten either boiled or roasted, and have a flavour, to our taste, somewhat combining that of roasted Spanish Chestnut and Sweet Potato. As they are very wholesome I ate several, which I particularly enjoyed. They are said by Wallace to be "also ground up into flour, and made into cakes, which are roasted like Cassava bread, or the meal is fermented in water, and forms a subacid creamy liquid. Parrots, macaws, and monkeys, eat them greedily, but the latter gentry are prevented when in a wild state from obtaining them by the prickly nature of the stem."

The trees were growing at sea-level, and as the temperature is similar, I believe it would be an excellent plant to introduce for growing on the plains of Jamaica. As an article of food it would certainly be a valuable plant to the poorer inhabitants of this island, provided they could be induced to overcome their invariable prejudice against "Buckra tings." The fruit will stand transport with great facility when ripe. I had a single one which I kept for some twenty-five days, and then it was found in a comparatively sound condition on my arrival in Jamaica.

Returning to our quarters in the evening we distributed among the people a set of economic plants we had brought with us from Jamaica. The most desired appeared to be Nutmeg, Pimento, and Mangos, of the No. 11 variety, only a few of the coarser kinds of the latter being under cultivation. The Mango is a favourite object of attack with the "We-we" or Umbrella Ant, and special means have to be taken to guard the trees from their attacks. One of the most effectual methods appeared to be that of forming a tin trough around the tree, which was filled to a depth of 2 or 3 inches with coal tar, this plan was also adopted to preserve the dwelling-houses from the attacks of wood



FIG. 26.—BLETIA VERECUNDA. (SEE P. 140.)

numerous. The most commonly cultivated were the white and red-skinned varieties, but the green-skinned is a very heavy cropper, and produces Beans of excellent quality.

Chocolate of good quality is manufactured locally. The beans are first roasted, then deprived of their skins, and afterwards ground on a small, flat, porous stone, the crushing instrument, also of stone, being of a shape similar to a housewife's rolling-pin. We had frequent opportunities for testing this preparation, and often declared that, if travellers of the olden time tasted as good a mixture as it was our fortune to drink, it was no wonder that they described it as being "Food for the Gods."

Another distinct species of Cacao was met with, which, though of doubtful value as an economic plant, was of sufficient botanical interest to induce us to

the "Tiger Cocoa" seldom reaches more than 15 or 20 feet.

Several plants of a tree locally known as the "Wild Cocoa" were met with in the forest, and botanical specimens duly secured, which will probably prove the plant to be, not a Cocoa at all, but a species belonging to the allied genus *Herrania*. The plant has but a small single stem, its leaves resembling at a short distance those of the common Papaw (*Carica papaya*). The pods are small, ten-ribbed, with roundish seeds, covered with a thick sweetish pulp, much sought after as a "bush" delicacy by the juvenile members of the community.

The most plentiful Orchid met with in our wanderings was *Catasetum tridentatum*, Hook. There were numerous other species, but as the generality of them were not in flower they were not so attract-

ants, by placing the same kind of trough around the piles on which the majority of the houses were constructed.

The people were very eager to obtain notes as to cultivation in regard to the plants distributed, as well as those in common cultivation, and being asked to do so I treated them to a short exposition on the first principles of horticulture, during which considerable wonder was excited by showing them the different parts of a plant, as seen through Browning's platyscopic lens.

We met with several groups of large and highly ornamental Palms; that locally known as the "Arpo," which I take to be a species of *Iriartea*, being very plentiful, as was also the "Raawa" *Socratea (Iriarte) exhoriza*, Mart.

The stem of the former plant possesses a hardened exterior which is about 1½ inch in thickness, very solid, and straight in the grain. It is used for making rods for striking the hawk's-bill turtle; an occupation which affords to the inhabitants a means of emolument by no means inappreciable, seeing that the tortoise-shell sells at the rate of 4 dols. per pound on the spot.

The "Raawa" has a much thinner exterior than the "Arpo," and though sometimes used for the same purpose, is not considered so serviceable, and is therefore relegated to the subordinate position of furnishing material for lathing, and flooring of native huts on the provision grounds.

What strikes attention to this tree, and renders it peculiar, is that the upper portion of each root is entirely above ground. They spring out of the stem, each successive one higher up the trunk than the last, and extend diagonally till they approach the surface, when they ramify into smaller rootlets and enter the ground. As fresh ones spring out from the stem, those which previously supported the tree rot, or die off in regular succession, thus leaving the entire trunk (often 60—80 feet in height) entirely supported by the concentric rings of outer roots, so that in old trees a full grown man may stand erect beneath the bole.

The aerial part of the roots is thickly covered with tubercular prickles—which is without doubt a provision of Nature for their defence against the attacks of herbivorous animals—and also serves the purpose of supplying the Indians with an efficient natural grater to enable them to reduce their Cassava to a pulp.

After travelling over a considerable tract of country we reached the east side of the island, or that exposed to the full force of the strong winds and currents, so prevalent in the Caribbean seas.

Approaching the "Bull's Mouth," on our homeward journey we turned a small headland, and found the rocks there abounding with enormous quantities of *Brassavola nodosa* in full bloom—in fact, the rocks were literally white with the expanded flowers of this beautiful species. To cultivators of Orchids it will be a fact of no little interest to note that these plants were growing on hard, barren rocks, washed at times by sea-spray, and shaded by the over-hanging Coconut and other trees that were scattered along the beach. The same plant was also found as described, making its home on the clean stems or roots of trees, but nowhere was it found in such luxuriance as on this rocky headland.

Our means of transit hence to the interior was by means of a splendid canoe, beautifully built or rather "dug out" of Cedar (*Cedrela odorata*). It measured 30 feet in length and 5 feet 6 inches in beam, having an added gunwale of some 8 inches, and strengthened by ribs at intervals of 18 inches. When close hauled she was a good sailer, but when before the wind she proved to be a regular "deerhound." We encountered several squalls, which made the sea very lumpy, and at times occasioned a dash of water over the side. We arrived off the bar at about 5 P.M., which we fortunately crossed with little difficulty in spite of the surf which covered it, only a very narrow channel of still water being observable, and on that also at times the rollers were breaking. In a few minutes afterwards we entered the mouth of the Wari-Biarra, *J. Hart, Jamaica.*

(To be continued.)

DAFFODILS IN THE PYRENEES.

On May 24, I left Bayonne to spend three weeks in the Pyrenees. As there were ladies in the party, we kept to the usual main route, Luchon, St. Sauveur, Eaux Bonnes, Cautelets, and made expeditions to places within a walk or a drive of these headquarters. Garden flowers growing wild I expected to see in abundance, and was not disappointed; but for Daffodils, I made up my mind that it would be too late, but this was a great mistake. The best places for scarce varieties of Daffodils in the Pyrenees are the high mountain pastures from 5000 to 7000 feet above the sea level, and their flowering season at these elevations is from the middle of May to the end of June, extending in some spots till the middle of July. Thus from the first appearance of *Pallidus præcox*, which flowers in warm situations near Bayonne as early as the end of January to the latest Daffodils on the high mountains, the Pyrenees see these flowers for six months in the year. It must not be supposed, however, that they continue flowering for long in any one spot. On the contrary, at high elevations, as alpine botanists know, all the spring flowers come out at once, *N. Pseudo-Narcissus* and *N. poeticus* coming out together at the same time as *Hepaticas*, *Gentians*, white *Asphodels*, and a mass of other spring flowers whose flowering in our ill-defined climate extends over at least three months. It is this simultaneous flowering which is so favourable to the formation of those hybrids which are supposed to be found in several parts of the Pyrenees. Before leaving England, and whilst in France, I collected from books, from tourists, from local botanists, and from guides all the information I could about Daffodils in the Pyrenees. I had supposed that one had only to go to the Pyrenees to be surrounded on all sides by meadows and hillsides filled with Daffodils. But I found that the nearer I got to the mountains the less I could hear about these flowers. Guides knew absolutely nothing about them. At Bayonne an old gentleman, supposed to be a good botanist, but who seemed just to know that there was such a thing as a flower called a *Narcisse*, was asked by me whether he had ever heard of hybrids of them. He replied, "Ah! Monsieur desiré des hybrides! Ils sont très rares; il faut aller très loin et monter très haut pour trouver des hybrides!" but as for the special mounts which were required I could learn nothing from this oracle.

The lower slopes, generally very steep, of the Pyrenees, where the ground can be cleared enough to be turned into meadow land, are always artificially irrigated by some of the countless streams which run down the mountain sides, and these flowery meadows extend, as far as trees and rocks allow them, to a height of 3000 or 4000 feet. In the neighbourhood of Gavarnie these irrigated meadows are full of Daffodils, but in many places I searched them in vain for traces of a Daffodil leaf. It is in the high pastures, above the irrigation, where the most promising hunting-ground is to be found. These high pastures are often difficult to find without a guide, especially in wet weather, such as prevailed during the whole of my visit, when one has to walk amongst thick forests on very steep mountain sides, through drizzling clouds. After two or three hours of such walking, when it would seem from the cold and the snow that one had passed all such flowers as Daffodils, it is a pleasant surprise to come suddenly upon green flowery pastures, though by no means all of them contain Daffodils.

During my stay I spent seven or eight days in exploring mountains at the elevations I have mentioned, and when I found that Daffodils were still in flower I searched chiefly for them. On one such pasture near Eaux Chaudes, indicated in a French botanical work as good for hybrids, I found all the leaves eaten off by sheep, and collected a number of roots, which I think are *Narcissus poeticus*, but I could not find a flower. On one or two mountains I searched in vain: on one I found a few hybrids, evidently between *N. poeticus* and *N. Pseudo-Narcissus*, not unlike *N. incomparabilis*, but not so fine. I obtained three or four different varieties of Daffodils, but all of them I had already. I neither saw nor heard of any rush-leaved Daffodil of any kind on the mountains, except *Juncifolius*, which abounds, growing with *Pseudo-Narcissus* in meadows near Gavarnie, forming hybrids with it; but all the flowers there were quite past—early in May is their season. Near Luchon I found *N. muticus* only in bud, and on that day and on another I was out in a snowstorm—a

common event in June—at the elevation at which Daffodils flower at that season.

Having thus given briefly my own experience of Daffodils in the Pyrenees, I will end by suggesting that any who make the collection of these flowers their object had better try other and less-explored grounds. The Pyrenees are 250 miles long, and about 30 miles across, and are more broken up into independent mountains than any chain in Europe. In these 7000 square miles the hunting-ground for adventurous collectors is inexhaustible.

I was told by M. Bédère, of Gèdre, that the Pyrenees to the east of the sources of the Garonne contain a greater variety of Daffodils, especially hybrids, than the western part of the mountains. And it must also be borne in mind that the larger and more sunny half of the Pyrenees is situated in Spain, and is visited by few English owing to the inferior accommodation, although one Daffodil, the pretty white *moschatus*, has not only been found, but I believe already exterminated on that side; and for this reason I should always refrain from publishing the exact spot of any rare variety. The best month for searching the high pastures is decidedly from the middle of May to the middle of June. C. Wolley Dod, Edge Hall, Malpas, June 21.

The Flower Garden.

HARDY PLANTS.

POLYANTHUS and Primrose seed may still be sown in a moist warm temperature, and the plants will bloom the following April. Sow the seed in pans or boxes; when the plants are ready to handle prick off into other boxes, still retaining them in the same pit or frame; and when the plants have developed four leaves, harden off and afterwards plant out in rich soil.

The rockery should now be carefully examined, and all dead leaves and decayed flower-stems removed. Protect any of the more tender subjects from the direct rays of the sun. Sprinkle the stones and other surroundings with water after the sun has gone off for the day. This will freshen up the plants, and enable them to withstand the scorching heat of the following day. See that none suffer for lack of moisture. Fuchsias look well trained amongst old roots, and Petunias have a good effect in the rockery.

PROPAGATION OF TENDER BEDDING STUFF.

Preparation should now be made to carry out the propagation of the subjects to be used for the embellishment of the flower garden next year. Such plants as *Iresine*, *Alternanthera*, *Coleus*, *Mesembryanthemum*, *Verbena*, *Petunia*, *Heliotrope*, *Tropæolum*, &c., should be got in first. These are best propagated without artificial heat, and will winter more satisfactorily than those struck later in the year. Get a cold frame in readiness by putting in a few inches of coal ashes, tread or beat these until they are hard, on this place from 6 or 8 inches of cocoanut fibre for plunging. The best sizes of pots to winter these subjects in are 48's or 32's. Have the requisite number of these got ready by washing or dry rubbing them. Much time will be saved in crocking if the crocks to be used are put through a series of sieves. First use one of three-quarter inch mesh, what does not pass through this will do to place over the holes in the pots; then a half-inch, and a quarter-inch. If these are placed in the bottom of the pot in the order mentioned, with a little dry moss on the top it will effectually prevent any soil from getting into the drainage. This is very important, as the plants have to occupy the same pots until the stock of cuttings has been secured the following spring. Get some loam, leaf-mould, and sand, in about equal quantities; fill the pots to within an inch and a half from the top; on the top of all place a layer of good sharp sand (river sand is to be preferred, although other kinds will answer the purpose). Select the young shoots which spring from the centres of *Verbenas*, *Heliotropes*, *Petunias* and *Ageratum*s, as these will root quicker and grow more freely than hard blooming wood. It is not necessary to waste time making cuttings of most soft-wooded plants, as these can be taken off about the requisite length as they are

ROOT STRUCTURE, &c., OF PRIMROSES. — The *Hamburger Garten und Blumen Zeitung* for July contains a translation of this paper, prepared for the Primula Conference.

collected. The principal thing to guard against is letting the cuttings become withered in any degree. They ought to be picked into the pots as expeditiously as possible, and the pots as they are filled, ought to be taken to the frame and plunged up to the rim; they should then receive a good watering through a fine rose. The sashes should be kept closed and well shaded with mats until such time as they have emitted roots. They should then be gradually injured to the light, and a little air admitted, increasing the quantity every few days. As soon as they are thoroughly rooted they should only receive the protection of the lights during heavy rains, or in case of frost, until it is time to house them for the winter. Thus treated on the hardy system they will winter with slight loss if proper attention is bestowed upon them. *W. M. Baillie, Luton Hoo Gardens.*

PLANTS AND THEIR CULTURE.

BULBS.

A BATCH of *Amaryllis* may now be put in the Pine-stove or forcing-house. *Criminus* should not be overlooked; these and the varieties of *Eucharis* are favourites always. The first instalment of Roman *Hyacinths* should be potted, or if wanted for cutting only, the bulbs may be planted thickly in pans or boxes, and the flowers will come in during the dull month of November in abundance. *Lachenalis* are amongst the most valuable of spring flowering bulbs, and deserve more attention than is generally paid to them. Now is the best time to shake out and repot them in fibrous loam, leaf-mould, and sand, potting firmly, leaving the tips of the bulbs just out of the soil. *Lilium auratum*, *L. lancifolium*, and the varieties of *L. rubra* which have been retarded should be brought forward and exposed to more light by placing them in the greenhouse or cold pit.

Seeds of annuals should be sown without delay, such as *Mignonette*, dwarf *Scabious*, *Comflower*, a few *Ten-week Stocks*, *Godeitas*, and the various varieties of *Rhodanthus*, dwarf *Zinnias*, and *Nemophila*, these will be wanted for of great service late in the autumn. *A. Evans, Lythe Hill.*

FRUITS UNDER GLASS.

PINES.

It is time now to proceed with the potting, arranging and plunging of the plants in their autumn and winter quarters. The first step to be taken in this direction is to remove the suckers carefully from the plants which have been fruiting during the past summer, and place them in a corner of the potting-shed, out of the way of potting operations. The old stools, except of those varieties, such as *Providence*, *Charlotte Rothschild*, and *Smooth-leaved Cayenne*, which are shy in producing suckers, can be committed to the rubbish-heap, the soil in which they were growing to the waste-soil heap, the crocks saved for future use, and the pots washed for the reception of next year's fruiters. The top-dressing and potting of these should at once be proceeded with, the beds of spent tan or leaves being in the meantime removed and fresh plunging material supplied; the interior of Pine-houses and pits washed with hot lime and the woodwork and glass with water. Many of the strongest growing plants which were put into their fruiting-pots last spring, and afterwards plunged in the ordinary way in the succession-house, will be fruiting now. These plants should be taken out of their summer quarters and have between one and two inches of the surface-soil, and a few of the bottom leaves removed, the former with the assistance of a pointed Oak stick working it rather deeper round the edge of the pots; then remove carefully any suckers that may be attached to the plants, and top-dress with rough sandy loam. Ram the same well together with a wooden rammer as the work proceeds. Then select and pot in their fruiting (to or 11-inch) pots the necessary number of plants to fill the house for fruiting next summer and early autumn.

POTTING THE PLANTS.

The pots should be efficiently crocked by putting large pieces of potsherds in the bottom and smaller ones on the top to the depth of 2 inches, finishing off with a sprinkling of fresh soot and a few pieces of

turf, grassy side down. Fibry sandy loam which has been cut and stacked for twelve months, is the best kind of soil for Pines. This should be chopped down with a spade as required for use, adding thereto crushed bones, fresh soot, and small charcoal at the rate of a 10-inch potful of each ingredient to a barrowful of loam, the whole being well mixed before being used. The plants should be turned carefully out of the pots, the drainage and a few of the lower leaves removed, and the surface and sides of the ball of earth and roots loosened slightly with a pointed stick, and any soil not permeated with roots removed. They should be let down to the bottom leaves in potting, and the soil, which should be sufficiently dry not to adhere to the sticks, be rammed firmly round the roots with flat and round rammers, as the space admits, taking care that plants are made firm about the collar. Over-potting is to be avoided, but a space of 1 or 2 inches between the ball of the plant and the pot will not be too much, but quite sufficient for all healthy plants in their several shifts from the sucker to the fruiting-pot. In potting suckers it will be necessary to remove a few of the bottom leaves, so that the roots could round the stem under the leaves may push more readily into the soil, and about half an inch of the base of each sucker should be cut clean off with a sharp knife before being potted.

PLUNGING THE POTS.

The plunging material having been well trodden together, plunge the fruiting plants from 2 to 2½ feet from centre to centre, keeping the tops as near the glass as can be without their coming in actual contact with it, and give the smaller plants space in proportion to their size. Give sufficient clean tepid water to settle the soil about the roots, shade the plants from bright sunshine until the roots have taken to the soil, and damp them overhead every afternoon at shutting-up time. *H. W. Ward, Longford Castle.*

HARDY FRUIT GARDEN.

PEACHES AND NECTARINES.

In order to give the fruit every advantage to finish well the trees should now be regularly gone over every week and all lateral growths pinched out. To induce a high colour on the fruit they may be exposed to the sun a little by cutting some of the foliage in half near the fruit, or tying it back with matting. Nevertheless, the requirements of varieties should be studied when carrying out the work; tender-skinned varieties should not be exposed to the influence of the weather so much as others, and as a rule it is not advisable to expose any of them to the same extent as would be considered beneficial under glass, as I have seen fine fruit greatly bruised and disfigured by heavy storms when approaching the ripening stage when fully exposed to the weather. If the final thinning of heavy crops has not yet been attended to no time should be lost in finishing such work, bearing in mind that a good crop, judiciously thinned, according to the individual strength of the trees, is one of the greatest inducements to perfect ripening of the wood, and an excessive crop the reverse.

On healthy trees constant syringing may now be discontinued, rather administer a good washing, say once a week. As soon as the fruit commences the second swelling several soakings of manure-water applied to the roots will greatly add to the size and quality of the fruit. In the absence of manure-water a good sprinkling of guano applied under the mulching and lightly picked into the soil immediately prior to giving a soaking of clean water will supply the necessary stimulant. The mulchings should be turned over occasionally in order to allow the rain and artificial waterings to pass rapidly and evenly through them, and the less they are trod upon the better.

OTHER WALL TREES, &c.

Morello Cherries this year are carrying a splendid crop, and a small-mesh net should be hung over the tree to protect the fruit from birds. Still continue to examine the points of the shoots, and apply powdered Tobacco should blackly be detected. Sweet Cherry trees from which the fruit has been gathered should be well syringed with soap or tobacco-water if fly has not established whilst the fruit was ripening. If not already attended to, wall Pear trees, Apples on trellises, &c., should have the breastwood spurred back, taking care not to leave the spurs too long. The same remarks apply to standard and other shaped trees, proceeding with the earliest varieties first. *G. H. Richards, Somerley, Ringwood.*

The Kitchen Garden.

PRICKLY OR WINTER SPINACH.

PREPARATION should now be made for the main sowing of this, which should take place, according to the locality, from the first to the third week in August. A well drained, sheltered border facing south would be the most suitable situation, but in any case the site must be an open one and exposed to the sun, being to a certain extent sheltered from cutting winds, and also well drained. A moderately rich light soil, that has been manured for a previous crop, is to be preferred; which, after, having been dug over and well broken up, should be formed into ridges, in rows from 20 inches to 2 feet apart.

In a few days, and after the soil has become firm and settled, drills 1 inch deep should be drawn on the surface of the ridges, and the seed sown thinly, and lightly covered with fine soil, and afterwards made firm and even with the back of the spade. Thinning the young plants should be resorted to as soon as they are large enough to handle, and before they become drawn or overcrowded; in the first instance the plants should be singled out and afterwards finally thinned to a distance of 6 inches from plant to plant. After-treatment will consist principally of keeping them clear of weeds, and of applying during the earlier stages of growth an occasional light top-dressing of lime and soot.

PARSLEY.

If any deficiency is likely to arise in the supply of Parsley, no time should be lost in making it good, by transplanting strong plants from the earliest sowings on to sheltered dry borders, and into cold frames, where protection can be readily afforded during winter, shading and watering will be necessary in both cases during hot, dry weather, and until the plants have taken root. Now also would be a good time to establish some in well-drained pots or boxes for indoors work, transplanting into firm rich soil from 4 to 6 inches apart. Sprinklings of soot on the surface, or watering with soot-water, is highly beneficial for the production of good Parsley.

CUCUMBERS.

As the days shorten, those growing in dung frames will require less atmospheric moisture, especially during damp and cloudy weather, and at closing time of an afternoon; any necessary watering or syringing would, therefore, be better applied after this date in the early part of the day, and as soon as it is practical to open the frames. The thinning-out, stopping, and removal of all surplus shoots and decayed leaves, must be attended to, and where the supply depends, and has to be continued as long as possible from the frames of this description, the old linings should be turned over and renewed from time to time, to encourage and maintain a steady bottom-heat, which will be essential and necessary in keeping the plants in a growing and healthy condition. As regards saving seed, plants that have been somewhat heavily cropped previously are the best for producing it. For a succession to those in dung frames, and for a supply of early winter Cucumbers in pits heated by hot-water pipes, plants should be raised at once of approved varieties, such as *Telegraph*, *Cardiff Castle*, *Dickson's Favourite*, &c., and preparations be made in the way of cleansing, repairs, &c., to the structures they are to occupy.

TOMATOS.

Young plants that are being grown on for giving a supply of fruit during the autumn and winter months should be encouraged in every possible way by liberal treatment to get well established, and to cover the trellis or spaces allotted them before the autumn, the flowers and surplus growth in the meantime being removed. Older plants, however, that were planted in early spring, and are still in bearing, answer well for this purpose, and in this case should be cut back rather freely, and all the fruit remaining on them removed; this operation should be performed not later than the last week in August; as much of the old soil as possible, well mixed to the plants, should also be taken out and replaced with fresh compost, the house and plants thoroughly cleaned, and afterwards a brisk heat and growing temperature maintained to induce a free growth.

GENERAL WORK.

will chiefly consist in giving attention to growing crops in the way of earthing up and in putting support to subjects likely to be injured by strong gales, in filling up and making good any vacancies amongst Cabbages, Sprouts, Broccoli, &c., the final planting out of the same, and also of late Celery. Make provision for salads by sowing Radishes and Cabbage Lettuce on warm borders; also a good sowing of Endive and the necessary quantity of Mustard and Cress, and a small bed of Chervil to stand the winter. *John Austen, Witley Court.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Aug. 3	{ Northampton Horticultural Society's Summer Show (two days)
TUESDAY,	Aug. 3	{ Flower Show and Sale at Leicester
WEDNESDAY,	Aug. 4	{ Sale of Imported Orchids from Mr. F. Sander, at Stevens' Rooms.
THURSDAY,	Aug. 5	{ Sale of Imported Orchids, at Protheroe & Morris' Rooms.
FRIDAY,	Aug. 6	{ Matlock Bath Horticultural Society's Show.
SATURDAY,	Aug. 7	

AMONG the many encouraging signs of the progress of biological science may surely be counted the increased attention that is now being paid to the PATHOLOGY OF PLANTS. Enticing as the study was to those of old on account of the apparently mysterious origin of many plant diseases, it became no less attractive as fortress after fortress was besieged and taken with the weapons and methods afforded by modern microscopes and physiology. Moreover, however little hope that we should ever establish a system of vegetable hygiene may have sustained the pioneers in this department of botany, it is impossible now to overlook the important results attained and daily being attained from the scientific study of the physiology of ill-health in plants; to say nothing of the valuable contributions to morphology which have accrued from the investigations of the fungi, especially those which are the causes of diseases. From the standpoint of economics, we need only point to the prophylactic treatment of seeds, first rendered possible by the scientific elucidation of the causes and progress of such diseases as the "bunts," &c., the saving of money which followed the explanation of the "laying" of Wheat. Every one knows what a different aspect is presented by the diseased conditions due to "rusts," "mildews," &c., now that close and laborious investigations have elicited the life-histories of these fungi; and similarly with "Witch's Brooms," "Fingers-and-Toes," and numerous other malformations. Who could have foreseen the importance of the facts now to hand as regards the production of chlorophyll, and the relations of temperature, light, iron, and so forth, to its formation; or the bearing of discoveries respecting the parts played by potassium, calcium, and other salts in the plant? Or, again, we may remind the reader of the destruction of seedlings by species of *Pythium*, and of woody tree trunks by *Hymenomyces*, as showing that while the work is by no means ended—indeed, it has but just begun—the results are already of the highest importance to humanity.

It was apparently a simple discovery that sunshine may be too strong for a plant; and it seems an obvious generalisation that a plant does not necessarily keep its health in a situation where the annual rainfall, and all other circumstances, are like those of its home, except that the rainfall is somewhat differently distributed. Nevertheless, it is now well known that such facts and such generalisations assume very different proportions, as to results, according as they are in the hands of one who has been properly taught the elements of the physiology and pathology of plants, or of one who merely seizes the empiric item of knowledge, but does not know how to apply it in the field or in the forest, and to perceive its bearings on preventable diseases in plants.

In view of the rapid progress which is being made in scientific botany applied to agriculture and forestry, a second edition of SORAUER'S *Handbook*, in an enlarged and improved form, already noticed at p. 44, *Gardeners' Chronicle*, July 10, 1886, is a welcome addition to the botanical library; for, although FRANK'S able treatise was published in 1880, much has been discovered and advanced since that date.

One of the most remarkable features in the book is the recognition of the facts of variation in connection with the phenomena of disease. Starting from the incontrovertible position that

for the most part the occurrence of a disease (*i.e.*, disturbance of the structure and functions of an organism of such a nature as to threaten its existence) depends on two factors—first, a cause or agent external to the plant, and, secondly, a condition of affairs within the latter such that but little resistance is offered to the inroads of this external cause or agent. SORAUER then elaborates the facts of variation as bearing on the differences in behaviour of different plants towards disease-producing influences or agents. For instance, the sudden removal of all the leaves on an actively growing plant may give so terrible a shock to the whole of the functions that the plant sickens and dies; but the end may be hastened by the co-operation of unfavourable circumstances—*e.g.*, poor soil, bad weather, &c.—which would not have otherwise sufficed to kill a vigorous plant not thus weakened.

As another example we may take the following:—Some individuals among a number of plants are more liable to suffer from frost than others, although both are exposed to similar conditions; it is known from experiments that frost injures the organs of plants more rapidly and to a greater extent when they are full of sap than when they are less succulent.

Then again, with certain fungi at any rate, it appears that some conditions of the host-plant may favour the establishment and rapid spread of the devastating mycelium. For instance, a germinal tube may penetrate more rapidly through cellulose walls which are very watery, or through stomata which are more widely opened than is at other times the case.

Such considerations bring the author to the discussion of the vexed question of "predisposition" to disease on the part of plants, and, putting the case shortly, he commits himself to the view that predisposition (in the sense illustrated above) exists.

To this point the closest possible attention should be paid, if misunderstandings are to be avoided such as have arisen in the past, and such as are still possible; loose thinking in this connection may seriously affect the position of vegetable pathology.

Given a fungus-thread or hypha entering the stoma or air-hole of a leaf in order to vegetate in the tissues within the leaf, it is obvious that, *ceteris paribus*, any changes in the environment which cause the stoma to open wider at the critical period of entry, or which promote the growth in length, branching, or vigour generally of the germinal thread, may favour its ingress to the tissues, and hasten the spread of the spawn and of the disease caused by it; similarly, any changes in the environment which promote the elongation of a young organ and render its cell-walls more watery, may favour the penetration of a thread boring through those cell-walls.

In a certain sense, undoubtedly, a host-plant thus circumstanced may be referred to as more susceptible to the disease-producing agent, and therefore to the disease, just as a watery young branch may be spoken of as more susceptible to frost; but this is a very different matter from what has been implied by the phrase "predisposed to disease," as SORAUER, it is true, recognises to some extent. The author does not improve matters by the distinction between "normal predisposition" and "abnormal predisposition." The latter is illustrated by the case of a tree injured by frost, cracks or wounds being formed of such a nature that fungi (otherwise unable to establish themselves in the tissues of the tree), settle on the wound, and emit hyphal threads which penetrate to destroy the tissues. We would rather see the word "predisposition" abandoned altogether in this connection, lest some genius extends its meaning so as to speak of the predisposition of a garden for weeds. The word has gathered an

unfortunate mass of old ideas around it, and such words are often obstructive—otherwise, there can of course be no objection to the ideas which SORAUER wishes to denote by it, and as a matter of fact, they are not new.

— ODONTOGLOSSUM VEXILLARIUM.—The fine plant (fig. 27), reproduced from a photograph taken on the occasion of its being exhibited by Mr. J. DOUGLAS, gardener to F. WHITEBOURNE, Esq., is perhaps one of the finest examples of this beautiful Orchid to be found in this country, carrying as it did at that time 290 blooms, borne on forty-seven spikes. Mr. DOUGLAS, who is very successful in his management of Orchids generally, has shown himself to be thoroughly at home with this species. The plant is not "made up," having been bought as a small plant about ten years ago. The method adopted in its culture is identical with that recommended by Mr. B. S. WILLIAMS, namely to grow the plant in the Cattleya house during winter until the flowers appear, when it should be removed to a cool house, where the flowers will remain in good condition for a long time. In such a house the plant may stand the whole summer, taking care never to let it get dry at the root. As it is amenable to this treatment, this Orchid is suitable for placing with other flowering plants in the conservatory.

— NEW PEAS CERTIFICATED.—At a meeting of the Fruit and Vegetable Committee held at Chiswick recently—present, C. Silverlock, Esq., in the chair; Messrs. Weir, Sutton, Miles, Norman, Denning, Warren, Law, and Barron (Secretary)—the collection of Peas growing in the garden was examined, and First-class Certificates awarded to the following:—

Fame (Eckford).—A green wrinkled Marrow, with large deep green well-filled pods; height, 5 feet.

Empress (Eckford).—White wrinkled Marrow, well-filled large broad pods, vigorous grower; height, 5 feet.

Seedling No. 16 (Wildsmith).—White wrinkled Marrow, very long pods, strong grower, good cropper; height, 4 feet.

President Garfield (Veitch).—White wrinkled, large well-filled pods, heavy cropper; height, 3 feet 6 inches.

Seedling, unnamed (Sharpe & Co.).—A dwarf, wrinkled, blue Marrow.

— "BEES AND BEE-KEEPING."—Mr. CHESHIRE'S work on this subject is remarkable for the elaborate details it gives, not only of the anatomy and physiology of the bee, but of flowers also. A description up to date of the embryo sac and its contents is what we should not find in many gardening books, but it is not thought out of place in a treatise on bees. Mr. CHESHIRE'S book is published in monthly parts by L. UPJOOT GILL.

— "THE ORCHID ALBUM."—The plants figured in the last number are:—

Phalenopsis Stuartiana, t. 237.

Saccolabium Blumei var. *Russellianum*, t. 238.—A very fine variety, with the lip of a dark violet colour.

Lelia albidia var. *bella*, t. 239.—A variety with the segments creamy-white, tipped with lilac; lip yellow, with a broad band of rosy-magenta round the middle lobe.

Oncidium Marshallianum, t. 240.—A cool-house Orchid, requiring a moderate amount of moisture, and very little shade.

Appropriate cultural details accompany every plate of this useful periodical.

— PAUL NEYRON.—This, says the *Revue Horticole*, is the biggest Rose known. It was raised by M. LEVET between Victor Verdier and Anna Diebach in 1869. For those who like a Rose as big as a Pæony this is the one, but no doubt it is effective and suitable for particular purposes. As to size Ulrich Brunner runs it hard.

— NARTHECIUM OSSIFRAGUM.—Mr. WARE sends us a box of flowers of this pretty and interesting wild plant, common enough in boggy places, but rarely seen in cultivation, though amply worth growing.

— **VITALITY OF CYCADS.**—In the *Deutsche Garten Zeitung* Dr. WITTMACK gives an instance of the longevity inherent in trunks of the genus *Cycas*. He says:—"In the nursery establishment of Mr. J. C. SCHMIDT, at Erfurt, Germany, there have existed for the last eight years two trunks of *Cycas media*, having a height of 13 and 16 feet respectively. These two trunks, forming a portion of a large cargo brought from Queensland, were on their arrival in 1878 considered to be quite dead, but, for the sake of curiosity, they were, nevertheless, planted in the ground.

is native to East Africa and parts of India, and therefore a very likely plant to occur in Mauritius. Its habit is like that of *Hydrocotyle asiatica*, for which, in the absence of flowers, it might on a cursory glance be mistaken.

— **JAPANESE PEPPERMINT.**—The great demand for menthol, says the *Pharmaceutical Journal*, that has arisen during the last two or three years, has caused a great increase in the cultivation of Peppermint in Japan. According, however, to a statement

from almost white, a delicate salmon-pink, and red and purple splashed on white grounds; altogether a fine lot. Messrs. CARTER & CO. state that there are between three and four thousand pots of these plants now in bloom at their Forest Hill Nursery. The blooms are fine and large, very regular, and decidedly attractive.

— **GENIP AND GENIPA** (see p. 122).—An error crept into our report of Mr. MORRIS' interesting lecture on tropical fruits in our last issue. Mr.



FIG. 27.—*ODONTOGLOSSUM VENILLARIUM*. (SEE P. 144.)

(From a photograph of a plant shown by Mr. J. Douglas at the Botanic Gardens, Regent's Park, June 9.)

Imagine the astonishment of everybody concerned at finding that these 'mummies' had suddenly returned to life, their crowns ornamented with wreaths of thick foliage, which is now completely grown and affords a most imposing sight!"

— **FLAT ISLAND.**—Mr. HORNE has published a list of the plants found by him in this island—a dependency of Mauritius; they comprise 122 species, sixty-nine of which are considered indigenous, thirty-eight naturalised exotics, and fifteen cultivated. The only novelty is *Ipomoea reniformis*, which has not been previously recorded from Mauritius, but which

in a circular issued by Messrs. COCKING, of Yokohama, nearly the whole of the new plantations have been laid down—through ignorance or carelessness—with a very inferior variety of this plant, known among Peppermint growers as the green kind, which yields under unfavourable conditions an oil having a rank turpentine or camphoraceous smell.

— **BALSAMS.**—Messrs. J. CARTER & Co., High Holborn, London, have kindly sent us a box of specimen blooms of the Challenger strain of Balsams. The flowers are of many colours—white, bright scarlet, scarlet with white marbling, several purplish and mauve shades

MORRIS wrote, "The Litchi, Rambutan, and Longan of the East Indies are co-related by the Genip of the West Indies, all of which belong to the same natural order Sapindaceae." The insertion by us of the words "*Genipa americana*" is an error which destroys the point of Mr. MORRIS' remarks, which was to show the co-relation of East and West Indies in the matter of fruits. The confusion, for which we are alone responsible, arose from our overlooking the fact that the Genip and the Genipa are two different things. Neither is much known this country, the Genip indeed, under that name, hardly at all. The Genip of the West

Indies is, as Mr. MORRIS rightly stated, a Sapindaceous plant, and is botanically named *Melicocca bijuga*, while the Genipa, or Genipap, is the fruit of a Rubiaceae plant, *Genipa americana*, and native to Brazil. This mistake emphasises the necessity for the employment of technical names in preference to, or at least in addition to, the vernacular ones. The fruit of *Melicocca bijuga* is mentioned in many books of reference, and is well known to botanists; "Genip" occurs but in few.

— **OSYRIS ALBA.**—M. PLANCHON has lately mentioned this as an occasional parasite on the roots of the Vine, but not to such an extent as to do any material damage where weeding and hoeing are properly attended to, as they are in the vineyards.

— **THE COLONIAL EXHIBITION.**—The literature pertaining to this Exhibition is not unnaturally extensive, and for the most part it is excellent. Each colony has caused to be prepared a short account, which generally includes a summary of the history, foundation, government, physical and natural features, as well as commercial products of the colony. In this way an amount of authentic information has been got together which can rarely if ever have been made so accessible before. Advertising more especially to matters in which our readers are more directly concerned, we note an excellent descriptive and classified list of the woods of Queensland, by Mr. F. MANSON BAILEY, the Colonial Botanist. The Ceylon catalogue, in addition to a mention of raw products generally, has a list of the drugs and of the timber trees of Ceylon, to accompany the specimens exhibited by the Director of the Royal Botanic Garden. The New Zealand catalogue also comprises a list of native woods, but not so usefully arranged as in some other cases. New South Wales issues a general statement of the progress and resources of the colony, but no list of products. The Cape of Good Hope catalogue includes descriptive lists of medicinal plants and of woods. The official handbook of Natal deals with generalities, and the same may be said of Fiji, a special feature of which, however, are the elaborate meteorological details, which will be useful for future reference. South Australia furnishes an excellent general account of the nature, history, and products of the colony. The Victorian handbook is remarkable for the copiousness of its illustrations. Canada has an admirable summary of its history, productions, and natural resources, accompanied by two large-sized maps, which enable us to realise the extent of the Dominion, and the splendid prospects in store for it. The special British Guiana catalogue is very interesting to peruse, and the notes on timbers instructive, though here, as elsewhere, the use of popular names, compulsory in this case, is a great drawback. The notes on the Straits Settlements contain an interesting history of the colony, but little detail as to its products. The West Indian courts so far seem least well represented in this enumeration of literary exhibits. Tasmania, for some reason or other, does not appear to be represented at all in this Exhibition. We are frequently asked to give information and advice to intending emigrants—a task which, at least so far as the counsel goes, we rarely comply with, for reasons that will be sufficiently obvious; but since the opening of the Colonial Exhibition we have referred all applicants to the Exhibition and to the official reports. We allude to this matter because in our judgment it shows the desirability of securing a permanent Colonial Museum, where every applicant may find the information he is in search of.

— **BARBADOS.**—In the court assigned to the representation of the products of this island in the Colonial Exhibition hangs overhead a large branch of a Fig sending down roots from the under surface of its branches. These roots branch towards their free ends, and so a wig-like appearance is produced, whence the name of the island was, it is stated, derived.

— **TOBACCO GROWING IN LONDON.**—A correspondent has obligingly furnished us with leaves of various kinds of Tobacco grown in the vicinity of the Regent's Park. *Nicotiana Wigandoides* has ovate-oblong leaves, of a pale green colour, 2 feet long by 1½ inches in width; *N. atropurpurea grandiflora*, has leaves of a deeper green colour, broadly ovate, 23 by 16 inches; *N. macrophylla gigantea*, has leaves rather widest at the bottom, of a dark red green, and measuring 24 by 16 inches. All three were good samples of rapid succulent growth, but

rather destitute of the glandular hairs on which the fragrance depends. If the autumn should prove light enough and hot enough, however, the peculiar qualities of the Tobacco may yet be developed. We take the names as they were given to us. Even as foliage plants the specimens were very handsome.

— **CLADOPTOSIS.**—The fall of the leaf is due to the formation of a generative layer of cork cells at right angles to the plane of the leaf, the vessels of the wood and bast not being affected. The leaf is only maintained in connection with the branch by the vascular threads, which are readily snapped. In the branches of the white Poplar, which fall off very regularly, a change, according to M. LÉCLERC DU SABLON, occurs in the cells above the newly-formed or cork layer; the cell-walls become liquified and gelatinous, and the branch falls. The mechanism of catarrisation (the formation of the cork-layer) is the same in the two cases, but that of the actual fall is very different.

— **NATIONAL CARNATION AND PICOTEE SOCIETY (NORTHERN SECTION).**—The annual exhibition of northern grown flowers will take place at the Botanical Gardens, Old Trafford, on Saturday, August 14. This is a rather late fixture, but the flowers are late in the North; still a good average bloom may be expected, and an interesting exhibition. Bright and warm sunny weather is much needed by growers in the Midland and Northern Counties.

— **PETER LAWSON & SON, LIMITED.**—According to a circular which has reached us the directors announce that after providing for discounts, abatements, &c., the accounts show a surplus for the past year of £3953 4s. 8d., which, together with the sum of £5233 0s. 3d. brought forward from last balance, leaves £8286 4s. 11d. at the disposal of the directors, out of which it is proposed to pay a dividend of 10 per cent. per annum on the paid-up capital, free of income-tax, payable on September 1 next. This will absorb the sum of £1750; and it is further proposed to write off £400 from machinery, fittings, and furniture, £750 from seed stocks, for contingencies, and carry forward the balance, viz., £5386 4s. 11d., to next account.

— **SOY.**—We do not suppose that there is much of the Soja Bean in the alleged mixture of treacle and salt which does duty as Soy. The real article, however, must have a distinct diastetic value as a solvent of starchy and farinaceous foods. Messrs. STINGL and MORAWSKI, according to the *Journal of the Pharmaceutical Society*, confirm the presence in the Bean of a very active diastatic ferment, which places it in respect of saccharifying power beyond any other fruit at present known. This ferment converts about two-thirds of the starch upon which it acts into sugar, and one-third into dextrin. In this respect it resembles the action of the diastatic ferment of unmalted Barley, and differs from that of malt, which forms more dextrin and less sugar the smaller the quantity of malt in proportion to the starch upon which it acts. The Bean itself contains only a very small quantity of dextrin, the extractive being a mixture of different sugars (about 12 per cent.), distinguished by their easy fermentability. Messrs. STINGL and MORAWSKI consider that the small amount of starch in the Soja Bean, and the minuteness of the granules, are explained by the presence of the energetic diastatic ferment.

— **AQUILEGIA SKINNERI.**—Mr. SERENO WATSON notes that this plant has been collected in South-western Chihuahua, Mexico, by Dr. EDWARD PALMER. The plant, which was originally introduced by seeds collected in Guatemala by G. URE SKINNER, has never before been collected. Mr. WATSON remarks that as it has proved to be perfectly hardy in English gardens, a tropical habitat is not probable; but this will not apply in all cases. The common blue Passion-flower is hardy about London, but is nevertheless a native of South Brazil.

— **PLANT EXCHANGE IN CHINA.**—The Superintendent of the Botanical Department, Hong Kong, says:—"China is unquestionably a rich field for botanical research, and it is to be regretted that the Chinese authorities have no organised means, in the way of a national botanic garden, of cultivating and distributing their innumerable vegetable products. Botanic gardens of other countries would gratefully exchange the

valuable economic plants at their disposal for Chinese novelties, and the benefit would be mutual. We have not received one from a Chinese source this year. Hong Kong would be a convenient station for reciprocating favours from Chinese who might be disposed to introduce some of the resources of foreign horticulture, or agriculture, into China. We are gradually accumulating a large variety of plants of commercial value, a portion of which we would gladly distribute amongst any of our Chinese friends who might be inclined to favour us with some of the interesting vegetable novelties of the Celestial Empire."

— **ARISTOLOCHIA TRILOBATA.**—Having recently noticed this distinct species in two different gardens under the name of *A. Kempteri*, the question might be excusable, how such a name could be applied? *A. Kempteri* is a native of Japan, quite worthless for horticultural purposes, and does not seem to be introduced to this country in a living state. At all events it is not recorded in gardening dictionaries and other horticultural works. The species is described at length in DR CANDOLLE's *Prodromus*, xv., p. 439. The flowers are small, with a yellow tube and a purple-veined, shortly two-lipped lamina, without the long tail so characteristic of *A. trilobata*—a character, however, that is more liable to confound it with *A. macroura*, and such is actually the case in the *Botanical Register*, 1399, where the latter is figured as *A. trilobata*. The latter is a native of the West Indies and Brazil, and was originally introduced to this country in 1775. An excellent figure of the species is given in the *Botanical Magazine*, t. 6387, and a reference to the allied *A. macroura*, characterised by the upper segment of the perianth being produced into a long tail nearly 18 inches long. That of *A. trilobata* is more nearly about half that length, and pale brown, except at the base, which is much darker, while the rest of the perianth is pale green with anastomosing brown veins, saccate at the base, and produced into six short spur-like processes. Below the middle the tube is bent as if broken, and then suddenly ends in the slender broad-based tail as above described. The flowers are not so showy as those of some other species, but produced in great profusion, setting off the three-lobed leaves to advantage. The leaves of *A. Kempteri* are exceptionally three-lobed, and exceptionally variable. The subject of this note may be seen in the Victoria and Palm houses at Kew, where they flower great part of the summer.

— **ZAMIA INTEGRIFOLIA.**—Prof. SARGENT writes, that in Florida this Cycad is largely cultivated for the sake of the starch contained in its roots, large quantities of the starch being made for the Key West and West Indian markets. There are several establishments now engaged in this industry upon the shores of Bay Biscayne and upon Miami River just below where it flows out from the Florida Everglades. All the species of the Cycad order are rich in starch, and some of them are common articles of food in the countries where they grow. In Japan *sago* is procured from the stem of *Cycas revoluta*, and we are told by THUNBERG that this *sago* is held in the highest esteem, it being contrary to the laws of Japan to take the tree out of the country. *C. pectinata*, *C. circinalis* and other *Cycases* also yield starch in more or less abundance. *Zamia pumila*, a West Indian species, is known to contain much starch in its stems and roots, but it appears that *Z. integrifolia*, also a native of the West Indies, is likely to prove the most important of all as a starch producer. The seeds of some of the Cycads also contain starch—*Dioon edule* deriving its name from the large seeds yielding considerable quantities of arrowroot. Plants of *Z. integrifolia* may be seen in the Palm-house at Kew.

— **VEGETABLE PRODUCTS IN AUSTRO-HUNGARY.**—A report from Austria-Hungary, dated from Serajevo in April last, states that by far the most important article of exportation from Bosnia is Plums. The dried fruit is either sent in barrels to Trieste and thence almost exclusively to America, or else in sacks of fifty kilos to Austria-Hungary and Germany. In good seasons the exportation reaches 49,210 tons. Last year it probably exceeded that amount, as the crop was the best that has been known for the last ten years. The annual exportation of valonia—the acorn cups of *Quercus Aegilops*—is, it seems, about 984 tons. Formerly it was nearly double that amount, but the quality is so inferior that it is little sought

after in Europe, and does not realise more than 16s. 8d. to 20s. per 100 kilos. No great sales of timber seem to have been effected during the past year. The local government board wished that the cadastral survey of the country should be finished, and the ownership of the forests correctly proved before any more timber was offered for sale. More than half Bosnia, and nearly a third of the Herzegovina is forest. The superficial area of these provinces is said to be about 21,000 square miles, of which 9657 square miles are forest, 6950 square miles arable land, and the remaining 4393 barren rock. The forests consist chiefly of Fir, Pine, Oak, and Beech trees. Although during a long series of years these forests were wantonly devastated by fire and reckless cutting, there is no doubt that they will be eventually a source of considerable revenue to the Government. The construction of a line of railway to the sea-coast would enable Bosnia to compete most advantageously with Italy and Austria-Hungary in the Levant timber trade, and in the exportation of charcoal.

— THE SPARROW.—This terrible nuisance to the fruit-raiser and seed-grower is, says the *American Gardeners' Monthly*, like SATAN, not without an occasional good quality. Prof. WARD thus tells of a slight advance in its moral character:—"One small piece of good work the sparrow did do last summer, and that was to practically exterminate the "seventeen year" locusts which appeared in the parks in the city of Washington. The London sparrows are reputed to read the newspapers, and this ability has probably been inherited by their descendants. Certain it is that immediately after the published declaration of Prof. RILEY that Cicadas were edible the best energies of the sparrows were devoted to their destruction. Forsaking the streets, they hung about the parks from morning to night, snapping up the luckless Cicadas as fast as they appeared. So great was the destruction that the edges of the walks were bright with a sparkling border of Cicada wings, and scarcely an insect was left to propagate the race."

— HEMIPILIA CALOPHYLLA.—This one out of the two known species has just flowered for the first time at Kew, and may be described as a gem in miniature. It was discovered by the Rev. C. PARISH on limestone rocks near Moulmein in 1873, and is described by REICHENBACH in TRIMEN'S *Journal of Botany*, 1874, p. 197. It is a terrestrial Orchid, and a near ally to our *Habenarias* with a solitary leaf, almost as attractive as an *Anacethochilus*. It is caudate-oblong in a young state of the plant, but as the latter attains its full size the leaf becomes decidedly cordate, clasping the peduncle with its involute base, heavily and beautifully marbled with brownish-purple. The peduncle and bracts are also marbled in the same manner, the former attaining a length of 6 inches or thereby, bearing several flowers in a raceme. The sepals are white with a greenish midrib, the upper one being erect and protecting the column, while the lateral ones are broadly and obliquely ovate and spreading. The petals are ovate, smaller than the lateral sepals, but similarly coloured and erect. The labellum is obovate, emarginate, spreading, spurred at the base, deep rich purple, finely pubescent, as are the sepals and petals exteriorly, and by far the most conspicuous part of the flower. Varieties occur in a wild state, having the sepals and petals also brightly coloured. The grand and distinguishing feature of the genus, however, lies in the large and prominent rostellum, curved upwards and backwards, grooved in front and also in two places behind. It is finely pubescent, and of a deep maroon-purple colour. If the plant proves moderately easy to cultivate it will be a great acquisition notwithstanding its comparative smallness.

— MOVEMENT OF TENDRILS.—Dr. P. FENHOLLOW contributes an important paper to the *American Journal of Science* (xxxi., 46, 100 and 178), on the movement of tendrils in *Cucurbita maxima* and *pepo*, incidentally dealing with other phenomena of growth in these plants. The results obtained are based upon observations covering a period of ten years, the original and principal facts having been obtained in 1875 by a series of experiments which involved almost continuous observation through night and day, for a period of one week. He fully discusses the relation which meteorological conditions bear to growth, and confirms previous observations concerning the stimulating influence of combined heat

and moisture, but the retarding effect of the former when acting alone. The daily periodicity in growth, dependent upon alternation of day and night, is shown to be quite marked, the influence of conditions during the day being found to be greater in promoting the general growth than the retarding influence of sunlight, so that the general extension of parts during the day exceeds that for the same number of hours of night as 44.4 to 34.3, a result which confirms that previously obtained by RAUWENHOFF. The most important facts, however, are those relating to the mechanism of movement. This is found to depend primarily upon the presence of three active bands of cellular tissue, which traverse the tendril throughout its entire length, and by their more rapid rate of growth produce, through unequal tension of the various tissues, all the phenomena of torsion and circumnutation usually noticed. These bands, which the author calls *Vibrogen*, in allusion to their peculiar relation to movement, are found, one on the upper side of the tendril arm, and one on each side, somewhat above the horizon of the major and transverse axis of the section. Their direct connection with the circumnutation is most ingeniously obtained from the figures described by the circumnating tip of the tendril. Each figure is shown to exhibit changes of direction in movement, which are exactly reversed or follow an intermediate course, accordingly as any one band is directly succeeded by greater activity of its opposite or the remaining two bands; the direction thus taken being the direct expression of more vigorous growth in one band, or representing the resultant of activity in two bands at the same time. He next shows that the total latitudes of movement are one-half the total departures, thus bringing out in a more conclusive manner the precise relation of *vibrogen* to motion. The final conclusions, with reference to the cause of motion, are as follows:—1. Movements of the tendril and petiole are due to unequal growth, as producing unequal tension of tissues. 2. The unequal growth is chiefly defined in the *vibrogen* tissue, which may therefore be regarded as the seat of movement. 3. The band of unequal growth does not arise at successive points of the circumference. 4. The *vibrogen* tissue consists of three longitudinal bands, each of which becomes more active in turn, without regular order. 5. The collenchyma tissue is that which is chiefly concerned in variations of tension under mechanical stimuli. 6. Bending or coiling under the influence of irritation results from release of tension, or (free coiling) from inequality of tension through maturity of tissues. 7. Transmission of impulses is effected through continuity of protoplasm in the active tissues.

— MICHIGAN HORTICULTURAL SOCIETY.—The fifteenth annual report now before us forms a substantial volume of over 500 pages. Its contents fully illustrate what is being done in most States of the Union and in the Dominion of Canada, and they offer for our use on this side of the Atlantic an excellent model. Here if a society gets up one or two shows in the course of the year it is thought to have accomplished its purpose. It has perhaps contributed successfully to the enjoyment of a large number of people, especially if, as is common in the provinces, the horticultural display be associated with fireworks, bicycle races, and other accompaniments more fitted for a country fair than for a society which is supposed to have more important aims in view. We have nothing whatever to urge against the recreation of the people—quite the contrary; we only allege that it is not the proper function of a horticultural society to provide it. A horticultural society exists for the advancement of horticulture, and it goes out of its way when it attempts to fulfil any other office. In the United States, though, we doubt not, the recreative element is not neglected, the horticultural societies mean business, and do not mix work and play, but work first and play afterwards. In the case before us we see the Michigan State Horticultural Society has four meetings yearly, and that it has associated with it numerous local societies which seem all to work on the same general lines. The first pages of this volume give a summary of what is done in almost every State of the Union in the way of legislation for the promotion of horticulture, pomology, and forestry, with reports as to what laws have been found futile, and which successful. It may readily be conceived what advantage must result from such a summary. At the meetings the members do not confine themselves to mere exhibitions, but

they contribute papers on practical points, and by free discussion they elicit the opinion of those most competent to give it. Here are the subjects discussed at one of the meetings:—Insects, and the way to circumvent them; Plum culture, Potato culture, Timber protection, Fruit improvement, &c. These subjects are well and usefully handled, and the talk is not confined to a few chosen speakers, but is taken part in by the Fellows generally. A large part of the *Proceedings* of the American Pomological Society is represented, and at the end such portions of the classified *Fruit Catalogue* of the last-named Society as are applicable to Michigan.

— PUBLICATIONS RECEIVED.—*Fourth Report of the United States Entomological Commission: Cotton Worm and Boll Worm*. By C. V. RILEY, Ph.D. (Washington: Government Printing Office).—*Descriptions of Emendations Plantarum Novarum et minus cognitarum fasciculus X.* By E. RUGEL (Petropoli).—*Report of the Natal Botanic Society for the Year 1885* (Durban: Natal Mercury Press).—*Illustrations of the Indigenous Foal Grasses of the Plains of North-western India* (Roorkee: Thomason Civil Engineering College Press).

INDIAN NOTES.

BOTANY AND HORTICULTURE IN INDIA.—The science of botany is a most interesting study, but requires years of close application to acquire anything like a competent knowledge. Horticulture, on the other hand, is but a pleasant recreation to those who love the garden and wish to know how to grow flowers. We therefore note with pleasure that the Madras Government has decided to substitute horticulture for botany in the higher examinations in science and art. For the preliminary examination a "Syllabus" has been compiled comprising the structure and growth of plants, soils, manures, tillage operations, horticultural operations, and horticultural implements. In addition to pass papers there will be a *viva voce* examination in the above subjects. This new departure will be an incentive to the study of a science which has hitherto in this country been confined to the few who have the time and means to pursue it. Efforts ought, at no distant date, to be made for the granting of a degree to candidates who take the highest honours. At present an Indian horticulturist has no *locus standi*, whereas his English contemporary, by having the letters F.L.S. (Fellow of the Linnean Society), or F.R.H.S. (Fellow of the Royal Horticultural Society), affixed to his name, carries the "hall mark" of efficiency in his profession [1]. Again, whenever the Government of India requires a curator or gardener for any of the Government botanical gardens or plantations a man has to be got out from England, at great expense, and under a covenant of three to five years. By establishing a degree in horticulture in India this expense and inconvenience will be done away with. No Englishman coming out here straight from home can be expected to know the language of this country, or the conditions of plant life in India. Another advantage of the system will be the encouragement to the study of a science that has long been neglected in India, and the supply of thoroughly trained gardeners; and it is a matter of surprise that a step in this direction was not taken long since. *Indian Agriculturist*, June 26.

THE AMILTAS.

This truly fine tree is the *Cassia fistula* of botanists, at one time called *Cathartocarpus*. It begins to flower in May, before the leaves appear; when about half done flowering the leaves begin to come out. There are two varieties—one with bright green leaves throughout, and one with fine maroon-bronze leaves, when young; these later on become green. The latter variety has usually bright canary-yellow flowers, which, intermixed with the newly-formed dark bronze foliage, have a truly grand effect. The green-leaved variety has usually flowers of a paler yellow.

The Amiltas, under favourable circumstances, grows into a large tree, and is fine under all conditions, with a round outline and drooping leaves. When in full bloom, however, it is one of the sights of the Indian flora. I have seen trees commence to flower when three years old, and though maltreated when young, still putting forth new foliage every year after winter's rest. It is not easy to kill it. The

pinnate leaves are 15 inches or more in length, with five or more pairs of leaflets, the smallest pair being at the base. The terminal pair is often 7 inches long, and $3\frac{1}{2}$ inches broad. The upper surface of the leaflets is dark green, and prettily veined; the lower surface is of a Pistachio-green. The inflorescence is a loose drooping raceme, 1 foot or more in length. The flowers begin to open at the base, three-quarters of the raceme, however, is open at one time. The peduncles are $1\frac{1}{2}$ inch long, and the calyx of a greenish-yellow. The corolla, like most of the Cassias, consists of five loose petals. The pistil is (twine-like, $1\frac{1}{2}$ inch long, and is curved downwards and forwards, like a sickle. The stamens are very curious; three are of the length of the pistil, and follow its curvature. They are of a pale yellow, with buff anthers; four are short and project forwards, with large yellow anthers; two are still shorter, and are curved backwards towards their insertion, and the tenth or vexillary stamen is the shortest. The latter three have very small or abortive anthers. It is not improbable that the three long stamens may have a different office from the short ones. All the stamens are soon shed, leaving the corolla and the hook-like pistil. The latter, if fertilised, becomes afterwards a straight green cylindrical drooping pod, $1\frac{1}{2}$ to 2 feet long. Eventually it turns black and hard when ripening. In winter the tree displays nothing but these pendent straight black and round sticks. The interior of the pod is divided by septa, between which are pretty heart-shaped, very shiny, rose-tan seeds. The septa consist of a brown sweet and sticky pulp, which, under the name of Cassia pulp, finds a place among cathartics, both in the British and Indian Pharmacopœias. This pulp gripes awfully unless protected by carminatives and sedatives. I have seen a native writhe and groan on the ground after taking an Amittas cathartic prescribed by a *hakim*. The size to which this tree grows, with its fine round head of dense drooping foliage, mark it out as a tree well suited to avenues, but probably this is the reason why it is not used for this purpose! An avenue of Amittas in bloom would be worth a trip from any part of the world to see. Avenues in India are usually made in a hurry-scurry sort of way. The Collector probably orders the *tehsildar* to look sharp and have this road all planted by the time the Commissioner makes his tour in the winter. The *tehsildars* forthwith collect "Neem," "Tissoo," Mango, "Pepul," Banyan, and anything else he can lay hands on, and plants the new avenue. When these grow they look like a battalion of Sepoys in some native states—some with slippers, others with top-boots; some with a red, others with a green turban; some with muskets, others with matchlocks—in short, all the quaint figurings of a carnival.

A few years of nursing appropriate trees for avenues, especially in stations, might make them worthy of the *Arabian Nights*. I wonder whether this tree is grown anywhere under glass in England. It is worthy of a glass dome to itself. When in bloom it would be a rare sight. The world is scourred for some rare insignificant Orchid, and special houses are made for these quaint plants, and here is a tree grown from seed with the greatest ease, and which, when in flower, no Orchid could approach for splendour and profusion of bloom, and is thought nothing of. When in full flower it is a perfect cascade of canary-yellow spray. Opposite my gate is an Amittas, which flowers in the beginning of July—two months after the others. *E. Bonavia, M.D., Etawah, May 7.*

HOW HONEY CELLS ARE FILLED.—Dr. C. Spencer, writing to the *Indiana Farmer* as to how a honey cell is filled, says:—"In my observatory one hive was built against the glass, and that afforded an excellent opportunity of seeing how bees deposit honey in the cell. First a bee deposited a thin coating of honey upon the base of the cell, making a sort of varnish, as it were, to the base of the cell. The next bee that came with honey raised up the lower edge of this film of honey, and forced its honey beneath; the next did the same, and this film acted as a kind of diaphragm, keeping the honey in the cell. When the cell is full enough to be sealed the bees commence contracting the opening with wax until they have only a small hole left in the centre, when they appear to take one little flake of wax and put it down over the opening. At any time during the process of filling the cell the honey could be withdrawn with a hypodermic syringe, and the 'diaphragm' left hanging in the cell."

TAXODIUM DISTICHUM.

AN enquiry in the course of the spring for male catkins of this elegant and remarkable tree, brought us not exactly what was asked for, but some growths which are so peculiar that it is worth putting them on record. The normal shoot with the bud scales at the base, and with the growths in question, are shown at the top of the illustration (fig. 28.) of the natural size. In the centre are shown similar growths, normal and otherwise, magnified. On closer examination it seemed as if the ordinary bud scales at the base of the shoot had become thickened, and indeed in some cases there was an indication of the presence of seeds at the base of some of these scales as seen in the lower right hand corner of the illustration, or more probably of the scale upon which the seeds are borne. In some cases the growth of the shoot is arrested and then the production comes to look like



FIG. 28.—TAXODIUM DISTICHUM.

an Artichoke in miniature, while in others the shoot is prolonged as shown in the centre of the illustration to the left hand, and as happens in proliferous cones.

TRENTHAM GREENHOUSE BOILER.

The accompanying cut (fig. 29, p. 149) illustrates Silvester's patent Trentham greenhouse boiler. It would appear that this boiler is very different from, and an improvement on, the older form; there can be no doubt but the new features are distinct, and must increase the economy and efficiency of this class of boiler. The patentees, Messrs. F. Silvester & Co., Newcastle, Staffordshire, and the makers of the original Trentham boiler, and from experience have ascertained the weak points and shortcomings of the original Trentham boiler, the general opinion of which was that it was one of the best and most reliable boilers then existing for heating large quantities of piping; but opinions differed as to it being economical in the consumption of fuel; it

was also considered to be somewhat sluggish in its work. The patentees claim that these doubtful points in the old boiler have been overcome in the new one. A feature is in the mud or sediment collecting trough with removable door in the bottom part of boiler, which is easily accessible for cleaning out; the door can be taken out in a short time, and a good-sized scraper inserted, so that the lower half of the boiler can be well cleaned; this materially adds to the durability and efficiency of the boiler, for in cases of bad water the sediment would quickly fill the space between the shells.

Then let us look at the most important part—the circulating water-way bridge, the value of which is very great; in the old style of boiler the bridge at the end of the fire-bars was often made of a cast-iron plate and fire-bricks; these bricks in firing were frequently pushed away and fell down at the back, and consequently stopped up the flue, causing great waste of fuel, disappointment, and expense, the bridge having frequently to be renewed. In the new boiler the bridge is stated to be made of a special metal, and is connected with the water space in the bottom and also at the top part of the boiler; the flame or heat is made to pass through and over the bridge, and is thereby brought in full contact with the plates of the boiler, and a much greater amount of heat is obtained from the fuel used. The flame, having passed through and also over the bridge, comes in contact with an inclined disc or deflector, which spreads the flame and heat immediately it has done its work at the bridge. It is here collected and distributed again on the boiler plates, where it is of the greatest value. Another advantage claimed for this inclined disc is, that in cases of gaseous or green coal being used, the gases must be ignited between the bridge and the deflector, and consequently the consumption of smoke is accomplished. The fire in the patent arrangement is kept quite alive at the back or bridge end, whereas in the old boiler it was always dead from the fact that no air could get through to support combustion. In the new boiler, however, the air is able to get through the back of the fire and through the lower holes in the bridge, and consequently the fire is kept alive. In addition to the foregoing advantages the bridge acts as a stay to the flue, which is the weakest part of the boiler, and the general circulation is made thoroughly good. It must be obvious that this patent Trentham boiler combines a number of important advantages compared with the old form of Trentham, and we are inclined to think it is one of the best greenhouse boilers of which we know. Mr. Wallis, of Keele Hall Gardens, we believe, reports favourably of it. The boilers are constructed of a superior sort of steel, and are made in various sizes to heat from 450 feet to 7000 feet of 4-inch piping.

PLANT PORTRAITS.

ARISTOLOCHIA ELEGANS, *Garden*, June 19.

CARAGUATA ANDRÉANA.—Bromeliaceæ. Leaves recurved, tripled, spineless; flowers yellow, spicate. New Granada. *Revue Horticole*, June 16.

CATTLEYA LAWRENCEANA, *Revue de l'Horticulture Belge*, July, 1886; and *Lindénia*, t. 44.

DAPHNE MEZERUM.—White-flowered and double-flowered varieties. *Garden*, June 26.

DENDROBIUM THYRSIFLORUM, *Lindénia*, t. 46.
DRACENA MADAME LUCIEN LINDEN, *Illustration Horticole*, t. 597.—A beautiful variety with dark green leaves variously striped and blotched with carmine, some leaves being almost entirely carmine.

FAGUS SILVATICA ATROPURPUREA TRICOLOR (!), *Revue de l'Horticulture Belge*, July 1.

LILIUM PARRYI, *Illustration Horticole*, t. 595.—Flowers funnel-shaped, about four inches long, with reflexed segments almost as long as the tube; yellow spotted with reddish-brown. South California.

LILIUM SUPERBUM, *Garden*, July 3.

ODONTOGLOSSUM RUCKERIANUM, *Lindénia*, t. 41.

PANDANUS? KERCHOVEI, *Illustration Horticole*, t. 600.—A species that is at present only known by its elegant foliage. The leaves are long, linear, channelled in the centre, and toothed at the margins. Admiralty Islands.

SAGENIA MAMMILLOSA, *Illustration Horticole*, t. 598.—A slow Fern. The younger barren fronds single, oblong, lanceolate; fertile fronds, pinnately lobed, 2 feet long, the sori immersed in cavities on the under surface; upper surface with numerous dome-like prominences corresponding to the depressions on the lower surface. Molucca Islands.

HOME CORRESPONDENCE.

Rubbish Heaps and Lime.—Perhaps Mr. Webster, your excellent correspondent, will pardon me for calling his attention to what is probably a slip of the pen. In his paragraph on "Nursery Work" (p. 78) he recommends occasional turning of rubbish heaps as a means of increasing fermentation, and he adds, "to hasten and insure this the admixture of a small quantity of lime is to be highly recommended." It means that the lime is to destroy the germinating property of the Uredo I quite agree with him, but if the lime is to aid and assist fermentation I entirely disagree with the doctrine. Lime, as I understand its action, prevents rather than assists fermentation. Z.

Strawberry Growing at Mereworth Castle.—Any gardener who has seen the shelves of Strawberries in the forcing-houses at Mereworth Castle Gardens, Maidstone, during the months of April, May, and the first few weeks in June last, must have gone away with the impression that they were worth going a long way to see, and that Mr. Herbert Markham, Lord Falmouth's energetic and good all-round gardener, was to be complimented upon his success in producing such heavy crops of large, well-coloured, and

it is often found in the wild state in a cool and moist situation, and probably a similar one suits it best under cultivation. *W. H. Divers, Kilton Hall.*

Carpanteria californica (p. 113).—There can be no doubt of the perfect hardiness of this fine shrub. I have two good plants of it under a south wall, and watched them with much anxiety during the winter, but gave them no protection whatever. Not a leaf was the least injured, and I have since had plenty of flowers, which seem likely to ripen plenty of seed. Cuttings put in now strike readily. *Henry N. Ellacombe, Bilton Vicarage.*

This new hardy shrub is now flowering for the first time in Ireland. The plants now flowering were planted out in an exposed situation, and withstood the severe frosts of last winter without any protection. We have others planted against a wall in a sheltered situation two years previously, and so far they have refused to give any bloom. It is a native of Sierra Nevada. *Rodger McClelland & Co., Newry, Ireland.* It was first flowered by Miss Jekyll. See *Gardener's Chronicle*, July 24, fig. 113, at pp. 113 and 115. Ed.]

Carnations and Picotees at Slough.—If the fine head of bloom now to be seen at the Royal Nursery, Slough, may be taken as an indication of the general quality of bloom this season, then a very

(Dodwell), Scarlet Keet (Dodwell), and Bailey Junior (Dodwell). Rose flakes: Lady Gardener (Ely), a good old flower; Lord Chelmsford (Ware), Miss Erskine Wemyss (Dodwell), James Flowdy (Flowdy), Rob Roy (Gorton), Stapleford Hero, Mrs. Matthews (Dodwell), extra fine; Mrs. Tones (Dodwell), Sybil (Holmes), John Keet (Whitehead), and William Newman. The fancy varieties, many of them of great beauty, are late in flowering and will be seen to great advantage shortly. Of Picotees there is a fine collection in bloom, as might be expected, as, like the Carnation it is a flower largely grown at Slough. Of red-edged varieties there are *Blanche* (Dodwell), good petal and substance, and medium edge; *Princess of Wales* (Fellowes), heavy edge; Dr. Epps, heavy edge; and William Summers (Simonite), very fine. Purple edged: *Norfolk Beauty* (Fellowes), heavy, very bright; *Her Majesty* (Addis), large and full flowers, light edge; *Princess Dagmar*, heavy; and *Clara Penson* (Willmer), a light edge flower of great breadth and substance of petal. Rose edged: *Duchess* (Fellowes), heavy edge, full and bold flowers, but apt to bar; *Maud* (Fellowes), new, fine petal, with very bright medium rose edge—very pretty, full, good substance; *Orlando* (Fellowes), new, heavy rose, large, full flowers, good petal, plenty of stuff, and a good grower; *Evelyn* (Fellowes), fine petal; *Louisa* (Addis), heavy rose, a flower which at times comes very good indeed; *Miss Horner* (Lord),

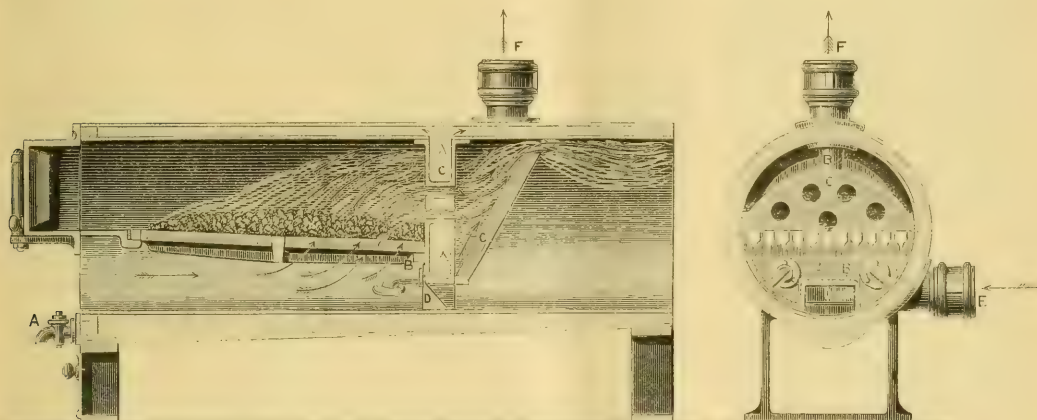


FIG. 29.—SILVESTER'S IMPROVED TRENTHAM BOILER. (SEE P. 143.)

luscious fruits, the average weight of which was about twelve to the pound. Mr. Markham layers his runners as soon as they can be had into the fruiting-pots, using rich loam, which is rammed firmly into properly crocked pots for the purpose, and during the interval, from the time the layered plants have taken to the soil until they have completed their growth in September, they are kept liberally supplied with liquid manure at the roots, the same stimulating food being applied in the same direction from the time the plants have set their fruits until the latter begins to colour, when only clean water is given at the roots. Each plant is allowed to ripen from nine to fifteen fruits, and as ripe Strawberries are not required at Mereworth before April, Sir Charles Napier, Sir J. Paxton, and British Queen, are the varieties chiefly grown; the crops of Grapes, especially those on the pot-Vines, having berries as large as Walnuts. Peaches and Melons are also deserving of passing notice. *Visitor.*

Epilobium angustifolium.—Among the great number of good things to be seen at Chatsworth at the present time is this remarkable as a beautiful hardy flower, within the reach of every one, and probably growing wild in the neighbourhood of many places; but often in its wild state it is, comparatively speaking, insignificant. To see it in full beauty it should be cultivated in a position similar to that in which Mr. Thomas has it, viz., a shrubby border, where it can get well established in a good mass without being disturbed, and where there is no danger of its overgrowing any choice plants. I have noticed

fine exhibition of these favourite flowers may be confidently looked for at the several Carnation shows. There are about 2600 pots of Carnations and Picotees at Slough, and they are now arranged in various houses where they can be seen to the best advantage; the flowers, though young when seen, were rapidly developing into fine blooms; the "grass," as the foliage is termed, is healthy, free, and clean, and the variety great. Of Carnations the following can now be seen to great advantage:—Scarlet bizzars: Robert Lord (Dodwell), James McIntosh (Dodwell), Master Stanley (Dodwell), Lord Napier (Taylor), Charles Turner (Dodwell), and Arthur Medhurst (Dodwell). Crimson bizzars: Rifleman (Wood), Harrison Weir (Dodwell), Crimson Banner (Simonite), E. S. Dodwell (Hewitt), Mrs. Maclaren (Fitch), a variety that is classed among the Tree Carnations, but is just now putting forth some fine flowers; it also sports into several types of a fancy character, and so is full of interest; and Master Fred (Hewitt). Pink and purple bizzars: James Taylor (Gibbons), Twyford Perfection (Young), Sir Garnet Wolseley (Hewitt), Old Sarah Payne (Wood), Squire Llewellyn (Dodwell), Falconbridge (May), an old but still good variety; Princess Beatrice (Bardsley), and Joe Bagstock (Dodwell). Purple flakes: Sporting Lass (Flowdy), Juno (Baldoin), James Douglas (Simonite), Mayor of Nottingham (Taylor), Mrs. Suthern, a flower of fine substance and marking; and Florence Nightingale. Scarlet flakes: Royal Scarlet (Puxley), Figaro (Abercromby), John Bayley, an old but still useful flower; Dan Godfrey (Holmes), John Ball (Dodwell), Jupiter (Abercromby), Henry Cannell

a heavy rose, of excellent quality; and Favourite (Liddington), a lovely light flower of great refinement. As far as information has come to hand the promise of bloom is good all round, but late in the more northern localities. Lovers of the Carnation and Picotee in the southern districts should see their favourite flowers in great form at Oxford on the 3d proximo. *R. D.*

Phyteuma comosum.—The successful cultivation of this plant on rockeries is not very easy. I have proceeded as follows:—I obtained a plant four years ago from Messrs. Fröbel. By the advice of Mr. Loder, I put it between two flat bits of limestone and added a mere sprinkling of peat soil. I then tied the stones together and hammered them into a crevice on the south face of a rockery where the roots could find no soil. In 1884, it produced four flowers; in 1885 only two or three leaves, and no flowers; and this year, about the end of June, six very fine flowers. In fact, it might have sat for the portrait which is given on p. 81. *C. Wolley Dod, London, July 17.*

Flowering Shrubs from Ireland.—I send herewith flowering specimens of both kinds of *Desfontanea spinosa*, the one with incipient seed-pods being the ordinary one (which will not do well with me, though now in great beauty and abundant bloom at my next-door neighbour's garden, from whose plant this specimen comes), the other being the much less known *D. spinosa Hookeri*, which is now in full and most abundant bloom with me; also two pretty

pink *Spirea*. The smaller specimen, *S. bumalda*, with small, I want to know if the other, with smaller flowers, is correctly named *S. callosa*. *W. E. Gambleton*. [Yes, Ed.]

Stephanotis Fruit.—I enclose herein the companion fruit to the one figured in the *Gardeners' Chronicle* at p. 817, Dec. 26, 1885. It is now ripe, and has taken over twelve months to develop. You will observe that some of the seeds have germinated within the fruit. Is not this a remarkable circumstance? This specimen came from Messrs. Lucombe, Pince & Co.'s nursery. *W. Napper, Alington Cross*.

Campanula Raineri.—There is quite a display of this rare Eastern species of Harebell to be seen in the York collection. The plants are growing in large 60-pots, and are well covered by their large, bluish-purple flowers; the blossoms are borne solitary, on stalks only, from 1 to 2 inches high, while the flowers are about as large as those of *C. tubinata*. It is a subject worthy to be associated with the most choice of rock plants. *Y.*

Siam Ginger.—Amongst the collection of fruits, &c., shown by the Siam Commission at the International Health Exhibition, held at South Kensington in 1884, were some roots labelled "Ginger." These were obtained for the Kew Museum, but one of them being alive was planted to grow, and it is now bearing stems 5 feet high, and is in flower. On comparing it with the drawings and specimens in the herbarium, Mr. Baker has identified it with a specimen labelled "*Alpinia* sp., Bangkok," which was collected by Sir R. Schomburgk in 1864, and which is very near to *A. alughas*, also native of Siam, where, according to Schomburgk, it is cultivated for its Cardamom-like fruits, and is known as *Luh-ken*, or *Bastard Cardamom*. Under the name of *Galangal*, *A. officinarum*, a Chinese species, is cultivated for the sake of its aromatic rhizomes, and this unnamed species now in flower at Kew is apparently largely cultivated by the Siamese as a substitute for Ginger. The rhizome is very thick, slightly flattened, and not so freely branched as in common Ginger; it has the pungent aromatic properties of Ginger, so far at least as could be told by tasting it. There is some reason for believing that the Chinese Ginger of commerce is not obtained from *Zingiber officinale*, the source of Jamaica Ginger, but from a species of *Alpinia*, and possibly this unnamed one at Kew. Plants of true Chinese Ginger are now growing at Kew, and these may soon flower; at present they have the same habit, broad leaf and rhizome, of the Siam plant. In *Zingiber officinale* the inflorescence is borne on a separate short stem without leaves, the barren stems being about 3 feet high, and clothed with narrow spear-shaped foliage; in *Alpinia* the flowers are borne in panicles on the ends of the stout leaf-stems, the well-known *A. natans* and the newer *A. mutica*, both beautiful garden plants, being familiar examples. *W. Watson, Kew*.

Ripe Mistletoe Berries in July.—Your correspondent from Southampton seems to think we in the north of Scotland are lacking in the powers of discernment. I may be permitted to inform him that in regard to the above subject such was not the case. Mr. Webster, the worthy and respected gardener at Gordon Castle, was perfectly aware of the fact that the berries were the produce of last year, but that did not hinder him from thinking that the circumstance was so unusual in our northern climate as to allow a gentleman who called upon him to send a spray to the *Gardeners' Chronicle*. If I might be allowed to direct the attention of your correspondent to a meeting of the Royal Horticultural Society, held on July 13—a notice of which appeared in your paper of the 17th—ripe Mistletoe berries were considered so unusual even in the South as to bring forward a spray of it by Dr. Masters for exhibition. *J. L. Glen Grant*.

Flowering of Arundinaria.—Mention has been made in your columns of the simultaneous flowering of *Arundinaria gracilis*, in the south of France and at Paris; but there is, I think, a circumstance which merits particular attention on account of the special consequences which appear to result from it. *Arundinaria gracilis* is said to have flowered simultaneously at Hyères, Paris, Brest and Cherbourg. At Paris, in the Museum d'Histoire Naturelle, the flowering is recorded in three situations:—1st, in a cold house (*pavillon carré*); 2d, in the Botanic Garden, (herbaceous ground); 3d, in a special enclosure called the (*attente*) *carré* Briognat. In the third case the plant (*in tufts*) is left entirely to itself without any sort of cultivation, and without any shelter, in the midst of, and in spite of the grass and weeds which encroach on it. The leaves are ill-developed from the unfavourable circumstances. On the flowering growths there is a tendency to become variegated. The fact to which I wish to draw attention is this—the flowering has taken place

in plants of very different degrees of vigour, foliage, and stature. In the conservatory the *Arundinaria* is 5 to 6 metres in height, and even more. In the open air it is 2 metres. At the Garden of Acclimatization of Paris the plants were of moderate height. What seems to have regulated its flowering is something more than the force and energy of vegetation. It seems that it is due chiefly to alternation of growth and rest. This alone has been common to all the plants under all conditions, the conditions very probably of the same age, from the same lot of seeds, or derived from the divisions of one original plant. A great deal has been said about the cause which has determined the rapid fruiting in the method called *proclit* *Touraine*, and which is due to a clever horticulturist in the environs of Pau (lower Pyrenees). This process consists of freezing several times a year the young seedlings and the young plants from them. By this means the fruiting of Pears and Apples is secured in five or six years instead of fifteen or twenty. By this means the alternations of rest and activity are multiplied, and it is perhaps by the influence of this alternation that the adolescence and maturing of a tree is hastened. *Max Cornu, Paris*.

Reports of Societies.

ROYAL HORTICULTURAL SOCIETY, and NATIONAL CARNATION and PICOTEE SOCIETY: Tuesday, July 27.

THIS meeting in the conservatory at South Kensington was partly competitive in so far as concerned the Carnations and Picotees, and the Cabbages, Peas, Beans, and Lettuces that were shown by numerous growers for the special prizes offered by several large seed firms. There was, therefore, enough to satisfy a variety of tastes, and the bardsy flowers of Messrs. Barr & Son and T. Ware, who still keep up a great bank of cut blooms on the north side of the building, contributed not a little in making a display of colour that was quite needed.

Scientific Committee.

Present: Dr. M. T. Masters in the chair; and Mr. Pascoe, Professor Boulger, Mr. Worthington G. Smith, Mr. Wilson, Mr. O'Brien, and Rev. G. Henslow, Hon. Sec.

SELENIPEDIUM, UROPEDIUM, and CYPRIPEDIUM.

Observations were made upon these forms, that while the first and the last differ very slightly in morphological characters, having one and three-lobed ovaries respectively, yet, as Mr. O'Brien observed, they refuse to cross, though *Selenipedium* cross readily, as do also *Cypripedium*, with one another. *Uropeidium* is a peloric variety of *Selenipedium*—showing a natural tendency to a reversion to a regular and more ancestral form.

CYPRIPEDIUM SUPERBIENS (VEITCHI).

Dr. Masters exhibited from Mr. Henry James, of Lower Norwood, a blossom having two labella; another from the same plant had one within the other. In the former (being side by side) it was an additional petal to the ordinary number, the true median lip, however, being absent, but in the latter case the inner labellum represented an anterior stamen.

CATTLEYA LODDIGESII.

Dr. Masters remarked on the specimen shown at the last meeting, which he had examined, and which proved to have two sepals, two petals, one stamen, and no pistil; hence it was a flower which had degenerated to a dimorphic condition.

LILIIUM LANCIFOLIUM SPECIOSUM.

Mr. O'Brien exhibited a plant which had been grown solely in moss for two years, with only a slight quantity of Clay's fertiliser added when the bulbs began to sprout. He remarked on the importance of potting fresh imported bulbs in some porous material, such as coco-nut fibre, &c., and of avoiding having them in the ground, in order that there might be free circulation of air about the bulb. The common practice of planting in the ground often caused the bulbs to disappear entirely. The interpretation of the advice seemed to be the same as for seeds—that if planted too deeply, or so that air could not reach them to set up respiration, they would perish from asphyxia and rot.

GRAPEVINE WITH OIDIUM TUCKERI.

Mr. Plowright forwarded specimens attacked by this fungus, now known to be *Erysiphe communis*, on the stalks, the Grapes themselves having some peculiar dendritic spots of a dark colour. There did not appear to be any mycelium. The dark lines, less than a quarter of an inch, are formed by reddish-

brown discolorations of the epidermal tissue. They were generally considered by the committee not to be fungoid, but only natural changes of the character of the epidermis on ripening.

NEMATOID WORMS IN CEREALS.

Mr. Worthington G. Smith exhibited specimens of cereals from Midlothian, the roots of which were attacked by *Heterodera radicola*. It was called Tulip root, Thick-root, and Segging in Oats, in Scotland; and appeared to be widely spread, all crops being totally destroyed on damp clay soils for several years. On stony soils the crops were not so severely attacked.

LARIX GRIFFITHII WITH CONES.

Dr. M. T. Masters exhibited a branch bearing several cones. They were from 3 to 4 inches long, of a rich purple colour, while the pointed bracts behind each scale were of a golden-brown. It was received from Mr. Nancawen, gr. to Mr. Trelawney Coltrick, Cornwall. It was believed to be the first instance of this Himalayan species of Larch to have borne cones in this country. He observed that the leaves were readily distinguished from those of the *Larix europæa* by having stomata on the lower side only, while those of the common Larch are on both sides.

CLEMATIS "PROTEUS," DOUBLE AND SINGLE.

Mr. Noble sent an illustration of this *Clematis*, which is remarkable for always bearing double flowers at the first flowering season, but later in the autumn only single flowers. It illustrated conditions of a temporary exhaustion in the plant, which is characteristic of this variety, but not of other forms of *Clematis*.

CLEMATIS VITICELLA RUBRA GRANDIFLORA SUB-VIRESCENS (L).

Mr. Noble also forwarded sprays of this plant with semi-foliaceous sepals, they being usually of a deep crimson; the green foliaceous character commenced at the apex of the sepal and more or less descended to the base.

ACHILLEA MILEFOLIUM, DIMORPHISM IN.

Rev. G. Henslow called attention to the hitherto unobserved fact of this plant being dimorphic. The heads are very distinct when in blossom, as in the hermaphrodite flowers the yellow anthers when shedding their pollen protrude from the corolla, though they become withdrawn later on through the contraction of the filaments. This form has been carefully described by H. Müller (*Fert. of Flowers*, pp. 325 & 6), but he does not appear to have noticed the dimorphic form. In the first stage of blossoming of this kind the long style arms of the ray florets are very conspicuous, but later when they shrivel, those of the disc florets rise up, but are of the same form as in the corresponding florets of the hermaphrodite flowers, being provided with the terminal brushes, the papillæ of which, however, seem to be less prominent. The anthers of the female are abortive and contain no pollen, and are often scarcely coherent. Another feature is the frequent reduction of petals and stamens in number to four and three in the female flowers; and, lastly, there is a slight difference in the length of the ovaries, that of the female being a little longer and the tube of the corresponding a little shorter than in the hermaphrodite flowers.

STRAWBERRY WITH FOLIACEOUS EPICALYX.

Mr. Henslow exhibited a specimen in which each of the divisions of the epicalyx consisted of a three-lobed leaflet. They are ordinary bract-like, or sometimes cleft at the apex, which has given rise to the theory that they represent pairs of coherent stipules. The present example would seem to point to their being a whorl of true leaves in their primitive condition, and before separation into three leaflets to form the usual compound leaf.

Floral Committee.

Present: G. F. Wilson, Esq., in the chair; and Messrs. J. Hudson, J. Denning, H. M. Pollett, A. F. Lendy, J. O'Brien, E. Hill, C. Noble, W. Holmes, H. Herby, W. Bealby, W. Wilks, Amos Perry, H. Burnett, T. Baines, H. Cannell, W. B. Kellock, G. Duffield, J. Walker, H. Ballantyne, H. Turner, Shirley Hibberd, M. T. Masters, and R. Dean.

Several new plants appeared from the Veitchian establishment at Chelsea, in *Rhododendron balsamiflorum* (Rajah), which, it was stated, was raised from the same pod of seed that had given double-flowered varieties of yellow, white, and pink colours. In this rich-coloured orange and yellow flower the inner row of petals are very much inferior in size to the lower ones, and the whole flower is very unlike in form any other of the greenhouse section, being widely expanded and the tube shortened. *Todea grandipinnula*, a Fern raised at Chelsea spontaneously—least, its origin is not ascertained, but it is supposed to be *x* *T. Fraseri* and *T. hymenophylloides*; see *Gardeners' Chronicle*, June 12, this year, p. 752, where it is fully described by Mr. T.

yellow grounds, Prince of Orange, Janina, and Edith; 2d, Mr. James Douglas, all seedlings; 3d, Mr. M. Toby, 3, St. Mark's Grove, Fulham Road; 4th, Mr. T. Hooper; 5th, Mr. H. Catley, 16, Claverton Buildings, Bath.

In the class for twelve blooms there were eleven competing collections, some remarkably good flowers being shown, the best coming from Mr. A. Spurling, Blackheath, who had flaked flowers, Sir Toby Belch, Robert Lord, Marc Antony, and Fuson Morris. Self: Bride, Mrs. H. Morris, Jessica, The Doctor, Matador, and the following yellows.—Edith, Bride of Blackheath, and a seedling. Equal 2d, Mr. J. Lakin, and a stand not bearing an exhibitor's name; 3d, Mr. T. Austiss; 4th, Mr. L. Walker, Bulmershe Road, Reading; 5th, Mr. C. Phillips. In the class for 12 blooms of yellow ground Picoetes five stands competed.—Thomas Page, being placed 1st with a very fine lot of seedlings, unnamed—a strain of great value that in the course of time must result in a grand strain of refined yellow ground Picoetes; 2d, Mr. C. Turner, who had the following named varieties in duplicate in a few instances.—Thomas Page, Prince of Orange, Starlight, Mrs. Coleman, Janina, Mazzini, Lightning, and Princess Beatrice. 3d, Mr. A. Spurling; 4th, Mr. T. Hooper; 5th, Mr. H. Catley.

The following certificates of merit were awarded to cut bloom:—To Mr. Thomas Austiss, Brill, for Heavy purple edged Picoetes, Pollie Brazil, very fine, stout pure petals, with broad edging of bright lilac-purple; somewhat in the way of Muriel, but quite distinct. To Mr. James Douglas, for yellow Picoetes, Annie Douglas, yellow ground, edged with bright rose, large full good petals, bright and effective. To Messrs. James Veitch & Sons, Royal Exotic Nurseries, King's Road, Chelsea, for Clove General Stewart, rich deep maroon, large, full, and extra fine.

PLANTS.

In the class for nine specimens of Carnations or pinks Mr. H. Douglas was 1st, with an admirably grown and bloomed lot, consisting of Carnations: R.F., Diana, Miss Helen Lodge; P.F., James Douglas; rose edged Picoetes, Ethel and Favourite; and the following yellows:—Colonial Beauty, Florence, Edith, and Almira. 2d, Mr. C. Turner, with a good lot, consisting of Carnations: S.B., Guardsman; C.B., Lord Milton; purple Picoetes, Mrs. Nicholas; rose Picoetes: Orlando, Constance Heron, and Favourite; yellows: Prince of Orange and Edith; and white Clove Lady Rose Molyneux.

MISCELLANEOUS.

In the way of honorary contributions Messrs. Veitch & Sons had eight boxes of Carnations and Picoetes, including fancies and selfs; quite a representative collection; Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, six boxes of bunches of Carnations and Picoetes, arranged with great taste; and Messrs. Hooper & Co., Centre Row, Covent Garden, had six boxes of cut blooms, also of good quality and variety.

ROYAL HORTICULTURAL OF ABERDEEN.

FROM year to year the shows of this Society have varied in degrees of excellence. Many of the shows held in past years have been bigger, but few have been better than that opened on Thursday, the 22d inst. This year the entries have decreased to 650, as compared with over 1000 last year. There were special prizes offered, but few, however, to be taken into account. The Highland Society's show, which was held in Aberdeen last year, tended to make the horticultural exhibition greater than what it otherwise might have been.

The floor of the Music Hall was covered with tables, on which the exhibits were displayed. As heretofore there were four divisions in the show—professional gardeners, nurserymen, amateurs, and working men. Each of the sections was very worthily represented.

In the professional division the Queen presented a prize for a table of pot plants arranged for effect. The competition was interesting, and resulted in Mr. James Malcolm, Sunnyside Asylum, being 1st; Mr. Alexander Grigor, Fairfield, 2d; and Mr. Thomas Forest (Earl of Aberdeen), Haddo House, 3d. Among the other pot plants shown by professionals Ferns, Pelargoniums, and Fuchsias were noticeable for wealth of beauty. Mr. Alexander Grigor, of Edward Moore, Stonewood, carried 1st honours for Ferns; and Mr. Scott, Aberdeen; although an amateur, successfully competed with a fine Lily among professionals. Mr. Ogg, Morven House, Mr. J. Hendry, Aberdeen, and Mr. Grigor, Fairfield, also competed successfully for pot plants.

For cut flowers Mr. Hunter, Richmond Hill; Mr. Robert Grigor, Sunnyside; Mr. James Mowat, Aberdeen; Mr. Alexander Kay, Westburn; and Mr. William Pope were the most successful exhibitors.

The show of fruit made by the professionals was not extensive, but good. The gentlemen who took the lead in other departments were also first here, but there was one peculiar feature in connection with this section. Mr. Alex. Milne, Aberdeen, carried off a challenge cup last year for Strawberries, after winning it twice. He has again won a challenge cup, presented by Lord Provost Matthews, for a similar exhibit.

In the vegetable department there was very little noticeable beyond the very fine Carrots. Mr. William Davidson, Aberdeen; Mr. Anderson, Lower Cornhill; Mr. Malcolm, Sunnyside; Mr. Reid, Urie; and Mr. William Scorgie, Summerhill, showed the best vegetables.

In the nursery section Messrs. Cocker & Son, Aberdeen, carried all before them. Amateurs exhibited a fine and large selection of pot plants. Mr. A. Gillespie, Aberdeen, showed a collection of British Ferns that would have done credit to any professional table. The other chief winners of prizes were Mr. Maitland, Woodside; Mr. William Silver, Auchmill; Mr. James Minty, and Mr. James A. Kemp, Aberdeen; and Mr. R. Hall, Belhelvie. The cut flowers sent by amateurs were not numerous, and in this section Mr. Duthie and Mr. Pope, Aberdeen, had matters pretty much their own way.

The turn out made by working men in pot plants, cut flowers, fruit, and vegetables was very satisfactory indeed. A feature of the exhibition, and one that received general admiration, was the fine selection of herbaceous plants shown by Messrs. William Smith & Son, nurserymen, Aberdeen.

BEDFORDSHIRE AGRICULTURAL SOCIETY'S SHOW: July 21.

THE horticultural department of the annual show in connection with the Bedfordshire Agricultural Society, which was this year held at Luton on Wednesday week, afforded an additional attraction to the numerous visitors, and the executive are to be congratulated on the interesting display they were able to produce. The General Committee voted the sum of £170 for prizes, and the expenses of the department, and the managers used the money with considerable advantage. It was thought desirable to offer good prizes for collections of plants, flowers, and fruit, such as would attract the first growers in the country, rather than to give a multiplicity of small sums for ordinary productions. The outcome, therefore, was a show that was special in every class, and embraced some of the finest specimens of horticulture possible to bring together.

The marquee was of noble proportions, and allowed of the exhibits being staged so as to show off their merits to perfection. But a serious casualty occurred shortly before mid-day, and had not prompt action been taken, a great disaster would have happened. The marquee stood in a somewhat elevated position, and there was a strong breeze against its side. The iron stays for supporting the strain of the ropes were not sufficiently imbedded in the ground, and suddenly one side of the tent gave way, and with one fell swoop sent the entire table on that side, which had been splendidly set out with boxes of cut Roses and other flowers, into the plants grouped in the centre, breaking up the woodwork, and carrying with it two of the committee-men who were employed in giving the finishing touches to the show. It was an alarming affair, and the whole marquee seemed on the point of toppling over. From the damage such a catastrophe would have caused the show was happily saved, for it would have involved the destruction of several hundreds of pounds' worth of plants. By prompt and determined efforts the marquee was secured, and the damage rectified as far as possible.

In a little time the wind veered round and relieved the pressure which had produced such an alarming contingency.

PLANTS.

Ten exotic Orchids in flower, and six exotic Orchids in flower. Although the prizes offered were good, there was but one collection in each of these classes, and both were furnished by that successful grower, Mr. James Cypher, of Cheltenham, and contained fine examples of *Cattleya crispa*, C. Leopoldi, C. Gaskelliana, C. superba splendens, C. Harrisoniae, *Epipedium vitellinum*, *Cypripedium grande* (hybrid), C. Lawrenceanum, C. barbatum nigrum, *Dendrobium Dearei*, *Scaccolabium Blumet*, and *Oncidium pretextum*. The beauty of these flowers, in their seemingly artless yet highly artistic arrangement, is wonderful.

Twelve stove and greenhouse plants, six flowering.—The 1st prize went to Mr. J. Cypher, Cheltenham, for magnificently grown and much admired specimens of *Ixora Pilgrimii*, L. Williamsi, densely clothed with huge trusses of most exquisite flowers; *Kentia australis*, K. Fosteriana, *Croton Queen Victoria*, *Lantana borbonica*, *Stephanotis floribunda*, *Elaeagnus major*, *Allamanda grandiflora*, and *Cordylina indica*. The 2d prize was won by Mr. J. F. Mould of Pewsey, Wilts., for a capital lot which included *Ixora Reginae*, *Statice Butcheri*, *Cycas revoluta*, *Allamanda nobilis*, *Gleichenia Mendellii*, *Calosanthus Frederick des Bois*, and *Cocos Weddelliana*, perhaps the most elegant of all the smaller Palms, of which so many charming species are now to be found in cultivation.

Extra prizes were awarded to exhibits in this divi-

sion from Madame de Falbe (gr. Mr. W. M. Baillie), Luton Hoo; Mr. Cypher, and Mr. Mould.

Six stove and greenhouse plants, three flowering.—This was also easily won by Mr. J. Cypher with *Ixora Pilgrimii*, *Bougainvillea*, *Erica Thompsonii*, and *Cycas circinalis*. Mr. J. F. Mould, of Pewsey, carried off 2d prize, and C. R. Fenwick, Esq. (gr. Mr. G. Underwood), High Firs, Harpenden, ran a good 3d, with six as clean and creditably grown plants as it was possible to display. This was a noteworthy collection, and was awarded by the judges an extra prize.

Six stove and greenhouse Ferns.—In this class there were four competitors, and each staged charming and well-finished exhibits, the 1st going to Mr. J. Cypher, the 2d to W. Tindall Lucas, Esq., Foxholes, Htchin; and the 3d to C. R. Fenwick, Esq. (gr. Mr. G. Underwood), High Firs, Harpenden.

Fuchsias were poorly represented, one collection from Mr. John Cumberland, of Luton, only being secured, to whom was awarded the 2d prize.

ROSES.

Forty-eight cut Roses, distinct.—Mr. Frank Cant, of Colchester, one of the most successful Rose growers in England, carried off premier honours for magnificent blooms of his best varieties, comprising, amongst others, *Horace Vernet*, a truly grand Rose; *Innocente Pirola*, *Rosierist Jacobs*, *Star of Waltham*, *Madame Gabriel Luizet*, *Lord Frederick Cavendish*, a dazzling scarlet of beautiful finish; *Madame Victor Verrier*, *Niphetos*, *Abel Carrière*, *Alphonse Soupert*, *Ulrich Brunner*, *Duke of Connaught*, and *Countess of Oxford*, &c. Messrs. J. Burrell & Co., of Cambridge, were 2d with a collection in good variety and excellent condition; Mr. William Rumsey, Waltham Cross, being 3d. An extra prize was awarded to the Rev. W. Jackson, Stagden Vicarage, Bedford.

Mr. William Paul, whose association with Roses is well known, exhibited one of the finest collections we ever remember to have seen, not for competition—the climbing *Tea* and *Noisette* Roses, arranged in baskets, being a grand feature.

FRUIT.

The display of fruit was, upon the whole, good, and well represented. 1st place for a collection of eight sorts, Pine excluded, was allotted to Messrs. Rothschild, Gunnersbury Park, Acton (gr. Mr. J. Roberts), with examples of *Violette Hâtive* Peach, *Muscot of Alexandria* Grape, *Brown Turkey Fig*, *Golden Perfection* Melon, *British Queen Strawberry*, *Madresfield Court Grape*, *Bigarreau Napoleon Cherry*, and *Lord Napier Peach*. The 2d. prize went to His Grace the Duke of St. Albans, Bestwood Lodge, Notts (gr. Mr. D. Edmunds); and the 3d to the Earl of Harrington, Elvaston Castle, Derby (gr. Mr. J. H. Goodacre).

In the Grape classes there was abundant and keen competition. For two bunches of white Grapes, J. F. Hasley, Esq., M.P., Gaddesden Place, Herts (gr. Mr. H. Folkes), was 1st with neat compact bunches of *Muscot of Alexandria*; 2d, Mr. J. Roberts, with *Foster's Seedling*; 3d, Mr. J. H. Goodacre.

For two bunches of black Grapes E. M. Mundy, Esq., Shipley Hall, Derby, (gr. Mr. W. Elphinstone), carried off 1st with some fine Black Hamburgs, Mr. Goodacre ranking 2d, and Mr. G. T. Miles, Wycombe Abbey, being 3d.

Pines were shown of excellent merit, premium honours going to Mr. G. T. Miles; 2d, Mr. J. Roberts; and 3d to Mr. J. H. Goodacre.

Visitors seemed rather sparse in the early hours of the exhibition, but as the day advanced the few became hundreds, and increased to thousands in the course of the afternoon and evening.

NEWCASTLE SHOW.

ON July 21, 22, and 23, the sixty-third summer show of the Durham, Northumberland, and Newcastle Incorporated Botanical and Horticultural Society was held, under auspicious circumstances, in the Leazes Park, Newcastle. This show has become of late years one of the most popular of north-country *fiets*, and at this meeting there was a very large attendance of members and the general public. The entries received for plants were quite up to the average attained in previous years, but when the generosity of the Society in the matter of prize money is taken into consideration, this is not at all to be wondered at. The entries included exhibits from prominent botanists and horticulturists in all nook of the country. There was a very large display of Roses in bloom, and the majority of the plants were of rare beauty. The fruit was in great quantity and of admirable quality. Exhibits were displayed by the gardeners of the following, amongst others:—The Duchess Dowager of Roxburgh, Dunbar; the Duke of St. Alban's, Arnold, Notts; the Hon. and Rev. R. F. Grey, Morpeth; Sir J. W. Pease, M.P., Gainsborough; Mr. T. Fry, M.P., Darlington; Mr. Lindsay Wood, Chester-le-Street; Mr. A. R. Glad-

stone, Liverpool; Mr. J. Trotter, Annitsford; Mr. William Whiting, Shotley; Mr. A. Pease, Hammersknott; and Mr. J. R. Chard, Clapham Common, London.

Messrs. William Fell & Co., Hexham, exhibited a good collection of Conifers in pots, viz., *Cupressus lutea*, *Thuja Lobbi*, and a very pretty Japan Maple. Roses and hardy herbaceous plants were very prominent on this stand, and so a very pretty semi-double blue *Lobelia* (raised by Messrs. Fell & Co.). Ivis were most conspicuous, especially the variegated varieties. The exhibits of this firm were highly creditable. In the early morning of the opening day the weather gave every promise of being all that the promoters of the show could desire, but gradually a strong wind arose and the air grew decidedly chilly. This, however, did not affect the attendance in the afternoon. Between five and six o'clock in the evening a very severe, but not very prolonged, thunderstorm broke over Newcastle, and the weather during the rest of the evening was damp and threatening. This resulted in a very much smaller attendance than was expected. The receipts at the gates for the day amounted to £163, against £235 for the first day of the summer show last year; being a decrease of £72.

NOTES FROM DUBLIN.

MUTISIA DECURRENS.—A beautiful climbing Composite from Chili is now very full of flower here, and promises to give a succession of its vivid orange-scarlet *Gazania*-like flowers for some weeks longer.

GYMNADENIA CONOPSEA

varies much in Ireland. The enclosed are two spikes from a pot plant, the tubers having been dug in flower last year and potted at once. The spikes from the pot this season are very fine, and as sweet-scented as Stocks.

PAPAVER SETIGERUM.

I send also a plant or two of what Mr. J. S. Baker, F.R.S., tells me is *Papaver setigerum*, DC., a plant supposed by De Candolle (*Origin of Cultivated Plants*) to be the parent of the opium Poppy (*P. somniferum*) of to-day. The seeds were brought from the banks of the Nile a few months ago, by the Rev. J. P. Mahaffy, LL.D., who very kindly thought of our garden when on a pilgrimage to the tombs and temples of Thebes. This Poppy has six-rayed stigmas, while the garden or spurious opium Poppy is generally eight to ten-rayed, and the true large-fruited opium Poppy of the druggists' shops has from ten to thirteen rays. It grows from 6 to 8 inches in height, and bears white flowers with contorted petals, and is rather pretty.

APOCYNUM ANDROSÆMIFOLIUM.

This curious old Dogbane is figured in Darwin's *Botanic Garden*, and is interesting from its fly-catching habit. It is a by no means ineffective garden plant to boot.

DOUBLE LILIES.

These do not please all alike. I enclose a great rarity—the double *Martagon*—of which I have so far failed to find any record in books. Is it mentioned in Elwes' *Monograph* or not? [No. It is enumerated in Masters' *Vegetable Teratology*.] It is very distinct, and some years *foriferous*, I having had it here with twenty to thirty flowers on a stem. This year the drought has ruined it. I hope all who know or grow it will tell us of its history.

The double white Lily is botanically interesting, and, as Parkinson says, may be grown in the gardens of the curious. Properly speaking, its "flowers" are simply plumes of white bracts, arranged like the leaves alternately on the stem, and not in whorls, as in the properly developed blossoms of this species.

It is general known in gardens that there are two (at least) very distinct forms of the common white Lily (*L. candidum*). The common variety or type has the three inner lobes of the perianth very much wider than the outer ones, while in the other form the perianth-lobes are equal in width, and of a more delicate whiteness throughout. Its habit or port is also more elegant as seen growing.

Perhaps the best of all the double Lilies is *L. tigrinum* B.-pl., which in some places grows 6–8 feet high, and opens its blossoms well. The great fault of all the truly double Lilies is their tendency to fail in flowering except under the most congenial of conditions

WHITE VIOLAS.

I am told *Viola Snowdrop*, sent out by Messrs. Dickson, of Edinburgh, is one of the best of all, but having never seen it, I cannot judge. Herewith I send you a small bunch of a variety named Mrs. Clarke, raised at Wemyss Castle, Fife, and I think also sent out by Messrs. Dickson. If *Snowdrop* beats Mrs. Clarke I think it must be good indeed. I shall never forget a visit I made to the Filrig Park Nurseries, when I was last in Edinburgh, where I saw *Pansies*, *Violas*, *Carnations*, *Pinks*, and *Penstemons* by the acre, grown as one only sees them in the cold, stern northern air, which braces up strong men as well as strong plants. I have a very pleasant souvenir of that visit now in flower here—no less an old rarity and friend than *Fuchsia albo-coccinea*, a most distinct and floriferous old variety, not often to be found as I imagine in modern nurseries. I think if I were asked to recommend a holiday outing to gardeners—especially Southern ones—I should say go to Edinburgh. You will see there a noble city—you are in a very focus-spot of gardens—and if properly accredited, you will meet with some of the most able and genial of all the gardeners in the world. F. W. B.

THE COLONIAL EXHIBITION.

NO. VII.

NATAL.—The exhibits from this colony, though numerous, are of the usual varied character generally seen at exhibitions. It is interesting, however, to note the progress made in the colony in the cultivation and preparation of several important products. Tea, for instance, makes a very good show, both in the number of exhibitors and the appearance of the article itself. From the official catalogue of the Natal contributions, Tea is described as one of the most recently introduced articles of export. In the season 1881–82 the first 500 lb. of Tea grown in Natal seed were produced and placed in the market. At the present time there are under Tea cultivation in Natal "282 acres in Victoria County, 20 acres in Durban County, 70 acres in the Lower Umzimkulu division, and about 200 additional acres are in preparation. The yield per acre has been exceedingly large, amounting in three years to 200 lb. of dry Tea; in four to 400 lb.; in five to 600 lb.; in six to 800 lb." The first fruit of this new industry is furnished in the samples exhibited. The value of Tea exported from Natal in 1883 was returned as £1499.

Amongst fruits, besides Peaches, Apples and similar well-known products, are samples of the *Amatungulu* or *Natal Plum* (*Carissa* [*Arduina*] *grandiflora*), an Apocynaceous shrub with large spines. The fruit when fully ripe has a pleasant refreshing flavour. This and the Cape Gooseberry (*Physalis peruviana*) are probably the two best fruits of the colony. The latter is stated to be "constantly seen in great abundance on the table of the South African steamships." Both the *Amatungulu* and the Cape Gooseberry make excellent preserves. The yellow or St. Helena Peach is described as being so abundant in the orchards of the Dutch farms that it is often used for feeding pigs, and the ground under the trees of deserted orchards sometimes becomes paved with the stones of the fallen fruit.

Amongst tanning materials the two least known, but at the same time interesting substances, are *Iotulwana* bark and root of *Elephantorrhiza Burchellii*, and *Umgwenga* bark (*Harporphyllum caffrum*). The former has attracted some attention of late on account of the high percentage of tannin it is said to contain.

WEST AFRICAN SETTLEMENTS.

The exhibits from Sierra Leone, Gambia, Lagos, and the Gold Coast are extremely numerous, and very varied. Here are fine large samples of Benne seeds (*Sesamum indicum*), Guinea grains (*Amomum melageta*), *Physic* nuts (*Jatropha curcas*), *Palm* nuts (*Elais guineensis*), and other well known African products. Under the name of *Corkwood* nuts are shown the kernels of what appears to be a species of *Aleurites*—beated and pressed they are said to give an oil equal to Olive oil.

From Lagos are many interesting though to outward appearance unattractive exhibits of natural produce, including some very fine masses of crude native indigo, and some remarkable candles, consisting of from ten to twelve seeds about the size of a Hazel nut strung on a piece of the petiole of a Palm. The seeds are called *Varach* seeds, but we are unable

to identify them botanically. Each one of these curious candles is said to give an uninterrupted light for one and a half hours. Some very fine balls of indiarubber are exhibited from the Gold Coast, as well as some large masses of an opaque fossil gum, labelled "Gum Copal, from the interior," which we do not remember to have seen before; *Kola* nuts (*Cola acuminata*), and *Tiger nuts* (*Cyperus esculentus*), are also shown.

CEYLON.

From all points of view the collection from Ceylon is one of great interest. Tea, as might be supposed, occupies a prominent position. Numerous samples being exhibited, some apparently of excellent quality. The preparation of Tea for the market is well illustrated by a series of photographs. In the course of ten years the Tea industry has marvelously increased in Ceylon. In 1876, 282 lb. only were exported, and in 1885 it had reached 3,796,684 lb.—this increase being the result of a high quality Tea, the distinguishing characters of which are described as richness of flavour combined with strength—"the results of most careful cultivation and systematic attention to every detail of manufacture." In the excellent *Illustrated Handbook and Catalogue for Ceylon*, which has recently been published, it is said that "On a Ceylon Tea estate the leaf is never allowed to be handled from the moment it passes into the factory to the time it is bulked in a huge heap preparatory to packing in chests; every stage in the delicate operation is passed automatically, and thus the most rigorous cleanliness and freedom from possible taint is secured."

Amongst spices, Cinnamon takes the most prominent place. Magnificent bundles of this bark are shown, together with chips and clippings. These chips, it seems, are largely used in the manufacture of Thorley's cattle food, as well as in perfumery, and in the distillation of Cinnamon oil, a good deal of which is also made in the island. Jaggery, which is a coarse description of sugar obtained chiefly from the *Palmyra Palm* (*Borassus flabelliformis*), was exported from the northern province of the island during the past year to the extent of nearly 7000 cwt., valued at £2000. Besides this large consumption of Jaggery in Ceylon, the trade might be made one of great importance, as there is at present an active demand from Europe.

Under dyes and dye stuffs we find Jack-wood, the wood of *Artocarpus integrifolia*, which, it is said, "dyes an extremely useful yellow, and is used by the natives for dyeing house mats, fibres for ornament, as well as for giving to cotton and silk cloths the peculiar pale canary colour which is required for the robes of the Buddhist priesthood. It is not exported."

Of Anatto, of which there are some fine examples, both of seeds and paste, the Handbook says:—"This useful and rather delicate orange red dye is obtained from the pulp surrounding the seeds of *Bixa orellana*. This dye is largely used in Europe and India in dyeing silks and also for colouring cheese and other articles. The pulpy matter is separated from the seeds by boiling, and when dried pressed into cakes and shipped. It is imported into England chiefly from French Guiana, where it is native; but the plant is an ancient introduction to Ceylon and is now semi-wild."

Besides a large collection of small wood specimens, of which there is published an excellent list, there are some remarkably fine examples of the choicer cabinet woods such as Calamander, Tamarind, Satinwood, &c. Of the first of these, obtained from *Diospyros quercita*, it is unsatisfactory to know that it is becoming extremely scarce. The tree is a slow growth and the forests in the south of Ceylon are now denuded of all their Calamander trees of a size suitable for furnishing cabinet wood. Of *Satinwood* the produce of *Chloroxylon Swietenia* we also learn from the Handbook that the "trees are common enough in the northern, eastern, and north-western forests, but the proportion of these which yield 'flowered Satinwood' is very small, and this description of wood is therefore comparatively high in price." One would not think there was any scarcity in *Satinwood* when one sees such elaborate show-cases made of it in which the Ceylon Teas are exhibited, and the use to which it seems to be put in Ceylon for carriage building.

The Ceylon court is well arranged, and the Handbook and Catalogue is one of the best of the Exhibition Series. John R. Jackson, Curator, Museums, Royal Gardens, Kew.

FUCHSIAS AT CHISWICK.

A GRAND collection of these plants (indeed, imparting quite a feature to the old garden) is now on view in the Paxton house at Chiswick. Paxton, who has been well and truly styled "the Prince of Gardeners"—what lustre the name sheds, and will shed, upon old Chiswick—the cradle of his reputation, for it was here that he began that career which reflected so much credit on gardeners. But to our task—which must, on account of our limited space, be a very brief one, singling out only some of the more striking sorts.

To begin, then, with Madame Thibaut, a grand variety, one of Lemoine's seedlings, introduced to commerce about two years ago; red tube and sepals, vermilion corolla. Flowers produced in large trusses at the extreme points of the shoots; a decided acquisition. Dr. Sankey is also a somewhat new variety, similar in colour to the preceding, but distinct; very free flowered. Harry Brooks, red tube and sepals, corolla purple; fine habit. Rose of Denmark, white tube and sepals; pink corolla, strong grower. Sedan, self-coloured flower, beautiful habit and free bloomer. Monarch is also another good single self, very free and fine. Mr. Mein, tube and sepals scarlet, white corolla; good. Desideratum, scarlet tube and sepals, bright blue corolla. Aurora superba, salmon tube, and sepals tinged with yellow; free bloomer. Earl of Beaconsfield, orange-yellow flowers, not handsome, but produced in large clusters. Mr. King, scarlet tube and sepals, purple corolla; fine habit. Berliner Kind, tube and sepals scarlet, white corolla; very fine habit. Pendulæformis, a robust and distinct variety, the leaves and tubes are from 3 to 4 inches long, flowers crimson.

Amongst single light varieties the old but still good Rose of Castille well maintains its position.

In doubles note was made of the following:—Avalanche, scarlet tubes and sepals, dark purple corolla, very fine, good habit; one of the best, although not one of the newest sorts. Little Alice, tube and sepals scarlet, corolla white; neat both in bloom and habit. One of the best probably in the double whites is Elizabeth Marshall, a very free flowering variety; Nellie Morton is also an acquisition in this class.

We have not mentioned a tithe of the good things to be seen now in the Fuchsia way at Chiswick, but probably enough has been said to recommend such plants, did they need such recommendation, as useful subjects for the decoration of the greenhouse or conservatory, their charming pendulous, variously coloured blossoms giving an added grace to the wealth of healthy green foliage with which they are clothed. B.

Variorum.

PHENOLOGICAL OBSERVATIONS IN SWEDEN.—R. Hult has discussed the mass of phenological observations accumulated for the last ten years in Sweden. 157 stations have afforded about 150,000 observations. The previous labours of the French botanist, Adanson, had shown that the development of the buds is determined by the sum of the daily mean temperatures since the beginning of the year. Boussingault had, however, shown that the temperature during the period of rest from growth need not be taken into consideration, and that the length of the growing period is therefore inversely proportional to its mean temperature. Linsser concluded that the sums of the temperatures above zero which are necessary to effect development of a plant at any two localities are in direct ratio to the sums of all temperatures at both stations above zero. J. Sachs, the ablest botanical physiologist of the present time, has studied the subject from an entirely different side. He has by direct experiment with different plants determined the influence of temperature on the development and growth, and found that for each arrangement of external conditions about any plant there is a minimum, a best, and a maximum temperature. That is to say, a certain amount of heat is necessary, namely, the temperature minimum; an increase of temperature accelerates the development up to a certain limit, which is the best temperature; every increase above this retards the development up to a certain limit, which is the maximum possible, beyond which the growth of the plant must

cease. The results attained by Hult do not entirely agree with any of the preceding. He finds that the precipitation in Sweden is nowhere so slight that vegetation is regularly restricted, nowhere so great that the blossoming or leafing is disturbed, but the ripening of the fruit occurs at the season of greatest rainfall, and this stage of plant growth is affected by the rain. The blossoming of any plant throughout the whole of Sweden occurs at the same temperature, but when we pass to Lapland and Jemland, the very rapid progress of the spring temperature cannot be followed by the plant, and the blossoming occurs subsequent to the occurrence of the normal temperature. *Journal of the Austrian Meteorological Society*, xix., p. 139.

CINCHONA CULTIVATION IN CEYLON.—Perhaps the most successful piece of Cinchona cultivation in Ceylon of its age and extent is found in a well-known plantation in the neighbourhood of Nuwara Eliya, and some particulars we have learned of the same may be of interest. The area under Cinchona is about 90 acres, trees five to seven years of age, about 3000 trees to the acre. Since 1878 there have been gathered about 105,000 lb. of good bark, and 72,000 lb. of branch and dust. The total outlay is good bark selling up to 2s. a pound, and the branch and inferior for a good few cents locally, it may be judged that the investment is a very profitable one, more probably not over 70,000 rupees, so with much of the particularly since the estate still looks, with perhaps 250,000 trees, as if it had never been cropped, and it cannot be worth less as it stands than £10,000 sterling. The great success of this plantation is, however, specially exceptional, standing out in bold relief to many disappointments.

CITRON.—In recent Consular reports appear interesting accounts of this well-known ingredient of plum-puddings and wedding-cakes. Leghorn Citron is what it is usually termed, but little or none of the article is grown there, Sicily and Corsica furnishing the supply of the new fruit. The Citron tree is of the Citrus variety, and is as near like Lemon as it can well be. It is propagated principally from cuttings, and flourishes near the sea in sheltered positions and in warm and sandy soil. The tree resembles somewhat an overgrown bush, and as the Citrons often weigh from 6 to 8 lb. each, the branches of the tree must be supported by props. The trees are subject to peculiar constitutional diseases which kill without mercy. As the profit of the grower depends largely upon his favourable situation, &c., it is hard to make even a rough estimate of the business. Supposing the trees to be planted 3 yards apart, and allowing fourteen Citrons to each shrub, the average weight of the fruit per acre would be 9346 lb. The price of this fruit in Leghorn is about 6 cents per pound, but from this must be deducted cost of casks in which fruit is shipped, 3dols.; cost of cutting and packing the fruit, 2 dols. per cask; general expenses of Citron farm estimated at 68 dols. per acre. The Corsican or Sicilian grower packs the fruit cut in halves, in casks with brine, and ships to Leghorn, where are nine factories for candying Citron, employing 300 men. On arrival there in these casks the fruit looks like huge Lemons with tremendously thick rinds and little substance inside. They remain in pickle some thirty days, and are tough and bitter. They are then boiled in fresh water till soft, cut into quarters, and all the seeds carefully removed. They are then placed in jars with hot syrup, and for about three weeks the proportion of syrup is constantly increased until no more sugar can be absorbed. The proportion is 80 per cent. of sugar to 100 per cent. of fruit. The quarters are then placed on wire-netting to dry, and when ready are packed in the small wooden boxes so familiar to us. Citron, in short, may be described roughly as the thick peel of a species of Lemon, pickled to extract its bitter flavour and absorb the oil, boiled to make it tender, and saturated with sugar to make it palatable. As with other articles of commerce, so it is complained that the prices of Citron are largely regulated by speculation, varying from 19 cents to 12 cents per pound at Leghorn. A curious fact is that more Citron is imported into Italy than exported from it, the proportion for the last three years being as ten to one. The soil of Cuba is eminently adapted for the Citron shrub; but few trees are, however, grown there, everything being abandoned for the staple crop—Sugar-cane. It seems so hard for communities to learn the lesson of diversified crops; all Sugar-cane,

all Cotton, or all Wheat apparently must be expected. Cuba, Mexico, and California offer advantages in the culture of Citrus fruits, and are only awaiting enterprise to develop these profitable pursuits. *American Grocer*.

PANSIES.—These flowers are always acceptable, and their enforced departure from most south country gardens during the warmer months of the year is generally a matter of regret. It seems that there are some situations—probably on cool clay soils, or in shady vales in the home counties, where these flowers can be well flowered in July, as was evident from a sample sent to our office recently by Messrs. Collins Brothers & Gabriel, Plant Merchants and Seedsman, 39, Waterloo Road, South London. There were altogether eighteen varieties by name, the colours being red-purple, blue-purple, lilac-purple and white, creamy-white, yellow and white, some of the flowers being very nicely fragrant, as Lady Polworth elegans, Ardwell Gem and Brilliant, and all were desirable for beds, borders, and as edgings to other plants in beds.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON.
FOR THE WEEK ENDING WEDNESDAY, JULY 28, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRICAL DEDUCTIONS FROM GLAISHER'S TABLE 7th Edition.	WIND.	RAINFALL.
	Mean Reading 39° Fahr.	Departure from 39° Fahr.	Highest.	Lowest.	Range.	Mean for Day.			
July 22	29.66	-.12	75.9	58.0	17.9	65.3	68	S.S.E.	0.00
23	29.49	-.28	67.5	57.0	10.5	60.6	92	S.	0.08
24	29.47	-.30	70.2	57.0	13.2	62.6	72	W.S.W.	0.26
25	29.41	-.36	60.6	52.0	8.6	56.3	68	S.E.	0.05
26	29.31	-.46	68.3	53.5	14.8	60.9	78	W.S.W.	0.75
27	29.63	-.13	63.4	53.8	9.6	58.5	73	W.N.W.	0.00
28	29.93	-.27	67.3	57.5	9.8	62.4	70	W.N.W.	0.00
Mean	29.56	-.21	67.9	55.9	12.0	59.8	79	variable	1.14

July 22.—Fine bright day; strong wind.

23.—Dull day; rain from 4 P.M.

24.—Dull in early morning; fine and bright generally.

25.—Rain in early morning; dull day.

26.—Heavy rain in early morning; finer from 9 A.M.; fine and bright generally.

27.—Dull day.

28.—Fine and bright in early morning; fine but dull day.

LONDON: Atmospheric Pressure.—During the week ending July 24, the reading of the barometer at the level of the sea decreased from 29.99 inches at the beginning of the week, to 29.76 inches by 5 P.M. on the 18th, increased to 29.81 inches by 1 P.M. on the 19th, decreased to 29.79 inches by 5 P.M. on the same day, increased to 30.07 inches by 1 P.M. on the 20th, decreased to 29.80 inches by 5 P.M. on the 21st, increased to 29.86 inches by 9 A.M. on the 22d, decreased to 29.60 inches by 9 A.M. on the 24th, and was 29.69 inches by the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.82 inches, being 0.06 inch lower than last week, and 0.16 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 84° on the 21st; on the 23d the highest was 67° 5'. The mean of the seven high day temperatures was 74° 8'.

The lowest temperature was 52° on the 20th, on the 22d, the lowest was 58°. The mean of the seven low night temperatures was 56° 1'.

The greatest range of temperature in one day was 27°, on the 21st; on the 23d the smallest was 10°. The mean of the seven daily ranges was 18° 7'.

The mean temperatures were, on the 18th, 67° 5'; on the 19th, 63° 1'; on the 20th, 62° 6'; on the 21st, 70° 9'; on the 22d, 65° 3'; on the 23d, 66° 6'; and on the 24th, 62° 6'; and these were all above their averages (excepting the 23d, which was 1° 6' below) by 4° 9', 0° 6', 0° 2', 8° 6', 3° 0', and 0° 4' respectively.

The mean temperature of the week was 64°.7, being 5° higher than last week, and 2°·3 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun, was 141°·5 on the 21st. The mean of the seven readings was 124°·9.

Rain.—Rain fell on four days to the amount of 0·58 inch.

ENGLAND: Temperature.—During the week ending July 24, the highest temperatures were 85°·6 at Cambridge, 84° at Blackheath, 80° at Leeds; the highest at Truro and Plymouth was 72° at Liverpool and Preston 75°. The general mean was 77°·4.

The lowest temperatures were 45° at Truro, 48° at Sheffield, 49° at Wolverhampton; the lowest at Plymouth was 56°·2, at Newcastle, 56°, at Nottingham, 55°·1. The general mean was 52°·9.

The greatest ranges were at Cambridge 32°·1, at Blackheath, 32°, at Sheffield, 30°; the least ranges were 15°·8 at Plymouth, 20° at Preston and Newcastle, 21°·2 at Bradford. The general mean was 24°·5.

The mean of the seven high day temperatures was highest at Cambridge 78° at Leeds, 76°·2, at Blackheath, 74°·8; and was lowest at Plymouth, 68°·3, at Liverpool, 68°·9, and at Truro, 69°·6. The general mean was 71°·9.

The mean of the seven low night temperatures was highest at Plymouth, 58°·7, at Preston 58°·1, at Brighton 57°·9; and was lowest at Sheffield, 50°·1, at Wolverhampton 52°·4, and at Liverpool 55°·4. The general mean was 56°·1.

The mean daily range was greatest at Sheffield, 23°·3, at Cambridge 22°·2, at Leeds 19°·1; and was least at Plymouth 9°·6, at Newcastle 12°·8, and at Preston 13°·2. The general mean was 15°·8.

The mean temperature was highest at Cambridge, 65°·1, at Leeds 64°·8, at Blackheath 64°·7; and was lowest at Liverpool 58°·3, at Wolverhampton 59°·7, at Sheffield 59°·9. The general mean was 62°.

Rain.—The largest fall was 2·08 inches at Preston, 2·00 inches at Truro, 1·40 inch at Nottingham; and the smallest fall was 0·50 inch at Newcastle, 0·56 inch at Bradford, and 0·58 inch at Blackheath and Leeds. The general mean fall was 1·08 inch.

SCOTLAND: Temperature.—During the week ending July 24, the highest temperature was 75°·6, at Paisley; at Aberdeen the highest was 72°. The general mean was 74°·2.

The lowest temperature in the week was 47°, at Aberdeen; at Edinburgh the lowest temperature was 53°. The general mean was 50°·9.

The mean temperature was highest at Edinburgh, 62°·5, and lowest at Aberdeen 58°·4. The general mean was 60°·8.

Rain.—The largest fall was 2·60 inches at Dundee, and the smallest fall was 0·71 inch at Paisley. The general mean fall was 1·30 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, July 26, 1886, issued by the Meteorological Office, 116, Victoria Street, London, S.W.—The weather has been in an unsettled, changeable condition, with frequent falls of rain, and occasional thunder and lightning. Towards the end of the period the rainfall was very heavy over England and the N. of Ireland, and thunderstorms very general.

The temperature has been 1° or 2° below the mean in Ireland and the W. parts of England, but 1° above or equal to the normal value elsewhere. The highest of the maxima, which were generally recorded on the 21st, ranged from 69° in "Ireland, S." to 74° in "Scotland, W.," and to between 81° and 84° over E. Central, and S. England. The lowest of the minima, which were registered on different dates in the various districts, ranged from 43° in "Ireland, S." to 49° in "Scotland, W.," and to 54° in the "Channel Islands."

The rainfall has been equal to the mean in the N. and W. of Scotland, but more in all other parts of the kingdom. In most districts the excess was large; in "England, N.E.," and "England, N.W.," the fall exceeded the mean by 1·7 inch.

Bright Sunshine shows a further decrease in most districts, the percentages of the possible amount of duration varied from 76 in "Ireland, N.," to 27 in

"Scotland, W.," and "England, N.W.," and to 44 in "England, E."

Depressions observed.—During the whole of this period large and rather deep depressions skirted our extreme west and north-west coasts, while some smaller but well defined disturbances appeared over our Islands and the North Sea. Of the latter class the first was moving northwards over the North Sea, and dispersing as the period commenced. The second passed from the westward over our more southern counties on the 23d, and subsequently moved northwards to Scandinavia, while a third travelled eastwards across Ireland and the north of England during the nights of 25th, 26th. The general currents of wind were southerly to south-westerly, and moderate to fresh in force, but at our westerly stations it blew strongly at times, attaining the force of a gale between the 20th and 22d. At the end of the week northerly and north-easterly breezes had appeared in all the more northern and western parts of the Kingdom and in some places blew freshly or strongly.

Enquiries.

"He that questioneth much shall learn much."—BACON.

CARNATIONS AND PIQUETTES AS TOWN PLANTS are said to thrive relatively with impunity in a smoky atmosphere—the atmosphere, that is, of towns. There is a reason, doubtless, for this in Nature—why the Editor of the *Gardeners' Chronicle* supply it? A *Saxenarian* broadly. [We believe one reason to be that, speaking for itself, the leaves are alike in structure on both sides, whence it results that, unlike most leaves, they have a double breathing apparatus and a double digestive arrangement. Moreover, the leaves are narrow, stand more or less erect, and afford relatively little lodgment for impurities, which are soon washed off by rain. E.T.]

PRITZEL'S INDEX.—Can you tell me if a new edition or a supplement to Pritzel's *Iconum Botanicarum Index* has been published? My copy with a supplement goes to the end of 1865, and bears the date of 1866. [Nothing further has been published.] It is a very useful book, though entirely devoid of critical value. To make use of it one must know the superannuated names of Linnean nomenclature. Besides, it ignores such widely-known publications as the *Gardeners' Chronicle*, although full of figures of new or little known plants [containing, indeed, a larger number of authentic figures than any other publication except the *Botanical Magazine*]. Y.

SALTPETRE IN THE SOIL.—I am anxious to have your opinion upon the subject of rectifying an undue amount of salt, or saltpetre in water. I am engaged to superintend a number of stove and greenhouse plants in the midland (or Karoo) district of South Africa. We have a good supply of water, but it is very salt, or brackish. We have a soft-water tank, but this will not supply our conservatory during seasons of prolonged drought. Can you or any of your readers suggest a simple and inexpensive method of remedying this? I may mention that fruit trees, vegetables, and flowers grown on land irrigated with this water thrive remarkably well, only pot-plants seem to feel the ill-effects of it. Henry Farley.

Answers to Correspondents.

* * OUR TELEGRAPHIC ADDRESS.—Our correspondents are requested to bear in mind that our Registered Telegram Address is "GARDCHRON, LONDON." Telegrams (but not letters) thus addressed will reach the Editor or the Publisher without other address being needed.

CALADIUMS: G. H. We cannot name your leaves. You will do better to send them to one of the nurseries that make a speciality of these plants.

CATTLEYA ELDOBORADO: H. J. R. Recent large importations have proved this plant to be very variable in colour. The varieties have no structural difference, and all, including the plant known as C. Wallisi, are varieties only of C. Eldorado. So far as the names by which the varieties are known in gardens Mr. Williams gives the best information. In collections the pale form such as that you sent first is always called a bad Eldorado, which correctly describes it. The flower sent as C. quadricolor is a C. Eldorado.

CORRECTION.—In last week's issue, in a footnote to "Tropical Fruit," p. 121, col. c, by a printers error July 20 is made to read July 26.

INSECTS: Camille. The insects are females of one of the small circular flattened species of scales (Coccidae), but as you give no particulars of their habits or of the plants they infest, we can give no advice about them beyond washing the plants with soap-suds and Gishurst, or lime-water. L. G. W.

NAMES OF FRUITS: F. T. Peaches: 1, Royal George; 2, Walbourn Admirable. Nectarine: Violette Hative. Grape: very like Royal Muscadine, but cannot say for certain without seeing a leaf of the plant.

NAMES OF PLANTS: T. B. 1, Selaginella denticulata; 2, Crassula coccinea; 3, Asplenium Maritimum; 4,

Scolopendrium vulgare; 5, a variety of Aspidium aculeatum; 6, Gynogramma, species not known. —F. H. T. Carpinus betulus.—E. T. Mesembryanthemum edule.—J. D. Dipladenia Brearleyana.—H. J. C. 1, Liliom perenne; 2, not recognised; 3, Bromus asper; 4, Festuca elatior; 5, Calamagrostis lanceolata; 6, Agrostis vulgaris; 7, H. C. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

PEAR SHOOTS DISFIGURED AND DEAD: Albert Edwards. Caused by the sun shining on the shoots when wet. No injury to the lower leaves on the shoots looked too healthy for trees having anything wrong at the roots.

ROSES FOR MARKET AND OTHER KINDS: X. A Rose grower's catalogue will furnish you with the names of the newest and best. Really market kinds are but few, and such as Séneur Vaisse, Général Jacqueminot, Charles Lefebvre, Jules Margottin, Jacques Neuhart, X—R. J. W. Anthesis Homère, Mad. Falcot, Marchal Niel, Allan Richardson, Céline Forestier, amongst Teas and Noisettes.

WASH FOR ROSES HAVING GREENFLY AND RED-SPIDER: A Fifteen Years' Subscriber. Water, 1 gallon; soft-soap, 4 oz.; Quassia chips, 4 oz. Let the chips boil ten minutes in the water, adding the soap as it cools. If spider be abundant, add 1 lb. of flowers of sulphur can be mixed as a thick paste, and stirred into the above mixture.

COMMUNICATIONS RECEIVED.—Professor Cornu, Paris (with thanks); Lucien Linden, Ghent; Alphonse de Candolle, Geneva; J. V. V. Brussels; W. B. H. H. J. R. Florence; F. W. B. Dublin; Hansen & Larsen, Copenhagen; J. M. W. W. A. and A. W. (too late); J. B. C. W. (too late for this week); W. T. F. S. & Co.—R. D. H. E.—W. E. J. W.

Markets.

COVENT GARDEN, July 29.

MARKET depressed, with heavy supplies. James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.	s. d. s. d.
Cherries, 1/2-sieve .. 2 0 5 0	Melons, each .. 1 0 0 0	
Currants, 1/2-sieve .. 2 6 3 0	Peaches, per dozen .. 2 0 10 0	
Figs, per dozen .. 1 6 2 0	Pine-apples, Eng. lb. .. 0 3 0 0	
Grapes, per lb. .. 1 0 3 0	St. Michael, each 2 8 0 0	
Lemons, per case .. 118 0 3 0 0	Strawberries, per lb. 0 3 0 9	

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.	s. d. s. d.
Artichokes, per doz. .. 2 0 10 0	Mushrooms, punnet 1 0 2 6	
Asparagus, Eng., 100 .. 2 0 5 0	Mustard and Cress, doz. 4 0 0 0	
Beans, Kidney, lb. .. 8 0 0 0	Oilers, per bushel .. 4 0 0 0	
Beet, red, per dozen .. 2 0 10 0	Parley, dozen bunch 1 0 0 0	
Carrots, per bunch .. 6 0 0 0	Potatoes, per cwt. .. 4 0 5 0	
Cauliflowers, per doz. .. 3 0 0 0	" kidney, per cwt. 4 0 5 0	
Celery, per bundle .. 1 6 0 0	Silber, per thousand 0 3 0 0	
Cucumbers, each .. 6 0 0 0	Spinach, per bushel 5 0 0 0	
Endive, per dozen .. 2 0 10 0	Spruce Asparagus, per	
Herbs, per bunch .. 0 4 0 0	.. 1 0 0 0	
Leeks, per bunch .. 1 0 0 0	Tomatoes, per lb. .. 0 6 0 0	
Lettuce, per dozen .. 2 0 10 0	Turnips, bunch .. 0 6 0 0	
Miner, green, bunch 4 0 0 0	Veget. Mar., each .. 0 6 0 0	

POTATOES.—Jersey best Kidneys, 4s.; do. Rounds, 4s.; Kent Kidneys, 3s. to 6s. 1d. Rounds, 4s.; do. cwt.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.	s. d. s. d.
Aralia Nidulata, doz. 6 0 13 0	Foliage Plants, var. .. 2 0 10 0	
Begonia, 12 plants, var. .. 2 0 10 0	.. each .. 1 0 0 0	
Begonia, 12 plants, var. .. 2 0 10 0	Fuchsias, dozen .. 3 0 0 0	
Begonia, 12 plants, var. .. 2 0 10 0	Hydrangeas, doz. .. 0 10 0 0	
Begonia, 12 plants, var. .. 2 0 10 0	Lilies, in var., doz. 1 0 0 0	
Begonia, 12 plants, var. .. 2 0 10 0	Lobelias, per dozen 3 0 0 0	
Begonia, 12 plants, var. .. 2 0 10 0	Marguerite Daisy, per	
Begonia, 12 plants, var. .. 2 0 10 0	.. 1 0 10 0	
Begonia, 12 plants, var. .. 2 0 10 0	Mignonette, per doz. 4 0 0 0	
Begonia, 12 plants, var. .. 2 0 10 0	Myrtle, per dozen .. 2 0 0 0	
Begonia, 12 plants, var. .. 2 0 10 0	Nasturtiums, dozen 3 0 0 0	
Begonia, 12 plants, var. .. 2 0 10 0	Palms in var., each 2 0 0 0	
Begonia, 12 plants, var. .. 2 0 10 0	Pelargoniums, doz. 6 0 0 0	
Begonia, 12 plants, var. .. 2 0 10 0	.. scarlet, per doz. 6 0 0 0	
Begonia, 12 plants, var. .. 2 0 10 0	Petunias, dozen .. 2 0 0 0	
Begonia, 12 plants, var. .. 2 0 10 0	Rhodanthos, dozen .. 0 0 0 0	

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. t. d.	s. d. t. d.
Arum Lilies, 12 blms. 4 0 6 0	Marguerites, 12 bun. 3 0 6 0
Asters, 12 blooms 4 0 6 0	Mignonne, 12 bun. 1 0 3 0
Bouvardias, per bun. 0 6 1 0	Panicles, 12 bunches 1 0 3 0
Campanulas, 12 bun. 4 0 9 0	Pelargoniums, per 12 0 0 1 0
Candied, 12 blooms 4 0 9 0	—scarlet, 12 bunches 0 0 1 0
Cornflowers, 12 bun. 1 6 3 0	Pinks, var., 12 bun. 2 0 4 0
Daisies, common, 12 2 0 4 0	Pyrethrums, 12 bun. 2 0 6 0
Delphiniums, 12 bun. 2 0 6 0	Rhodanthus, 12 bun. 6 0 9 0
Eucharis, per dozen 2 6 4 0	Roses, tea, per doz. 0 0 2 0
Forget-me-Not, or 2 0 4 0	—red, per dozen 0 0 2 0
Myosotis, 12 bun. 2 0 6 0	—outdoor, 12 bun. 2 0 6 0
Gardenias, 12 blooms 2 0 6 0	— Moss, 12 bun. 6 0 12 0
Jasmine, white, bun. 0 6 4 0	Stephanotis, 12 spys. 1 6 3 0
Lapageria, red, 12 bl. 1 0 2 0	—white, 12 bun. 1 6 3 0
Lilium candidum, 12 0 6 1 0	Sweet Sultan, 12 bun. 3 0 6 0
—blooms 0 6 1 0	Tropaeolums, 12 bun. 1 0 2 0
Lilium longiflorum, 12 blooms 4 0 6 0	Tuberose, 12 blms. 0 4 1 0

SEEDS.

LONDON: July 28.—Messrs. John Shaw & Sons, of 37, Mark Lane, London, E.C., report to-day's seed market poorly attended, with hardly any transactions passing. Cloverseeds of all kinds, as might be expected, are for the moment neglected. Higher prices for white are again reported from Germany. More money is asked for Trifolium; new English samples show fair quality. Samples of this year's Rapeseed, Rye, Trifolium, and also of French-Italian, are now coming to hand. For Canary and Hempseed the tendency of rates is downwards. Feeding Linseed keeps firm.

CORN.

MARK LANE: July 26.—The Wheat trade to-day was somewhat disappointing. East India Wheats compared 6d. above the rates of Monday last, but no advance could be quoted on any other description. The demand for flour was very slack. Barley continues to arrive slowly, and is taken off in much the same way, prices ruling firm. With prolonged scarcity Egyptian Beans further advanced 6d. per quarter. Peas met a quiet demand at unaltered value. Heavy Swedish Oats showed an advance; the common qualities remained dull.

Average prices of corn for the week ending July 24:—Wheat, 31s. 3d.; Barley, 23s. 9d.; Oats, 20s. 7d. For the corresponding period last year:—Wheat, 33s. 11d.; Barley, 25s.; Oats, 21s. 8d.

FRUITS AND VEGETABLES.

COLUMBIA (East London): July 28.—Plentiful supplies of all kinds, trade fair, prices lower. Quotations:—Red Currants, 3s. to 3s. 3d. per half sieve; black Currants, 3s. to 4s.; Cherries, 2s. 6d. to 3s. 6d.; Gooseberries (ripe), 3s. to 4s.; Plums, 2s. 6d. to 3s. 6d. do.; Strawberries, 3s. to 4s. per peck; Scarlet Beans, 6s. to 7s. per sieve; Peas, 5s. to 7s. per sack; Broad Beans, 2s. per sieve; Cabbages, 5s. to 6s. 6d. per dozen; bunch spring Onions, 3s. to 4s. 6d. per dozen; bunch Turnips, 2s. to 2s. 6d. do.; bunch Carrots, 2s. to 3s. do.; bunch Parsley, 2s. to 2s. 6d. do.; bunch Mint, 2s. do.

STRAFORD: July 27.—Supplies have been good and a fair trade has been done at the following prices:—Cabbages, 3s. to 5s. per tally; Turnips, 2s. 9d. to 3s. per dozen bunches; Carrots, household, 2s. 9d. to 3s. do.; Green Gages, 6s. to 6d. per dozen; Cherries, white, 5s. 9d. to 7s. per basket; do. black, 3s. to 5s. do.; black Currants, 2s. 6d. to 3s. 3d. do.; do. red, 2s. 6d. to 3s. do.; Cucumbers, 8s. to 1s. 4d. per dozen; green Peas, 3s. 6d. to 4s. per bag; Parsley, 3d. per dozen; Mint, 1s. 1d. per bunch; Tomatoes, 1s. to 1s. 9d. per dozen.

POTATOS.

BOROUGH AND SPITALFIELDS: July 27.—Supplies increase with the advance of the season, and prices rule in favour of the consumer. Quotations:—Essex kidneys, 6s. to 6s.; Kent Regents, 5s. to 7s.; Jersey and French kidneys, 5s. to 7s.; Cherbourg round, 3s. 6d. to 4s. 6d. per cwt.

COLUMBIA (East London): July 28.—Quotations:—Early Rose, 4s. to 5s.; Beauty of Hebron, 5s. to 5s. 6d.; Jersey kidneys, 6s. to 6s. 6d.; do. rounds, 4s. to 4s. 6d.; St. Malo kidneys, 5s. to 5s. 6d.; do. rounds, 4s. to 4s. 6d.; Cherbourg kidneys, 6s. to 6s. 6d.; do. rounds, 4s. to 4s. 6d. per cwt.

STRAFORD: July 27.—Quotations:—Jersey, 5s. 6d. to 6s. per cwt.; do. Rose, 70s. to 80s.; Hebron, 50s. to 100s. per ton.

Imports.—The imports into London last week consisted of 4293 packages Cherbourg, 6308 Jersey, 40 sacks Boulogne, 486 boxes 624 cases 18 tons from Barfleur.

HAY.

WHITECHAPEL: July 27.—Trade very dull, with large supplies, and a decidedly drooping tendency in prices. Quotations:—Clover, prime, 90s. to 108s.; inferior, 70s. to 85s.; hay, prime, 70s. to 95s.; inferior, 45s. to 65s.; and straw, 26s. to 37s. per load.

July 29.—There was a large supply on sale. The trade was very dull, and prices were easier for hay.

STRAFORD: July 27.—Hay, 80s. to 100s.; Clover, 90s. to 110s.; and straw, 30s. per load.

Government Stock.—Consols closed on Monday, Tuesday, Wednesday, and Thursday, at 101½ to 101½ for both delivery and the account.

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Five minutes' walk from Covent Garden.
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WHITE WIRE on Reels, 12. 3d. per lb. } 4 reels to the lb.
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BLUE WIRE, for Stalks, 4½d. per lb., in 3½-in., 7-in., and 10-in. lengths.
BRIGHT WIRE, for Camellias, 6½d. per lb., in 7-in. lengths. (50) 8½d. per lb.
BLUE WIRE, in Rings, from 4s. per stone of 14 lb.
N.B. No less than 3 lb. packets of Reel Wire, or 6 lb. packets of Stalk Wire at these prices.

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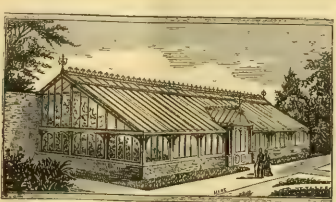
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15ft. by 9ft. 3in. 0 .. 5 20ft. by 15ft. 7in. 0 .. 12 3
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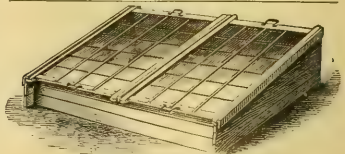


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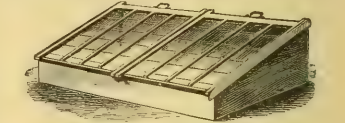
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5-light frame, 24 feet by 6 feet } Cases free 10 0 0
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16 feet long .. 6 feet wide .. 6 0 0 .. 5s. 6d. car. paid.
These Frames are 13 inches deep in front, and 14 inches deep at the back; the lights are 2 inches thick, with a strong iron strengthening rod, and one handle to each light. All painted four coats of best oil colour, the lights being glazed with best 21-oz. English glass. Orders amounting to 60s. carriage paid to most Railway Stations in England and Wales.

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CONTAINS ARTICLES ON ALL DEPARTMENTS OF

GARDENING, PRACTICAL AND SCIENTIFIC,

REPORTS of EXHIBITIONS, REVIEWS of BOOKS, and NOTICES of all HORTICULTURAL MATTERS of CURRENT INTEREST,

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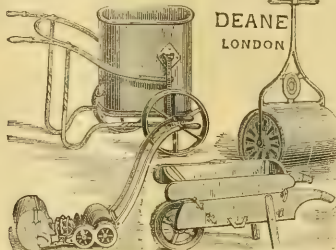
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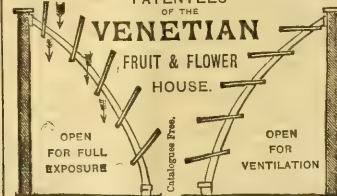
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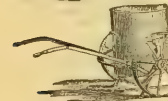
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GARDENER (HEAD); age 29.—T. OSMAN, Otterburn Park, Chesham, Surrey, can, with confidence, recommend his Foreman to any Nobleman or Gentleman requiring the services of a good practical man. Two years in present situation. For further particulars, please address above.

GARDENER (HEAD); age 29, married when suited.—R. HUBBARD, The Gardens, Rushton Hall, Kettering, is at liberty to engage with any Lady or Gentleman requiring a thoroughly practical man. Fifteen years' experience in good establishments. Excellent references from past and present employers.

GARDENER (HEAD).—Age 38, married, three children; 17 years in present situation. Satisfactory references for leaving.—GARDENER, Mr. Turner, Cranford Court, Newport Pagnell.

GARDENER (HEAD); near London preferred.—Thoroughly practical in all branches. Excellent character from Noblemen and Gentlemen. Good references as to ability.—GARDENER, 5, Rutland Street, Montpellier Square, Knightsbridge, S.W.

GARDENER (HEAD); age 40, married.—Mr. HOWARD, Greyrook Castle, Penrith, will be pleased to recommend C. Micklewhite, who was twelve years his Head Gardener. Trustworthy and competent in all branches.—7, Prince's Road, Richmond, Surrey.

GARDENER (HEAD); age 28.—Mr. TEGG, Bearwood, Wokingham, can, with every confidence, recommend his Foreman—T. Stacey—to any Nobleman or Gentleman requiring the services of a thorough practical man. Gardener. Trustworthy and competent in all branches. Previously in the Gardens of Blenheim, Heckfield, and Lockinge.—For further particulars address above.

GARDENER (HEAD WORKING).—Married; a thorough Practical man; excellent character.—G. Mr. Dunbar, Nurseryman, Boxmoor, Herts.

GARDENER (HEAD WORKING).—Married, no family; fourteen years' experience, thoroughly practical in all branches. Good character from previous employers.—GARDENER, Fuchsia Cottage, Hanworth, Middlesex.

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GARDENER (HEAD WORKING).—Well experienced in the Culture of Roses, and duly qualified in the other various departments.—BROWN, Gardens, Easing Park, Ealing.

GARDENER (HEAD WORKING), where two years are kept.—Age 45, married, three children; practical, general Gardener, also understands Management of Land, Stock, Poultry, &c. Good character.—A. P., The Gardens, Hemel Hempstead, Herts.

GARDENER (HEAD WORKING).—Married; thoroughly practical in all branches. Five years in present situation. Leaving through death. Good character and references.—GARDENER, The Manor House, Collier's Wood, Lower Tooting, S.W.

GARDENER (HEAD WORKING), where two or three are kept; age 29.—The Advertiser is open to engage with any Lady or Gentleman wanting a practical pushing man. Fourteen years' experience. Thoroughly competent in all branches. For the last eight years Foreman in large establishment. Can be well recommended.—J. G., 38, Brook Street, Lambeth, S.E.

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GARDENER, in Gentleman's Family.—Age 48, no family; long experience in all branches. Leaving on account of Gentleman quitting.—GARDENER, Mr. Bunney, 6, Lewes Road, Brighton.

GARDENER (SINGLE-HANDED).—Age 25; can have good character from last place.—J. R., Sidney House Stables, Knockholt, Kent.

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GARDENER (UNDER, in a Gentleman's Garden, or SINGLE-HANDED).—Age 33; eleven years' good character.—G. A. BULL, Houghton, Huntingdonshire.

GARDENER (UNDER).—Age 22; five years' experience, with good references.—F. MAYNE, The Garden, Margery Hall, Keigate, Surrey.

GARDENER (UNDER).—Age 17; sharp, intelligent. Three and a half years' experience of Garden employment.—FREDERICK SHERVAL, New Street, Henley-on-Thames.

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To the Trade.

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JOURNEYMAN (HEAD), in a large establishment.—Age 24; nine years' experience. Good testimonials.—WILLIAM STEPHENS, Manor House, Nottelch, Gloucestershire.

JOURNEYMAN (FIRST), in good establishment.—Age 21; seven years' good character.—J. H., 9, Tetford Road, Chelsea, S.W.

JOURNEYMAN (FIRST or good SECOND), in a good establishment.—Age 22.—F. K., The Gardens, Glyde Place, near Lewes, Sussex.

JOURNEYMAN, in a good establishment.—Age 23; nine years' experience. Can be well recommended.—H. CROOKS, Holloway, near Cromford, Derby.

JOURNEYMAN, in the Houses.—Age 20; six years' experience. Good references.—WM. AXFORD, 3, Pown Terrace, Lyndhurst, Hants.

JOURNEYMAN, in a good all-round establishment.—Age 21; good reference. Last place eighteen months.—C. B., Boxmoor P.O., Hemel Hempstead, Herts.

TO NOBLEMEN, GENTLEMEN, and GARDENERS.—C. Fox, late Foreman to Mr. R. Green, Florist, London, at his Growing Establishment, seeks a situation in a Private Establishment. Good character and testimonials; married, age 28.—F. Grosvenor Cottage, Wellington Road, North Hounslow.

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SHOPMAN.—Age 27; thirteen years' experience.—QUERCUS, Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

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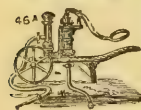
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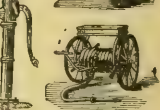
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1886.

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G. C.
July 31, 1886.

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Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, July 31, 1886. Agent for Manchester.—JOHN HEYWOOD.

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SALES BY AUCTION.

Thursday Next.—(Sale No. 7197).
SPECIAL SALE OF ORCHIDS IN FLOWER AND BUD.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, August 12, at half past 12 o'clock precisely, the following varieties of **CATTLEYA GASKELLIANA**, **C. ELDOURADO SPLENDENS** (ODONTOGLOSSUM), **HICOTIENSE ALBUM**, **MASVALUAS**, **DENDROBES**, **ODONTIDS**, and other ORCHIDS, in FLOWER.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7197).
VALUABLE IMPORTATIONS OF ORCHIDS.
MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, August 12, splendidly imported varieties of **ALCANTHEA CURCULOGIDENS** (rare), **CYPRIPEDIUM SIONEI**, **PHALANOPSIS VIOLEACEA**, and **P. SUMATRANA**, all in extra fine condition, Messrs. STEVENS also importations of **CATTLEYS**, **LILIA**, **ODONTID** **JONESIANUM**, and other ORCHIDS from Brazil, &c.

On view morning of Sale, and Catalogues had.

Dutch Bulbs.—Trade Sales.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **SATURDAY**, August 14 at half past 12 o'clock precisely, the following sections of **DUTCH FLOWER ROOTS** from some of the leading Growers in Holland, specially lotted to suit the Trade and other Large Buyers.

On view the morning of Sale and Catalogues had.

Tuesday Next.
THE CHOICE COLLECTION OF ESTABLISHED ORCHIDS formed by Mr. Munyard, of Kingston Hill. For Sale, without reserve.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Dr. Munyard to **SELL by AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT**, August 10, at half past 12 o'clock precisely, his choice and well known collection of ESTABLISHED ORCHIDS, very fine first condition, including splendid varieties of **Lilium elegans**, **Miltonia Reginaldi**, **Cattleyas**, **Odontids**, **Odontoglossums**, **Cypripediums**, and very fine specimens of **Cattleya intermedia**, and **Lilium purpuratum**, **Cattleya**, **Stanhopea**, grand plants; and many others.

On view morning of Sale, and Catalogues had.

Friday Next.
CYPRIPEDIUM SANDERIANUM.
MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to **SELL by AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, August 13, at half past 12 o'clock precisely, a splendid lot of this remarkable and superb new **CYPRIPEDIUM**, offered for the first time. **CYPRIPEDIUM SANDERIANUM** is figured and fully described in the *Gardener's Chronicle*. It stands by itself in its singular and quaint beauty, and is the only **Cypripedium** besides **caucasicum** producing flowers with tails 18 and 20 inches long. It produces three flowers and more on each stem, the petals are very broad at the base, and of a reddish-purple mottled with a light blue, the tail-like part is black-purple, and the tips are quite white, covered with thick hairs. The pouch is a dark brownish-red. It is altogether a showy, remarkable, and fine new Orchid.

Professor Reichenbach in describing it, says:—"This is an extraordinary surprise, as well as a great beauty, from the Malayan Archipelago. It is a great pleasure to dedicate this fine novelty to Mr. F. Sander."

On view morning of Sale, and Catalogues had.

Friday Next.
SACCOLABUM CELESTE, CECOGYNE FORSTER-MANNI, VANDA HEDDERLEY, AERIDES GODEFRIVANUM, CECOGYNE PANDURATA, CYPRIPEDIUM SPECIES; also a few plants of the rare *Ceylon variety of DENDROBIUM HETEROCARPUM*.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to **SELL by AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, August 13, at half past 12 o'clock precisely, a fine lot of **AERIDES GODEFRIVANUM**. It is a superb new species. Professor Reichenbach describes it in the *Gardener's Chronicle* for June 26 last, and says:—"The most stately member of the Foxglove group. The flowers can, however, only be compared to those of *Aerides maculatum*. This might be considered a giant *Aerides* affine with *Lobelia* flowers improved. Professor Reichenbach also states 'it produces a magnificent and glorious lanceolance,' a statement which is not exaggerated. We saw the plant in flower a few weeks since."

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On view morning of Sale, and Catalogues had.

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On view morning of Sale, and Catalogues had.

Dutch Bulbs.—Special Trade Sales.
MESSRS. PROTHEROE AND MORRIS beg to announce that they have now fixed their **SALES OF DUTCH FLOWER ROOTS**, for the ensuing season, to take place at their large Auction Rooms, 67 and 68, Cheapside, E.C.

THE FIRST AUCTIONS will take place on **MONDAY**, August 16; **THURSDAY**, August 19; **MONDAY**, August 23; **THURSDAY**, August 26; **SATURDAY**, August 28; and **MONDAY**, August 30.

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Carefully saved only from named Exhibition Flowers, splendid mixed, highly recommended, per 10,000 seeds 22s., 1000 seeds 2s. 6d.

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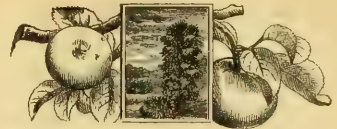
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THE

Gardeners' Chronicle.

SATURDAY, AUGUST 7, 1886.

A SEED FARM.

A LARGE party left London on July 21 for Manningtree, for the purpose of visiting the 1500 acres of land devoted by Messrs. Carter partly to agriculture and the growth of seed corn, and partly to horticulture—the "flower farms" including one of the largest seed-growing businesses in England. Horticulturists naturally become somewhat hardened to the wonderful effects of such displays of flowers as only a seed grower can exhibit; but at St. Osyth, where the flower farm extends to 150 acres, the gravity of the veterans fairly failed them. The brilliancy of the colours so surprised a gentleman who is not a horticulturist, and who was paying his first visit to these dazzling fields, that he exclaimed, "Can this be genuine?" He had never moved in such a world before, among colours to whose effect we may apply the words used by Othello in the last sad soliloquy before he kissed and smothered Desdemona—colours so perfect and so bright, that after looking for a short time on the widespread beds of purple, red, blue, white, and other colours, the eyes grow tired and pained—the "sense aches" at the sight. Amid this large display of wonders one can hardly particularise; but the Tom Thumb Tropæolums originated here, and perhaps among these "little wonders," the greatest wonders in regard to colour and floral display are found. Here is King of Tom Thumbs, a brilliant scarlet, an acre of it all ablaze, and hardly a leaf to be distinguished among the mass of blossom. What a contrast to the unmodified Nasturtium of thirty years ago, which was little better than a tangled jungle of leaves and straggling stems, with a few blossoms here and there.

For several hours the horticulturists were continually being electrified: Ruby King Tom Thumb Tropæolum, a marvellous purple-red, greatly struck us, and we were struck again with Dunnett's Tom Thumb. An acre and a half of Sweet Alyssum brought us the relief of a sheet of pure white, and a ridiculous black and villanous Potato, introduced from Zululand, and planted here as a foil probably, quite cheered us up.

After so much beauty and perfection it was a relief to meet with something ugly. But more shocking was to follow, for we fell in with the new Eschscholtzia, delicate yellows and several other colours, very superior to the coarse yellow original Eschscholtzia. Also Larkspurs, very shocking! and the scarce and sweet yellow Lupin, which had a great effect on the most experienced florist of the party, owing to its rarity. He moved on at length, for some one cried "Eccremocarpus!" and there was that handsome creeper growing as a field crop, supported by sticks like a Pea, and blossoming freely. This speaks well for Essex, and for the rich, deep, dry land of St. Osyth.

The Centaureas, the Emperor blue Cornflower, and the pure white, pulled us up for a moment, as did a great number of annuals and other flowers worthy to be named. Pansies and Carnations, Candytuft, Marigold, and

Mignonette, Coreopsis, and the rest, common but beautiful. We noticed in passing the curious habit of the *Convolvulus minor*, which turns its blossoms to the south, so that if you sow it outside your windows they should not be on the south side of the house, or the habit of the flower will prove a drawback. But here we are among the *Godetias*, electrified again! They are indeed terribly lovely! The Lady Albemarle is one of the most brilliant and full of blossom; and Lady Satin, a rose-coloured *Godetia*, was also much admired. Happily the *Nemophila* was out of blossom, and to that extent we escaped the exhaustion which electric eels are said to feel when the shocking has been too constant and severe.

The care and pains bestowed here are beyond praise. The beds are most carefully "rogued." "Improved" flowers, much mixed in breed, are extremely liable to produce always a few plants which are not true to type, and these are removed with so much care that we scarcely detected a single straggler in a survey extending over several hundred acres.

To this short notice of flowers must be added a word on the several varieties of Wheat which were cross-fertilised at Forest Hill under the supervision of Mr. C. H. Sharman, Messrs. Carter's manager. They present decided novelties, especially the bird-proof Wheat, and one or two very early sorts bred from Talavera. Their reception on the market when offered should be warm. *H. E.*

New Garden Plants.

ODONTOGLOSSUM CRISPUM, Lindl.

FROM what I have seen Baron Hruby's plant comes nearest *Odontoglossum crispum* Veitchianum. It is, no doubt, very grand. Sepals neatly broad, the lateral ones rather long, plicated along the disc with brown, and adorned at the margins with mauve. Petals nearly unguiculate, triangular, toothed and wavy brown in disc, with mauve marginal decoration. This made its appearance quite of late at Mr. F. Sander's. I believe it is the same plant of which Mr. Sander favoured me with a fine dried wild grown flower. The plant has been exhibited at South Kensington, where it had a certificate. It has to leave England, Baron von Hruby having just purchased it at the low figure of 100 guineas. *H. G. Rehb. f.*

CYPRIPEDIUM ORPHANUM, n. hybr. Angl., Hort. Veitch.

The leaves are short, remarkably stiff, very shining, not marbled. Peduncle very tall, reddish-brown. Bract exceedingly short. Upper sepal triangular, blunt at the apex, with a dark purple midline, seven green nerves on each side, light purple hue on the margin. Body of upper sepal very short, with ten green nerves. Petals oblong, blunt acute, a little bent down, flat, white, with a deep purple midline, mostly olive-green, spotted at base. Lip very wide, nearly retuse on mouth, purple-brown in front, light sulphur at the back, with numerous purple spots on the base. Staminode with an inflexed tooth on each side and a yellow apiculus in the mid, light purple-brown on each side.

This poor plant has no known parents, it is an orphan. It appeared at the Royal Exotic Nursery of Messrs. J. Veitch & Sons, under Mr. Sden's care. With all deference to this grand establishment we cannot believe in *generatio æquivoca*. Parents must be, *Omne vitium ex uno*. But who were the unknown parents? I guess *Cypripedium Druryi* and *C. Argus*. The small bract, the small lower sepals, the yellow back of the lip, the deep lines in the middle of the upper sepal and the somewhat deflexed petals speak for *Cypripedium Druryi*; as the short leaf, the tall peduncles, the spots of the petals, the staminodes, the upper sepal, except the midline, make one think of *Cypripedium Argus*. *H. G. Rehb. f.*

A TRIP TO CHIRIQUE.

(Continued from p. 145.)

ON entrance into the river we found it a swift flowing stream some 50 yards in width, its banks on both sides completely covered with a majestic Palm locally known as the "Silicoo." This tree is known to botanists under the name of *Raphia tædigeria*, Mart., and according to the authors of *Genera Plantarum* it is the only American species of the genus, the remaining five or six which constitute all at present known, being natives of Tropical Africa and Madagascar.

It is a handsome and noble tree, and appears to exult in the swampy alluvial deposit, which is a characteristic of the district for some miles inland. The large quantity of trees, and their luxuriant growth, without doubt form one of the provisions of Nature for rendering such tracts of country inhabitable for human beings, and probably exert in this their own home an equally beneficial influence on the hygiene of the neighbourhood as do the Eucalyptus and other trees of luxuriant growth, in situations where, from the dampness of the locality, their presence is required to absorb the superabundant moisture.

The leaves alone of those we saw on the Wari-Biarra River were fully 50 feet in length and about 6 to 8 feet in width, forming, as Wallace says, "probably the largest-sized leaf in the whole vegetable kingdom."

The tree bears a fruit oval in outline, some 3 inches in length, and 2 inches in diameter, which is covered with regularly imbricated brown polished scales, making it look at first sight more like the fruit of a Coniferous tree than the seed of a Palm. It forms a very pretty ornament for the drawing-room table when fully ripe.

For some two or three miles our route lay through the district on which these trees were growing, but ere we had reached their inland limit we were overtaken by a perfect deluge of rain, which effectually put a stop to our observations for the evening. However, some time after dark we arrived at "Riley's Ranch," a building situated on a Banana plantation, and erected for the convenience and shelter of the labourers engaged thereon. We found this tenanted by numerous Indians and their dogs, but as it was large and fairly water-tight, we soon set to work, slung hammocks, changed clothes, &c., and after a fine brew of steaming hot chocolate, in addition to our substantial meal, we sought repose. We were disturbed at intervals by the barking of the dogs and the demoniac howlings of the baboons in the adjacent woods. At daylight next morning the sky was clear, and we again pursued our journey.

The river was now in high flood, which made it laborious work for the men at the oars, and the hours glided rapidly by, taken up as they were by observations on the many new and exciting objects which momentally came into view. Numerous birds were seen, of all sizes and colours, in fact to the sportsman or naturalist, as well as to the botanist, there was plenty of material to occupy their undivided attention.

We had by this time approached "The Rapids," which consisted of deep whirling eddies or pools, interspersed with rocky and shingly shallow banks, over which but little water was running. The deepest part of the shallows were chosen, and the canoe had to be hauled over by ropes provided for the purpose. No sooner were we out of one difficulty than we were into another, the principal danger lying in sunken trees, which in the thick midday water, caused by the previous day's downpour, were very hard to detect. These were all passed successfully, and we reached Jessy Town at about noon. It was situated at a junction of two rivers, down which a number of Indians had come to meet us. These people were universally short in stature, but very athletic and robust, and appeared to us inoffensive, peaceable, and docile. Both men and women were painted on the cheeks in different patterns, in which squares and diamonds predominated, and done in red and black paint. On enquiry I found that they manufactured the black themselves from a fragrant kind of gum (extracted from one of the native trees) called Pontape, which appeared to resemble the Gum elemi of commerce.

The special tree affording this latter product is a matter of considerable doubt. Grisebach describes it as the produce of a Dominican tree named

Dacryodes hexandra, Gr., while other authors give it as being obtained from *Myrsin balsamifera*, L., and allied species.

If the gum should prove to be produced by any of the Jamaican trees, it will add another to the list of "minor products" which are in process of development, and inquires into the subject, in the interest of cultivators generally, will not be lost sight of. There are three species of *Myrsin* indigenous to Jamaica, while a fourth, native of Cuba and Trinidad, belongs also to the locality of which we write.

It readily ignites, and burns freely, producing quantities of black smoke, which deposit a very pure kind of lamp-black, which is the substance used. Red ochre is purchased at the stores by the Indians when they come down to the settlements to barter or trade for clothing and other necessities, and forms the contrasting colour with which the face is ornamented. The colours are mixed with fat, and we were informed that the article most preferred was obtained from cockroaches! That abundance of these pests existed everywhere of a very large size we were well satisfied, but the statement as to the use of their fat was taken *cum grano salis*.

The mission-house was a large building, constructed solely by the Indians for the use of the mission parties who visit them regularly once a month, and was constructed solely of the products of the various Palms so abundant in the neighbourhood. We took up our quarters therein, and found it airy and comfortable. The Indians usually sleep upon the ground, the bed being made of the leaves of a plant known as the Pimento Palm, *Acanthorhiza aculeata*. The leaves are fan-shaped, and when tied two together in opposite positions they form an efficient shelter from the rain, for which purpose they are used by the Indians, as well as for beds and thatching purposes.

Again the inevitable dog was present, and I witnessed a curious instance of the affection of these people for the canine race. They use, for carrying their children, goods, and effects, strong nets made of the fibre from the leaves of *Bromelia pita*, or Silk-grass; and on examining one of these bags hanging up near the kitchen I found to my surprise a litter of young pups about three or four days old, which had, I learnt, been brought by one of the boys a distance of several miles.

Around the mission house on all sides were growing large quantities of several species of dwarf Palms, mostly belonging to the genera *Chamædorea* and *Geonoma*; among the latter was a very beautiful species with a thick plumose head of irregularly pinnate leaves, which were bifid at the apex. There were also large quantities of several different *Heliconias* and other genera of the order Scitamineæ. One of these, locally known as "Waaha," struck our attention by the presence of a silvery glaucous tint on the underside of its leaves, which when swaying with the wind gave the plant a most peculiar appearance. It is nearly allied to our Jamaica plant (*Heliconia bihai*, the wild Plantain), but it is probably a different species. Its leaves are used for thatching temporary dwellings, and for tying up the food of the Indians.

Maize is grown as one of the principal food supplies. It is very prolific, and ripens at several periods of the year. It has apparently been from the most ancient times the principal food of the inhabitants of Central America. On the coast of Peru, Darwin found heads of it, along with eighteen recent species of marine shells, in a raised beach 85 feet above the level of the sea; and in the same country it has been found in tombs apparently more ancient than the times of the Incas. "In Mexico it was known from the earliest time of which we have any record, in the picture writings of the Toltecs, and that ancient people carried it with them in all their wanderings."

"In Central America the stone grinders with which they bruised it down are almost invariably found in the ancient graves, having been buried with the ashes of the dead as an indispensable article of outfit for another world."

The method of bruising the Maize in general use among the Indians of the district is to simply bruise the Maize without any previous boiling, and then to tie it up tightly in the leaves of the "Waaha" and boil it until it becomes a solid and somewhat glutinous mass, which is then carried with them on their journeys, and it is eaten cold, or warmed up by another slight boiling. It is therefore probable that the Mexican method of preparing the grain into cakes called tortillas, though stated by Belt to be common

to Central America, did not in reality extend so far south as the province of Veragua. I saw some of it in the hands of the Indians, but to me it did not look particularly inviting, as the outer skin of the grain rendered it to all appearance somewhat chafy.

On the banks of the river and in the adjoining forests were seen several trees of *Castilloa elastica*, from which is produced the Central American rubber, but they were all young trees, and in consequence were not bearing any seeds. All the larger trees have been destroyed by the rubber gatherers, and it is only in localities several days' journey further inland that any trees exist of sufficient size to produce rubber in any quantity. These localities are kept secret by the Spanish and Indian section of the community, so as to prevent encroachment upon what they deem to be their exclusive right to cut and manufacture the article. These people bring down in their canoes during the season large quantities of rubber, which is bartered for clothing and provisions at the coast settlements. There are two classes of rubber, the flat or cake manufactured rubber, and the scrap rubber, which I was informed is collected, when congealed, in the incisions made for bleeding the trees at the commencement of the season.

When the locality in which these trees thrive is compared with the climate and soil of Jamaica, it would appear to be doubtful if this rubber-producing tree could ever be successfully cultivated on a commercial basis in this island except in the moist and humid situations, but nevertheless, it should be given, and is well worthy of an exhaustive trial, as the vagaries of plants are of such an arbitrary character, that by this means alone can their capabilities be discovered. *J. Hart, Jamaica.*

(To be continued.)

PLANT ILLUSTRATIONS AT THE COLONIAL EXHIBITION.

NOR the least interesting and instructive part of the Exhibition is that of the numerous illustrations of flowers and fruit, representing the flora and economic fruit products of India and the Colonies. The paintings of fruit are generally well executed, and must serve greatly to familiarise visitors with what was recently described at a conference on the waste products of the tropics. If they do not accustom one to the peculiar flavour of the numerous and varied fruits in question they certainly pave the way for their reception in this country on a more extensive scale than they have hitherto been. The naming of the plants illustrated, although not altogether faultless, is tolerably correct. The Nutmeg, however, with its highly coloured lacerated aril, is misnamed Pimento, which is a much smaller fruit and a member of the Myrtle family.

Amongst the illustrations of Himalayan plants are figures representing male and female flowers of that singular *Cucurbit*, *Hodgsonia heteroclitia*, whose stems form slender woody lianas climbing over trees to the height of 100 feet. The long, pendulous, spirally twisted segments or fringes of the corolla are very singular, but not more so than the Melon-like fruit, whose seeds measure about 3 inches long and 2 broad. The latter consists really of two collateral ovules, firmly united and inseparable, one of which when mature is always small and more or less completely aborted. A living specimen which has not yet flowered may be seen in the Victoria-house at Kew. A singular *Nymphaea*, with petals fringed like a *Trichosanthes*, and representing the Bombay flora, is named *N. fimbriata*. Its most striking peculiarity is that the leaves are proliferous at the base of the blade, and bear not only small leaves but also flowers. A handsome *Buddleia*, named *B. Colvillei*, and growing at elevations ranging from 900 to 12,000 feet, has apparently not yet been introduced to this country. The same remarks apply to *Pentstemon salignus*, a handsome species, represented in the same plate as *P. serpens*, which flowers annually at Kew.

In examining the illustrations of New Zealand plants, amongst little known species characteristic of the vegetation of that part of the world, one is agreeably surprised to find numerous instances of such familiar greenhouse plants as *Veronica salicifolia*, *V. speciosa*, and *V. Hulkeana*, besides numerous instances of shrubby Composites, whose cultivation is frequently attempted in the open air in this country in sheltered places or nailed to a wall. *Rubus australis*, as seen in

this country, is remarkable for the great reduction in the size of its leaflets, when the naked spiny petioles and branches become the most conspicuous feature of the plant. In the present instance, however, the leaflets are of considerable size and borne on much shorter petioles than are those of the reduced form. The inflorescence is panicle, consisting of numerous small white flowers with red stamens, bearing no inconsiderable resemblance to that of the Hawthorn. Although attaining a height of 6 or 8 feet on a wall in the open air in this country, it does not seem to flower.

The Australian flora is well represented by a series of large paintings high above the eye of visitors on the walls of the building. One decided drawback for English visitors in connection with these is the fact that native names only are used, while in some cases no name is given at all. Those familiar with conservatory plants could easily recognise the affinities of most of the representations, but the native name would frequently be no clue to determine the species. A noticeable feature is the frequent occurrence of members of the great *Pea*, *Myrtle*, and *Protead* families. *Sturt's Glory Pea*, *Clinanthus Dampieri*, with its great scarlet flowers and jet-black boss, will always command attention, whether as a picture or living flowering specimens. A fine example has been flowering for some weeks past in the Cape-house at Kew. Another strikingly conspicuous picture is a painting of *Telopea speciosissima*, simply named *Waratah*. A landscape painting in another part of the building exhibits a hillside bordering a gorge, covered with *Waratah* bushes whose large heads of aggregated scarlet bracts and flowers, give the scenery their own tone of colour. This magnificent *Protead* is sometimes, though too seldom, grown as a conservatory plant in this country. *J. F.*

PINKS AND PINK CULTURE.

SOME of the most reliable illustrations of the florists' *Pinks* I can find are those which appear in the *Florist's Magazine* for 1835-36. The illustrations are full-sized, and I should think faithfully executed; they represent full, well-laced examples. One named *Princess Victoria*, raised by one John Dalton, of Mitcham, and sent out by Mr. Woodman, Manor Place, Walworth, no doubt illustrated one of the very best varieties in cultivation in that day; and the petals have little of the serrated edge seen in those of a companion in variety, named *Sir Walter Scott*, raised by William Stockwell, of Walworth Common. The last evidently had the better and darker lacing; the former the smoothest petal edge, the latter being much frimbriated. They serve to make us acquainted with the varieties grown half a century ago, and undoubtedly since that time we have greatly advanced in regard to purity of the ground, definiteness and density of the marking, shape of petal, and smoothness of the edge. The growth in the interim may have been slow, but it has surely been certain.

Maddock, in his *Florist's Directory*, published in 1792, informs us that "a Pink called *Major's Lady Stoverdale*, raised from seed in the southern parts of England by the person whose name it bears, was the first that deserved to be classed among such as are now held in esteem by florists; it was raised about twenty years since, and was the first Pink possessed of that singular and beautiful ornament called a lacing, which is a continuation of the colour of the eye, round the white or broad part of the petal, that gives it a most elegant appearance." From the appearance of *Major's* flower to that of *Princess*, we get an interval of sixty years or so, and we can thus get some idea of the progress made in that time.

That the Pink has suffered from something like neglect during the past twenty years cannot be denied; and yet it is such a thoroughly hardy plant, so easily grown, so free and richly fragrant, and so delightful to cut from, that one wonders it is not more frequently grown. It finds a place in many schedules of prizes of flower shows held in the midland districts; and many a select collection is grown to furnish exhibition blooms, and new varieties are being raised also. One of the foremost raisers and cultivators in the present day is Mr. James Thurstan, of Merville, Wolverhampton, who has grown *Pinks* for thirty years past, and during the last fifteen or sixteen years raised some varieties of great merit. Having recently seen these growing in his garden at Wolverhampton, I am able to furnish some descriptive notes of them. They are as follows:—

Dr. Hardy, pure ground, edged with bright dark maroon; a fine lacing, distinct and regular, smooth at the edges, a fine full flower; this was raised in 1881. *Mrs. Morton* is a highly finished flower that bloomed first in 1885, bright maroon, lacing of medium density, beautifully marked, of good substance, very smooth on the edge and highly refined; an extra fine flower. *Mars* is also a flower of 1885; pure ground, very heavily laced with dark purple, petals finely formed and smooth, plenty of stuff, about thirty petals; extra fine. *Mrs. Houlgave* was raised in 1881, pure white ground, rather long petals, bright rosy-crimson lacing laid on somewhat heavily, but always regularly; fine and bold. *William Bolton* was raised the same year; pure ground laced with dark maroon, good to the centre of the flower; a very full and bold flower. *James Thurstan* was raised in 1884, and is a large and striking flower full of petals, pure ground, heavily laced with bright velvety maroon, and wire edge of white; perfectly smooth and of the best quality. *Samuel Barlow* is an 1884 flower, a large and noble bloom, raised in all probability from *Boiard*; pure ground, dark maroon lacing, with slight margin of white on the edge of the petals; the flower is full of perfectly shaped petals, and it is decidedly of high-class quality. *Lord Beaconsfield* is one of the 1881 flowers, a large and full flower, pure ground, heavily laced with bright red; a variety showing much refinement of character. *John Dorrington* first bloomed in 1884; it has fine bold petals with medium lacing of bright rosy-purple; it is of first rate quality and characterised by much refinement of character. *Helen Maud*, another of the same year, is a variety containing on an average twenty-five petals, which is quite enough to form a good show flower; the lacing is bright maroon on a pure white ground; well formed smooth petals, of a pure white ground. *Clara* is also a flower of 1884, and has finely shaped petals laced with light purplish-maroon with a wire edge of white; very pleasing indeed. *Mrs. Haynes*, which first bloomed in 1880, has a beautiful petal with bright red lacing perfectly distributed on the pure white petals—a charming variety. *Rose Elizabeth* is of the same batch, and has a beautiful petal with a lively rosy-lilac lacing; very distinct and pleasing. *F. D. Horner* flowered for the first time this year; it is a very full flower of from thirty to forty petals, good habit, appearing to be a very strong grower; handsomely laced with bright crimson-magenta on a pure ground; being the first bloom the petals were small, but it is a variety full of promise. *George Hodgkinson* first bloom d as far back as 1872, and was a seedling from an old flower named *Battersby's Emily*, but of a much more refined character, smooth on the edge, with a rich dark lacing, almost black, on a very pure white ground. *Mrs. Thurstan* was raised in 1870; it is a seedling from *Mrs. Judd*, which was a renowned flower in its day; *Mrs. Thurstan* is a flower of something like twenty-five perfect petals, the petals pure, with a distinct wire edge of bright maroon; a refined and charming flower, sent out by Clibran of Altrincham about 1871. *Florence Isabel* is a seedling of 1881, with medium bright maroon lacing; very full of petals, small, but correctly marked; and *Nellie* is of the same date—the well formed pure petals laced with light rose, very pretty and distinct. All the foregoing are of good habit, free, and characterised by much smoothness of edge and refinement of marking.

The cultivation of the Pink is a simple process, for the plant is perfectly hardy and requires no coddling. It does best in a good strong loam enriched with old hotbed manure, and in the months of March and April, for the purpose of bringing out the most distinct colouring on the lacing, it is essential that the bed should be top-dressed, and the best dressing that Mr. Thurstan finds he can use after thirty years' experience is human manure from an old-fashioned closet diluted with water until it is about the thickness of gruel, and a half pint of this is poured round each plant about twice or thrice a week. This is put on overnight, so that any disagreeable smell may disperse before the morning. Mr. Thurstan finds this an excellent manure for Tulips and other things. The late Dr. Hardy, old William Lea, and others, used this for top-dressing.

Mr. Thurstan propagates his *Pinks* by means of pipings about the middle of July; a little later perhaps than it is done in the South, allowance being made for difference in the time of flowering. If the work is delayed beyond the time named the side

shoots or "grass" run into blooming stems. Before taking his pipings Mr. Thurstan prepares a piece of ground in a shady situation, and mixes with it a good dressing of decayed manure and sand—road sand is found to be the best; after being thoroughly mixed it is saturated with water, and then allowed to drain for an hour or so; then a layer of pure sand half an inch in thickness is placed over the surface; this being done, the pipings are prepared by being cut through just below a joint; then put into the beds in circles, pretty close together, and just large enough to be covered with bell-glasses. The pipings are pressed firmly into the soil, and by placing bell-glasses over them they are encouraged to strike roots. It is best to make a mark on the soil with the bell-glass, and then fill up the space with pipings, putting them in about an inch deep. A circle of 6 inches in diameter will take about thirty pipings. After they are inserted in the soil they are watered and allowed to stand uncovered for about an hour, by which time they will be dry enough to cover with the bell-glass. The bell-glasses are not removed for a fortnight or three weeks, by which time the pipings have begun to form roots; when they are taken off, and the pipings refreshed by means of a sprinkle with water, after which the glasses are again replaced. At this stage a little water is given day by day until the pipings are so rooted that they can be lifted and removed to prepared bed for permanent blooming. This is done early in October, so that the plants may have time to root into the soil before the winter sets in. Mr. Thurstan finds by experience that if the plants are not placed in the blooming beds in autumn, but this is left until the spring, the lacing is not reliable, and it is difficult to get the blooms to anything like a perfect stage.

In raising Pinks from seed Mr. Thurstan sows in February either in a prepared bed in the open ground or under bell-glasses. By sowing under bell-glasses the seed germinates more quickly, and the plants get through the soil before the drying winds of March set in. The seedlings are planted out in a prepared bed in autumn to flower, and when they flower selected varieties are marked and propagated in the manner set forth above. R. D.

ACORN GALLS.

I HAVE to thank Mr. William Marshall for three "Acorns from Cannes," sent to the Editor of the *Gardeners' Chronicle*, and by him forwarded to me to report upon.

Mr. Marshall's niece says:—"I cannot say for certain if they are from the same tree as the one with the galls, as I picked some up in two places, but the trees were not far apart, and were in the same garden. I did not see the cups. The Acorn with the galls was considerably larger than those I now send, but of the same shape. I saw no others as large. I did not notice the size of the tree."

The three Acorns sent, as far as I can judge, belong to *Quercus Robur*, the common English Oak. Those of *Q. Cerris*, the Turkey or mossy-cupped Oak, have a less shining shell, and after a careful comparison I can scarcely hesitate to refer them to the former species. Two of them are quite normal in size and shape, but the third is a little smaller, decidedly curved, and somewhat discoloured and broken on the shorter side, through some damage during growth. This Acorn, however, and one other, contains no trace of galls. The third Acorn, on the shell being removed, showed a small hole, a millimetre in diameter, the edges of the hole being slightly forced outwards, and the apex of a small gall just protruding. On carefully cutting away the Acorn tissue on one side of the gall, the latter was seen to be enclosed in a smooth-walled chamber; the walls being slightly darker coloured than the Acorn shell, and tightly embracing the gall, as if the cavity had been made by pressure caused by the gall's growth. The gall itself is bluntly conical in shape, and measures 4 millimetres, or nearly a sixth of an inch, in length, and 2 millimetres in breadth at the almost truncate base. From this point it gradually narrows to 1½ millimetre near the apex, and then terminates in a roundish blunt point. The lower half of the gall is drab, or slightly ochreous in colour, and the upper half warm chestnut-brown, the boundary of the two colours being rather sharply defined. The interior of the gall I cannot describe, as being the only specimen I prefer to keep it intact in the hope of breeding the insect.

I have given the particulars rather fully, because it is clear that more than one insect is concerned in the making of these Acorn-galls, and also with the hope that the attention of others may be drawn to this interesting subject, and thus perhaps help to clear the matter up. I have cut through numbers of English Acorns at various times without finding galls, though we have them in Britain, as shown in my previous paper (p. 104).

In conclusion, the differences of the Turkey Oak Acorn-gall, as observed by me at Kew, may be pointed out. Each autumn for several years past these galls have been abundant on more than one tree; so much so that very few Acorns mature; while the galled ones are very much dwarfed, and the Acorn tissue is entirely replaced by a number of the galls. They also remain on the tree for some time after the uninjured Acorns have fallen, and, unlike these latter, the cup and Acorn fall away together, the Acorn seldom being much larger than the cavity of the Acorn-cup. The differences between the two are so marked as to leave no doubt of their being produced by different insects, and the one thing now necessary is to obtain more specimens of the *Robur* gall, and if possible breed the insect. R. A. Rolfe, *Herbarium, Kew.*

CENTAUREA MACROCEPHALA.

To Mr. George Paul we are indebted for a specimen of this sturdy hardy perennial (fig. 30). Its stout erect stems are about 18 inches high, provided with lanceolate decurrent leaves, rough with coarse bristles, and bearing at the top a globose head of yellow flowers, like a small Globe Artichoke, are very striking. The involucre bracts are numerous, densely packed in overlapping series, and each one ends in a broad suborbicular brown membranous and sharply lacinate appendage. It is a native of the Caucasus, and attains in cultivation a larger size than when wild, as according to Boissier, *Floa Orientalis*, iii. (1875), 632, the flower-heads are no bigger than a fowl's egg. There seems no reason why the receptacle should not be cooked and eaten, like the bottoms of ordinary Artichokes.

A REVISION OF THE GENUS PHALÆNOPSIS.

We have now over forty named forms of this beautiful genus of Orchids, most of them being in cultivation at the present time, but as the literature respecting them is rather scattered, and as we have had no general revision since 1874, it is my intention to gather together into one focus such information as I have been able to collect and to give an enumeration of the species, together with references to the more important descriptions and figures, the geographical distribution, and the general history of the genus. The revision above referred to is that of the illustrious Professor Reichenbach, in the second volume of his *Xenia Orchidacea*. Eleven forms were then enumerated, though more than eleven had been described at that date. As the number has now been more than trebled I hope this attempt to bring our knowledge down to the present time will be found useful to all those interested in these lovely plants—"the grandest of all Orchids," to quote the late Dr. Lindley.

GENERAL HISTORY.

Rumphius appears to have discovered and published the first account of a species of this genus in 1750. In the sixth volume of his *Herbarium Amboinense*, he gives a description and figure of a plant which he called "*Angræcum album majus*." This plant he found growing in the island of Amboyna, on short thick trees covered with moss, up which, he says, it turns like a rope, and from which it hangs down in entangled tufts.

Two years later it was discovered near the watering place on New Island, at the western extremity of Java, by Osbeck, who touched there on his voyage home from China. Specimens preserved by him were forwarded to Linnaeus, who described the plant in the first edition of his famous *Species Plantarum* as *Epidendrum amabile*. The work appeared in 1753, and it should be remembered that the small number of epiphytic Orchids known to Linnaeus were all included in his genus *Epidendrum*—the name then being singularly appropriate and descriptive.

HOW OSBECK FOUND THE PLANT.

Osbeck's account of the plant and its discovery is of such interest that the substance is worth reproducing. In his *Voyage to China and the East Indies* (English edition, vol. ii., p. 50), he remarks somewhat as follows:—"On January 19, 1752, we anchored at noon in the New Bay, at the western extremity of Java. In the afternoon we went on shore in a boat. We landed with difficulty, because the ground was so full of corals that it was impossible to reach the beach in the boat, and I was carried on shore by my people on their shoulders, up to their breasts in water. The country here is very high, and the water which comes hither from the fens in the woods runs roaring into the sea. The forest was so dense that we passed with difficulty, and being the rainy season everything was very wet. The trees are excessively high and slender, making the forest very dark. *Epidendrum amabile* grew on the branches of trees on the shore. The plant hath great white odoriferous flowers, such as I never observed before. I had this plant lying in my room for some days together, but the flowers did not wither, and filled it with the most agreeable smell." It is interesting to note that Osbeck's specimens still exist in the Linnaean Herbarium in an excellent state of preservation.

In 1799 Swartz published a memoir on the genus *Epidendrum* of Linnaeus, breaking it up into six genera; and although he pointed out that Osbeck's plant differed from *Epidendrum* by the want of cohesion between the column and the base of the lip, still he allowed it to remain where Linnaeus had placed it. Roxburgh, however, who knew the living plant, transferred it to Swartz's genus *Cymbidium*, to which it is much more nearly allied. He tells us the plant is a native of the Moluccas, whence it was introduced in 1798 to the East Indian Company's Botanic Garden at Calcutta; that it flowered in March and April, and that the flowers were very large, white, and fragrant. Roxburgh's *Flora Indica* was probably written before 1820—he died in 1822; but the volume in which this change was made did not appear until 1832.

Again we hear of it from Java. Dr. Horsfield found it in 1809, in one locality only, in the district of Padjittan, in a low situation near the southern coast of the island, and at no great distance from the ocean. Then Dr. Blume observed it in woods near the coast in the small island of Nusa Kambangan. The latter published his *Bijdragen*, in 1825, and established a new genus for the plant, which he called *Phalænopsis*, on account of a fancied resemblance to certain species of moths. He also gave an excellent analysis of the flower.

THE FIRST PHALÆNOPSIS IN CULTIVATION.

When Lindley published his *Genera and Species of Orchidacea* in 1833, the genus was not in cultivation in England, and his description was wholly derived from the aforementioned sources. But in 1838 we find a *Phalænopsis* in cultivation in this country. Dr. Lindley figured in the *Botanical Register* a plant which he called *P. amabilis*, but which was really not that plant. Dr. Lindley remarks:—"This very rare and beautiful epiphyte flowered a few weeks since in the epiphyte-house of Messrs. Rolleston, of Tooting, I believe for the first time in Europe. It had been sent to them from Manila, by Mr. Cuming." This mistake of Lindley's was an unfortunate one, for the Philippine plant still bears the name *amabilis* in gardens.

In 1840 the Philippine plant was figured in *Paxton's Magazine of Botany*, whence we learn that "Among the many subscribers to the expedition of Mr. Hugh Cuming in quest of botanical curiosities, Messrs. Rolleston, of Tooting, were alone fortunate enough to receive a living specimen of this lovely plant . . . in 1837." This figure of Paxton's was reproduced in the *Flore des Serres* five years later, but the figures and localities of both species were all confused together in the accompanying description. In 1847 it was figured in the *Botanical Magazine*, the error still remaining undetected.

The Javan plant was again figured by Bennett in 1838, in his *Planta Javanica Rariores*, the author pointing out that it appeared to prefer the immediate vicinity of the coast, and had been found in several localities in Java, as well as in the Moluccas. At length it was brought alive to England, nearly a century after its original discovery, and ten years later than the Philippine species. On September 7, 1847, a plant was exhibited before the Horticultural Society by H.

Schröder, Esq., when it received the Silver Banksian Medal. At that time it was regarded merely as a fine variety of the Manilla plant. In the *Gardeners' Chronicle*, however, for the following year, a woodcut of each species was given, Dr. Lindley remarking that there were so many points of difference between the two as to leave no doubt of their distinctness; but, strange to say, though Lindley informs us that the large-flowered plant had been introduced from Java

A PINK BUTTERFLY FLOWER.

A third species was described in 1848 as "*P. rosea*, the Pink Butterfly-flower." It was found at Manilla by Mr. T. Lobb, who sent it to the Messrs. Veitch. Dr. Lindley remarked:—"This is a very unexpected addition to the genus *Phalæopsis*, of which it has exactly the habit." It had previously been found by Cuming; but though he secured dried specimens he seems to have failed to send plants

proved correct. The plant which flowered some three months ago in the establishment of Messrs. Veitch, and which is exactly identical with the wild intermediate, was obtained by Mr. Seden, by fertilising *P. amabilis* (of Lindley) with the pollen of *P. rosea*.

In 1854 a fifth species (*P. delicosa*) appeared. It was described from dried Javan specimens, but I do not think it has ever appeared in cultivation.

In 1860 some additional species were described.



FIG. 30.—CENTAUREA MACROCEPHALA: FLOWERS BRIGHT YELLOW. (SEE P. 168.)

by Messrs. Veitch, he did not even then recognise in it the original species of Blume (which he had correctly described in his *Genera and Species of Orchidaceae*), but described it afresh under the name *P. grandiflora*; he even thought Bennett's figure might represent yet another species.

Dr. Reichenbach pointed out this confusion in 1862 in the *Hamburger Gartenzeitung*, and renamed the Manilla plant, *P. Aphrodite*, but Lindley's names are still used in gardens. In the following enumeration the name *amabilis* is retained for the original plant in accordance with the recognised rules of priority.

home alive. Meyen had also collected it at the same time, and a new genus (*Stauroglottis*) had been founded for it by Schauer in 1843.

In 1852 *P. intermedia* was described in *Lindley and Paxton's Flower Garden*. It was introduced by Messrs. Veitch & Sons from the Philippines. Dr. Lindley remarked:—"It is not improbable that this beautiful plant is a natural hybrid between *P. amabilis* and *rosea*. It agrees with the former in foliage, and in the tendrils of the lip, with the latter in colour, in the acuteness of the petals, and in the peculiar form of the middle lobe of the lip." It is interesting to note that this shrewd guess of Dr. Lindley's has

The beautiful *P. Schilleriana* flowered for the first time in Europe in the collection of Mr. Consul Schiller, of Hamburg. That gentleman had obtained it two years previously from Manilla, one plant alone surviving out of thirty which had been forwarded. A Javan plant which had been described in 1827 as *Polychilos cornu-cervi*, was also reduced to *Phalæopsis*, and two other species were described from drawings; *P. Devriesiana*, from a drawing made by De Vries in Java; and *P. sumatrana*, from one made by Korthals in Sumatra. The latter soon afterwards appeared in cultivation, but of *P. Devriesiana* nothing further appears to be known.

The following year has only one species to record—*Trichoglottis pallens* of Lindley, was transferred to *Phalaenopsis* by Dr. Reichenbach. It is a native of Manila. Dr. Lindley saw it in flower at Chatsworth in 1850, but it does not appear to be in cultivation at the present time.

Ten species were now known, but in 1862 four additions were made; one of them, however, not being really distinct. They were described by Professor Reichenbach—*P. Hebe*, from Java; *P. Lowii*, from Borneo; *P. Wightii*, from India (which, however, is now referred by Benthams to *Doritis*), and *P. ambigua*. This latter was said to have the flowers of *amabilis* (*Aphrodite*) and leaves of *grandiflora*, and was thought possibly a hybrid between the two. But this is most improbable, for the two species do not grow together, and if not a natural hybrid it clearly did not originate in a garden. It is evidently a form of *P. Aphrodite*, with leaves somewhat longer than usual.

In 1864 two additions were made. *P. pantherina*, a pretty species with red spots on a yellow ground, was described by Professor Reichenbach in the *Botanische Zeitung*. It was obtained by Messrs. Low from Borneo, but the plant appears to have been lost. The description was made from a dried specimen. The other was described in the *Proceedings of the Royal Horticultural Society* as *P. Ruckerti*, and was said to come from Borneo. It, however, proved to be only a very beautiful variety of *P. grandiflora*.

In 1865 three more species were described, the beautiful *P. Luddemanniana* from the Philippines; the curious little *P. Parishii*, from Burma; and *P. amethystina* from the Sondaic Islands, a somewhat vague locality by the way. In 1871, *P. Manni* was described from Assam, and in the following year *P. Veitchiana*, from the Philippines. The latter was supposed to be a natural hybrid; and a single specimen only was known. In 1874, Dr. Reichenbach gave a monograph in the 2d volume of his *Xenia Orchidaceae*, eleven species only were enumerated, though, as we have already seen, more than this number were known. In the same year *P. fasciata*, from the Malay peninsula, and *P. Esmeralda* from Cochinchina, were also described. In 1875, *P. leucorrhoda* and *P. casta* appeared, both from the Philippines, and only varieties of *P. Aphrodite*. Then came *P. Stobartiana* in 1877, and *P. antennifera* and *P. Cornigiana* in 1879; the locality of *P. antennifera*, namely Burma, alone being published.

We have now a swarm of additions to record—eleven in three years. In 1880, *P. tetraspis* and *P. speciosa* were described from the Andaman Islands; and in 1881, *P. Stuartiana* from the Philippines, and *P. maculata* from Borneo. In 1882 appeared *P. delicata* from some unpublished locality, *P. Marie* from Borneo, and *P. fasciata* from the Philippines. *P. delicata*, however, is so similar to *P. intermedia*, that we may fairly assume it to be a Philippine plant also. Lastly, in 1883 four additional species were described; *P. Valenti* and *P. Reichenbachiana* from unpublished localities, and *P. Boxalli* and *Stuartiana* from the Philippines. The last-named, however, which was found in South Mindanao, is clearly only a form of *P. Aphrodite*. So much for the general history of the genus, but before proceeding to enumerate the species a few words may be interesting on the subject of

GEOGRAPHICAL DISTRIBUTION.

The genus *Phalaenopsis* occurs over an area reaching from Assam and the Eastern Himalaya to Burma, the Andaman Islands, and through the Indian Archipelago to the Moluccas and Philippines. The section *Euphalaenopsis* is limited to the Philippines, with the exception of the original *P. amabilis* of Blume (*P. grandiflora*, Lindl.), which occurs in Java, Borneo, Celebes, and the Moluccas. The section *Probooscioides* consists of a single species found in Borneo and Moulmein. The section *Esmeralda* contains two species, and is confined to the Siamese peninsula, including Burma. Lastly, the section *Stauroglottis* occurs over the whole area of the genus, with the exception of the Moluccas. Glancing at the different countries we note the Philippines as the area most numerous in species. All the eleven forms are endemic, though probably one or two of them are not specifically distinct. Borneo comes next with six species, three of which are not known from elsewhere. Java has five species, of which three or four are perhaps endemic. Two species are only known from the Andaman Islands. Sumatra has two species,

and the Moluccas one, but none of them are endemic. One species is only known from Assam, one from the Malayan peninsula, while four or five others are found in that region, which comprises Burma and Cochinchina, one of which extends its range to the Eastern Himalaya, and another is found also in Borneo. Lastly, there are five species of which I do not find a published record of locality. The foregoing sketch will doubtless require modification as further information comes to hand. Possibly some of the localities may be incorrectly given, a not infrequent occurrence with garden Orchids. On the other hand the broad fact remains that most of the species have a rather restricted area—a fact quite in harmony with our knowledge of the distribution of Orchids generally. *R. A. Rolfe, Herbarium, Royal Gardens, Kew.*

(To be continued.)

THE POTATO CROP OF 1886.

SCOTLAND.

ABERDEEN.—Potatoes in gardens are doing well and promise a large crop, but are very late. Only the very earliest sorts are fit for use. All are very healthy, except in exposed situations, where they have been a good deal broken down by the gales of wind we have had recently. *J. Forrest, Haddo House.*

— I hear complaints of some having suffered from frost during this month, but with me all is safe, but upon the whole from ten to fifteen days later than usual, and out of some seventy sorts all are healthy and vigorous. I have not heard or seen anything of disease. I have been using Sharpe's Victor, from under glass, for about six weeks, of excellent quality. They are now large from the open ground but not so truly. *R. Fairclough, Fyvie Castle.*

BANFFSHIRE.—Potatoes are everywhere in this locality looking strong and healthy, but a little later than usual for the period. Hammersmith kidneys, which we have been using, are fair in size, and of good quality. *John Webster, Gordon Castle Gardens.*

FORFARSHIRE.—Some fields in the low carse, as well as in the braes, are looking uncommonly well, especially where early planted. Later ones are not quite so strong, but with the recent refreshing showers and warm weather they have greatly improved, and we have no doubt if favourable weather continues, Potatoes will be an average, if not an extra crop. We think if the fruit was getting the same attention as to cleaning, digging, and manuring that Potatoes get in this district, a better result would be obtained. *Carse of Geurie.*

— The Potato crops are looking well in this neighbourhood. In dry sandy ground along the sea-coast they were beginning to suffer for want of rain, but lately there have been several genial showers and one whole night of rain. Now it is, and has been, brilliant sunshine, a clear bracing atmosphere, no thunder nor lightning, and no need for it, the wind mostly in the north and north-west; as long as that is the case there will be no Potato disease. It could not live. *J. Mitchell, Panmure, Carnoustie.*

INVERNESSSHIRE.—The Potato crop is very promising. Stems and tubers are quite free from any symptoms of disease. Of kinds, Sutton's and Regent Victoria have rather excessive shoots and foliage, which retard the growth of the tubers. Taylor's Fortyfold and Champions developed to their normal size. Other kinds are looking equally well. On the whole the Potato crop in the garden and district is the most promising I have seen for a long period of years. *A. MacDonald, Balmacann Gardens, Inverness.*

ROSSSHIRE.—The Potato crop very promising indeed, but in some places slightly touched by frost last week. *D. Harvey, Invergordon Castle, July 15.*

STIRLINGSHIRE.—In the garden, Potatoes are all looking exceedingly well. We planted Sutton's First and Best on April 16, and dug fair-sized Potatoes the first week in July; and in this locality generally field Potatoes are all very good; during the past fortnight's fine weather they have immensely improved. We are now greatly in want of rain. *J. King, Blair Drummond Gardens.*

EAST LOTHIAN.—Early Potatoes in the garden this year have ripened prematurely, owing to the long drought, consequently they are small and waxy. The old Ashleaf that we are lifting are a good crop, and free of disease. Late varieties, both in field and garden, look well at present, but will be small too, unless rain come soon. Everything is nearly three

weeks later than usual in this district. *L. Dow, Newbyth, Prestonkirrk.*

AYRSHIRE.—Early Potatoes are a very good, and heavy crop; late sorts look remarkably well. The soil here suits Potatoes, being light and sandy. No sign of disease as yet. *W. Priest, Eglinton, Irvine.*

WALES.

CARMARTHENSHIRE.—As a rule, around here the Potato crops are looking well, and lifting clean and free from disease; so much so, that we have not come on any up to the present time, nor are the tops showing any signs. Field Potatoes are looking well, being clean and free in their growth, without showing any signs of disease or unhealthy growths. *L. Bowen, Edwinsford, Llandilo, July 15.*

PEMBROKESHIRE.—The early crops are not up to the average, as we have had a rather wet, cold spring. The second crops are turning out well; good crops, and clean, and late crops are looking well: no signs of the disease yet: we generally get it before this time in this district. *G. Griffin, Slebech Park Gardens, Haverfordwest.*

DENEIGHSHIRE.—The Potato crops came up very tardily and very irregular, and just before the dry weather came, some sorts looked as if they would sicken and die off—many plants did, especially of the variety Chiswick Favourite. Early sorts are yielding well—fair quality, but small. The haulms are smaller than usual, but more floriferous, and as yet no sign of the Peronospora. All vegetables have been difficult to get forward. Inside sowing and transplanting have been our chief resources. French Beans have come up simply to be starved. Forced sowings of Peas are doing well. Onions came up well, but the continual cold rain and hail made the drills very ragged, and some sorts are killed, and transplanting by wholesale is necessary. The plague of slugs has been extraordinary, and really defied both salt and lime. Birds are very prolific and numerous. Late broods make the parent birds very voracious; their insect food and worms being rather scarce, they are eating up everything in the shape of fruit, seed, and vegetables. Really the difficulties of the gardener on cold soils this year are exceptional. *P. Middleton, Wynnistay, Rhudon, Denbigh.*

— Earlyies were fully ten days later than last year, and are not up to the usual average, being small, and of course do not yield anything like the weight of tubers one would expect if they were of greater size; but they are of good quality. Later sorts in fields and gardens are not in a promising state, being of weakly growth and of a yellowish colour, and inclining to curl in the leaf, and unless we have some rain soon I am afraid we cannot expect anything like the yield of last year. *J. Loudon, The Quinta Gardens, Chirk, July 16.*

ENGLAND.—NORTHERN COUNTIES.

NORTHUMBERLAND.—Potatoes are still looking strong and healthy, and the recent rains will greatly benefit them, and will likely yield well. Early crops are small, but good in quality, with no signs of disease. Barley and Oats in this district on light land and on hills are so short it will be almost impossible to reap them. Pastures in exposed places are almost bare, but the long-looked-for welcome showers will in some measure recruit and improve them. *D. Inglis, Howick Hall, Leubwy.*

DURHAM.—The Potatoes are lifting clean and good, but owing to the drought are rather a small crop. Late varieties look well, clean, and healthy, and up to the present free from disease, and after the nice rain I expect they will lift a good crop, and turn out satisfactory. *J. Hunter, Lambton Castle, Fence House.*

— All looking splendid. No appearance of disease. *R. Westcott, Raby Castle, Darlington.*

YORKSHIRE.—Healthy; free from disease. Early ones small, very clean. Rain much needed for the late crop, which is otherwise very promising. *R. C. Kingston, Brantingham Thorpe, Brough.*

— Early Potatoes on high lands are very small, in consequence of the long-continued drought; they are better on low lands, where they were not flooded in May. Late field Potatoes are suffering for want of rain, on low land large breadths were flooded in May; the sets rotted, and they had to be replanted; in consequence are late and do not promise very well. *James Tindall, Sprotborough Hall Gardens, Doncaster.*

— The Potato crop is suffering very much from

dry weather; unless we have rain very soon both early and late crops will be bad. With the exception of a few slight showers in the last week, we have had no rain since June 1. All other green crops are suffering very much from drought. Turnips must be a failure with a few exceptions, that is, where they were sown very early; these make slow progress, but are ready for growth when the rain comes. More than half of the land will have to be sown over again. *W. Culverwell, Thorpe Perrow, Belale.*

LANCASHIRE.—Potatoes look well in fields and gardens, but it is too early to hazard any opinion as to crop and disease, as scarcely any had been dug in the district before the end of the first week in July and the tubers are still growing. *W. P. Roberts, Cuerdon Hall, Preston, July 19.*

EASTERN COUNTIES.

LINCOLNSHIRE.—The crop of early Potatoes very deficient, owing to drought, only half an inch of rain having fallen in this district since June 3; no signs of disease at present, and the haulm vigorous. The result of late crops depends on rain. Copious showers on the 14th removed that source of apprehension. *W. Ingram, Belvoir Castle Gardens, Grantham, July 16.*

—Early varieties are a full crop, of good quality, and so far are quite free from disease. Late varieties are not so promising, having suffered very much from the intense heat and long drought, and cannot possibly be—especially in light soils—a heavy crop. *W. Harris, Blankney, July 16.*

NORFOLK.—Considering the very dry period that this crop has had to pass through, they are looking well. We only had 0.39 of an inch of rain in the month of June, and up to this date (July 10) we have only 0.05 of an inch, with bright, hot days, and drying winds. No disease has shown itself in this neighbourhood that I have heard of, but we have not here had one thunderstorm this summer, though there has been thunder and rain in other parts of the county. *T. Wynne, Wroxham.*

SUFFOLK.—The cold and drought have been very unfavourable for the early kinds, the crops of which have been light, and the tubers small, but the late sorts are looking well, and will be greatly benefited by the rain that has come at last, and just in time to save them from suffering a severe check in their swelling. At present no disease is apparent, and it is to be hoped that the leaves are hardened sufficiently to be proof against the malady, or at least in a condition better able to resist the spread of the fungus. *J. Sheppard, Wolverstone, Ipswich.*

—Early Potatoes small, owing to the long spell of cold dry weather. Late ones also checked on light soils, as no rain fell to reach the tubers till towards the middle of July. Latest on good soils promise a full crop. No disease. *D. T. Fish, Handwicks, Bury St. Edmunds.*

ESSEX.—Early Potatoes turn out well, particularly Veitch's Improved Ashleaf and Gloucestershire Kidney. No disease at present. Late Potatoes in this neighbourhood look uncommonly well, with every promise of good crops. *J. Vert, Audley End.*

—Potatoes are certainly very poor in our garden, and they do not look promising in the fields. The dry weather set in when the tubers were not larger than filberts. The tops dropped from the excessive heat. The early Potatoes are very small, and the others will "grow out" with a heavy rainfall. The cold ungenial weather in spring prevented their starting well. *J. Douglas, Great Greaves, Ilford.*

MIDLAND COUNTIES.

STAFFORDSHIRE.—Potatoes are very late indeed in this district—so late that I cannot say much about them, only that they are looking very well, and there is every promise of their being good. What few we have lifted outside, though small, have been very good in quality, and free from disease. *John Wallis, Keele Hall.*

—The crops of early Potatoes are rather late and the tubers small. Veitch's Ashleaf turns out very good and free from disease. The late crops look promising, but want rain very much. *G. Wyther, Teddley Park, Penkridge.*

WARWICKSHIRE.—Early Potatoes a good crop on light rich soil but poor otherwise; late Potatoes look very promising since the rain fell, but everything is

from a fortnight to three weeks behind. *J. G. Temple, Packington Hall, Coventry.*

—Early Potatoes so far have been excellent; with a little more rain it is possible they might have been better, but as it is there is nothing to grumble about. Late varieties have fared worse; there need be no complaint this year of their having too much top suggesting wider planting, on the contrary the tops are small, more especially on heavy land, and I fear the Potatoes too will be proportionately less. The rains we are now having no doubt will incite a fresh growth, not perhaps very much to the benefit of the general crop. All other kitchen garden produce, when the soil is deep and highly manured, is excellent. Altogether the season so far as it has gone has been a smiling one. *W. Miller, Coombe Abbey Gardens.*

LEICESTERSHIRE.—All kinds of early Potatoes are turning out small through want of rain; late ones are looking well, especially where the ground was well manured; no disease at present. *G. C. Maynard, Coleorton Hall, Ashby-de-la Zouch.*

BEDFORDSHIRE.—The early kinds are fast ripening the haulm from the droughts, quality good, and very free from disease; the later kinds are looking well, but very much in want of more rain. No appearance of disease. *G. Ford, Wrest Park, Ampt-hill.*

BUCKS.—Early varieties good, and free from disease. Our best early varieties are Early Bird, Veitch's Ashleaf, Myatt's, and Snowdrop; this I consider the very best early Potato grown—it is hardly so early as Early Bird, &c., but it is more prolific. Late kinds all look promising, but they will be small unless we get rain soon. Reading Hero, Schoolmaster, Victoria, and Magnum Bonum are the varieties we depend on for a late supply. *J. Smith, Mentmore, Leighton Buzzard.*

—I have not heard of a single tuber being diseased, and in most places I have seen the Potato haulm never looked better on heavy land, but on gravelly soils they are completely roasted up, and the tubers small and past improvement. *P. Frost, Dropmore, Maidenhead.*

CHESHIRE.—Potatoes were late in coming in for use, owing to the cold, late spring, and the very hot, dry weather lately has caused the plants in light soils to wither prematurely, so that the produce is light and the tubers small in many cases. Late Potatoes look very healthy, and there is no appearance of disease at present; but it is as yet too early in the season to form an opinion upon it. *W. Whitaker, Crewe Hall.*

SHROPSHIRE.—Potatoes in this district have looked remarkably well till within the last week; but the haulm is dying fast now for the want of rain, and should we not get rain ere long I am afraid the crops, both of early and second early varieties, will be very light, quality very good. *R. Milner, Sundorne Castle Gardens, Shrewsbury, July 15.*

WESTERN COUNTIES.

SOMERSETSHIRE.—Potatoes that have been lifted have proved exceptionally good in quality, but the crops in many cases are light; Old Ashleaf and Veitch's Improved Ashleaf the most profitable, as these only of all the early and second early sorts have grown to their usual size. Soaking rains are still wanted for the late sorts, or the crops will be light. No disease is apparent at present. *W. Jeggulen, Marston Gardens, Frome.*

HEREFORDSHIRE.—First earlies, got into the ground in good time, have done well, and although rather below the average size the tubers are now nearly ripe, free from disease, and excellent in quality. The sorts we grow are Veitch's and Myatt's Ashleaf, Mona's Pride, and a second early, called Lady Paget, Covent Garden Market, or Favourite, also do well on our heavy soil, and, together with Lady Paget, furnish our general supply of first quality until Potatoes come in the following June. Late varieties in fields, owing to the cold unsatisfactory condition of the ground, were unsatisfactorily planted. Then they were overtaken by the hot dry month, which came a little too soon, and at the present time look weak in the haulm. The change to showery weather may now bring about an improvement, but the tubers will be small even if they escape disease. With so many fine second earlies to choose from, it is to be regretted that late coarse varieties are so extensively planted by large

growers. As yet we have no sign of disease. *W. Coleman, Eastnor Castle, Ledbury.*

—I find no Potato to beat Veitch's Ashleaf, which I have been digging some time. The crop at present is plentiful; tubers small, owing to the dry weather. I have seen no sign of disease. Other sorts in the field look healthy and clean, and should we get favourable weather, a good crop will be the result after the very acceptable rain that has fallen. *W. Chinnery, Dronton Castle Gardens, Ludlow.*

WORCESTERSHIRE.—This crop so far shows no trace of disease, and the late and mid-season varieties will be greatly benefited by the rains which we are now getting, but unless the soil gets a good soaking rain very shortly the crop, we fear, will be smaller than usual. The Myatts which we have been lifting for use are decidedly undersized, although of good quality when cooked. With us Cosmopolitan and Woodstock Kidney are by far the best varieties for mid-season use. We are this season trying Sutton's Seedling and Sutton's Abundance, and to all appearance they will be very good, but for late use we find nothing to equal Scotch Champions, which are all that can be desired in quality. *W. Child, Croome Court, Severn Stoke.*

SOUTHERN COUNTIES.

MIDDLESEX.—Late kinds are looking very well, and early ones have stood well on holding soils, but on shallow soils have suffered from the heat. Digging has begun of Beauty of Hebron and other early market sorts, but the tubers so far are not large. Much allowance has to be made for the lateness of the season, but should the disease keep off—and no evidence of it has yet been found—there should be a very heavy crop of Potatoes this year. *A. Dean, Bedford, Feltham.*

SURREY.—Potatoes in this district are suffering for want of rain, early ones small, and late ones, although looking well in some parts, are ripening off fast in our neighbourhood, but a good rain soon may improve them a great deal. *J. Tanner, Tandridge Cou, Godstone, July 15.*

—The Potato crop is very good. Kidney varieties have yielded abundant and good from the first plant, but the succession have suffered from the drought. The late crops are looking very promising; the rain which fell here on the 12th 13th, and 14th ult. has set the late ones up for some time to come. Up to the present there is no sign of disease in the haulm or tubers. The crops are a full fortnight late. The undermentioned varieties succeed best in this locality:—Ashleaf, Veitch's Improved, Beauty of Hebron, Magnum Bonum, Miss Fowler, Welford Park, Wormleighton Seedling, Chiswick Favourite (is doing very well), Coldstream, M.P., Schoolmaster, Vicar of Lisleham, and Porter's Excelsior. *A. Evans, Lythe Hill, Haslemere.*

KENT.—Early sorts are ripening off and turning out very good, but small, in consequence of the drought. Late kinds are looking better, but will soon come to a standstill if no rain comes. If this happens superabundance will be almost certain to follow, consequently a good Potato crop is very doubtful this season. *H. Cannell, Swanley.*

SUSSEX.—The prospect of a good crop of Potatoes with me, as a rule, is good. Throughout my sixty good standard kinds I have not seen any signs of Potato blight; but in this district, in some of the cottage gardens, it was seen on July 2, and in one or two cases badly. I may say throughout this district in all the cottage gardens Potatoes are looking well. We had two storms of rain equaling 1½ inch within the last two days; hence I fear we may see something of the disease. The twelve kinds which are looking most satisfactory are:—Frisetaker, Myatt's Ashleaf, Reading Russet, The Dean, M.P., Vicar of Laleham, Edgemoor Seedling (purple), Miss Fowler, Snowdrop, Beauty of Hebron, Cosmopolitan, and Beauty of Kent. *S. Ford, Leonardslee, Horsham.*

HANTS.—The early varieties are unusually good, the yield being much above the average; there is not a speck of disease, and the quality is superb. We have discarded all the early American kinds, and reinstated the old Ashleaf, Walnutleaf, and Lapstone. Dean's Midsummer Kidney is a new variety belonging to this early section that bids fair to rival the older varieties. Our best early round kinds are Fenn's Early Regent and Sutton's First and Best; both are of the highest quality, and crop splendidly. In spite of the intense heat and drought

late varieties are looking extremely well. *W. Wild-smith, Heckfield Place, Winchfield.*

WILTS.—The Potato crop promises to be an all-round good one this year. The haulms are strong and healthy looking, and the tubers of early varieties plentiful and good. Dwarf haulms, as a rule, produce a greater weight of Potatoes from a given space of ground, and of better quality, than would be secured from those of a more luxuriant growth. However, it is rather early in the season to express a definite opinion about late crops, further than saying that if the weather during the months of August and September be moderately dry they are likely to be, as already said, good, and free from disease. *H. W. Ward, Longford Castle.*

DEVON.—Potatoes are excellent in quality. Early kinds are of good size, but it is feared the second earlies and late kinds are checked by the drought, so that if the crop is abundant the tubers will be small. Beauty of Hebron takes the lead with early kinds, for all purposes. No disease seen up to the present. *D. C. Powell, Powderham Castle, Exeter.*

—Early Ashleaf Kidneys are wonderfully fine and sound, so also is Covent Garden Perfection. Owing to the continuation of dry weather the foliage is drying off. Some of the late kinds look fresh in the top; the tubers appear to have stopped growing. A few light showers would most likely produce superabundance. A good soaking of rain would save the late kinds. The soil hereabouts is rather light and shaly. I find with deep trenching, and plenty of manure added, the soil is the most productive I have met with. *G. Baker, Membrand, Plympton.*

CORNWALL.—Potatoes are exceedingly good and plentiful. The fine weather of the past three weeks has finished them off splendidly. The earliest are nearly all ripe, and the field crops are very promising. Not a spot of disease is visible. *C. Lee, Bocombe, Lostwithiel.*

CHANNEL ISLANDS.

JERSEY.—The Potato crop has been and is abundant—6, 7, and 8 cabots (40 lb. weight) to the perch of 22 feet square. Jersey weight is 8 per cent. heavier than English weight, i.e., 104 lb. are equal to 1 cwt. The price has been very vacillating, owing to the mode of traffic at the St. Helier's weighbridge. The quality has varied according to the sort, and the state of maturity they were brought in. Myatt's Prolific Kidney is the favourite variety as a first crop. Webb's Imperial Kidney (renamed Early Jersey Fluke), and Lapstone Kidney are varieties much grown as secondary crops. Owing to the large size of the first of these varieties they are often dug before they are ripe. The crops of these and also of the later varieties promise to be fine and good. The weather has hitherto been very favourable. Should heavy rain succeed this long period of drought the late Potatoes may suffer. *C. B. Saunders, St. Saviour's.*

GUERNSEY.—First and second early Potato crop has been heavy and very good quality. But prices have ruled so unprecedentedly low that the profit remaining is but infinitesimal. Late sorts are also promising heavy yields. *Charles Smith, Caledonian Nursery.*

DISEASE OF OATS.

HETERODERA RADICICOLA, Müller.

UNDER the name of Root-ill, Thick-root, Tulip-root, or Segging, a disease of Oats has, according to the *Scottish Agricultural Gazette*, become of late alarmingly prevalent in certain Scottish districts. A correspondent says the effect is to almost entirely destroy the crop of Oats. The disease is referred to by Dr. Aitken in his report on the Oat crop at the Highland Society's experimental station at Pumpherton, published in this year's *Transactions*, but no positive results are given. Under the pseudonym of "Triptolemus" a writer in the *Scottish Agricultural Gazette* very correctly describes the appearance of affected crops. He says:—"Some weeks after the braid, when the plant is from 4 to 6 inches in length, it assumes a tufty, bushy character, and if pulled up the bottom of the plant will be found to be of a bulbous nature, with few, if any, root-fibres growing from it, the whole presenting a spongy, unhealthy appearance. In a few weeks the plant thus affected withers and dies, and where a field is badly diseased, at harvest there is nothing but a few

short green stalks with abortive heads." The same writer says the disease is only found on the heavier soils, being very general on the medium and heavy soils of Midlothian; and in good tolerably open loam, a soil inclined to be cloddy in dry weather following wet, if not carefully worked. The disease is practically unknown on the lighter, freer soils of Peeblesshire. Diseased crops have been grown on the four-course rotation for many years. It is usually worse in wet springs followed by dry and cold weather after the crop has braided, like the weather of the last two seasons; the places that are affected may generally be observed to be in a lumpy, hard condition—a bad tilth in fact. The writer in the *Scottish Agricultural Gazette* then expresses an opinion that Tulip-root is

of the plants taken from beneath the ground-line immediately reveals the cause and nature of the disease, for every portion of the affected parts is alive with nematodes, or microscopic thread-worms. These nematodes, with their eggs and young in all stages of growth, and full of vitality, exist in thousands in the distorted parts of the host plant. At A the eggs are shown with the young coiled within, and at B the infant worms just emerged from the eggs, and at C the mature nematodes, enlarged 160 diameters. I take the worm to be *Heterodera radiculicola*, Müller, and the disease to be identical with the "Rotergallbiddingar hos korn" of Norway and Sweden. The nematode just mentioned forms little gall-like nodosities on the roots of corn, and these galls, full of eggs, are broken off, and left in the soil, unless the plants are taken up with great care. The same nematode attacks the basal parts of the young plants. The young leaves of Oats are furnished with an abundance of short transparent hairs, and it is curious that these hairs agree in size and transparency with the mature nematodes, but there is no difficulty in distinguishing one from the other. The worms are of course full of life; they are, however, inclined to be somewhat quiescent at first, as the moisture existing naturally in growing Oats is not sufficient for much graceful coiling and twisting about. The addition of a drop of water under the cover glass of the microscopic slide soon sets any nematodes which may be temporarily quiescent into a state of active vitality. The examples of diseased Oats with nematodes here illustrated are now in the Department of Botany, British Museum, South Kensington.

The application of lime to the soil, the exposure of the soil to sun and frost, and the cessation of Oats and grass for a season or two as a field crop, would probably tend to reduce the numbers of this destructive pest.

Heterodera radiculicola, Müller, is a near ally of the nematode which causes "ear-cockle" in corn—*Tylenchus tritici*, of Bastian.

Nematodes have several times been illustrated in the *Gardeners' Chronicle*, as in the case of the Cucumber disease. Of the most remarkable of these are the nematodes of *Odontogloss*: see *Gardeners' Chronicle*, Jan. 9, 1886. *Worthington G. Smith, Dunstable.* [The same species has been described in the roots of various grasses. Ed.]

VINES AT TEMPLE NEWSOME.

WHEN old Vines have been reduced to a weak enfeebled state through hard forcing, or some other cause, it often becomes a question whether it is not better to start afresh with new plants than to attempt to bring them round again. There is something to be said in favour of each course, and in this, as in other matters, cases alter circumstances, so that no fixed rule can be laid down. Independent of this there is often reluctance on the part of those who are concerned in their culture to part with the old Vines. This much may be said, that it would be difficult to name a plant which, after having been reduced to an exhausted state, can be thoroughly renovated in the way that Vines admit of being.

At Temple Newsome may be seen an example of this in the case of old Vines that were so weak that many gardeners would have condemned them as being useless. Yet their condition now, both in respect to the growth and fruit they produce, is one of the instances that one sees of the recuperative power inherent in the Vine. The Vines are forced so that the fruit is ripe at the beginning of May, the sorts consisting of Black Hamburg and Foster's Seedling. When I saw them in the middle of last June the crop was almost gathered, but the bunches that remained were well finished examples, which Mr. Dawes has this season been successful with at the York show and elsewhere. The second vineyard contains Madresfield Court, Muscat of Alexandria, and Muscat Hamburg, carrying a good crop of handsome bunches. Another house is occupied by Muscat of Alexandria, Mrs. Pince, Muscat Hamburg, Gros Colmar, Alnwick Seedling, and Gros Guillaume, all of which are bearing good crops; the last-named variety has a number of large bunches that look as if they would be quite equal to the splendid examples with which Mr. Dawes took 1st prizes last autumn at the Crystal Palace and at South Kensington. The same may be said of Gros Colmar, which also took 1st prizes last

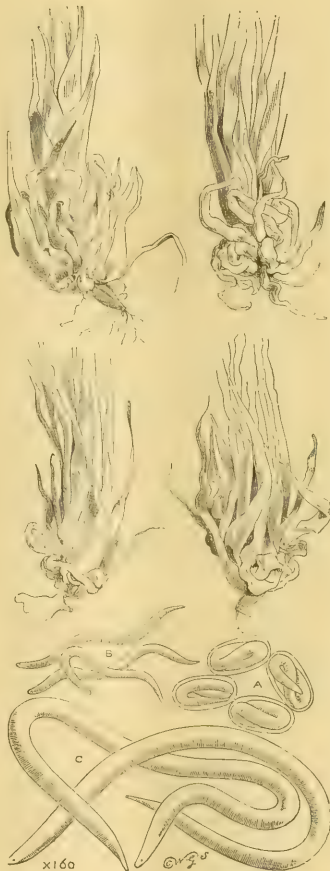


FIG. 31.—TULIP-ROOT DISEASE IN OATS AND THE CAUSE, —
HETERODERA RADICICOLA, MÜLL.

caused by an "unfavourable condition of the soil such as to prevent a free spread of the root-fibres," but as this opinion is erroneous, the possible remedies as quoted by "Triptolemus" must necessarily fail. The writer just mentioned, however, says:—"A very generally held belief is that the disease is the result of a too frequent recurrence of the same crop." This belief is no doubt founded on correct observation.

In the accompanying illustration (fig. 31) the basal portions of four young Oat plants are shown natural size. The general absence of root-fibres, the generally swollen bulbous appearance (hence Tulip-root) of the new growths, and their contorted, twisted, knotted aspect, must be noted. To the touch the newer of these smaller growths are soft and pulpy, whilst the older ones are hard, brown, and dead.

A microscopic examination of the swollen parts

year at both these shows. Two large houses are principally filled with Lady Downe's and Black Alicante, looking equally promising.

In the earliest Peach-house most of the crop was cleared, but the fruit that remained was of good size and well coloured. In the second house an even crop was coming on. A new house, built the winter before last, contains a fine lot of young trees that have made good progress.

Fig trees that are planted out have a house to themselves, and are in good bearing condition.

Pines are very well done; the fruiting-pits contained a number of Queens that looked as if they would weigh from 5 to 6 lb. each. The succession-pit was occupied by as good a lot of stout, short-leaved plants as one could wish to see.

Melons are grown in quantity, a range of low houses being filled with healthy plants in various stages. The plant department at this garden is not lost sight of; in a large high old-fashioned conservatory there was a fine lot of Camellias. The plants, which were planted in the centre bed, have attained a large size, and are in faultless condition. A few large dense bushes of this plant were found in several of the vineries. Two small houses are devoted chiefly to Orchids, which consist of a selection of Cattleyas, Lælias, Aërides, Dendrobiums, Cælogynes, and the cooler kinds such as Odontoglossums and Masdevallias in a healthy thriving state. One side of a span-roofed house is filled with greenhouse Rhododendrons, which thrive and bloom well.

Out-of-doors, Apricots have set better than Peaches this season; on a long wall covered with large healthy trees there is an excellent crop. Plums also are bearing a full crop. Apples have set better apparently than in the southern counties. The grounds attached to this fine old historic place are extensive, and are well kept. The flower garden in front of the mansion deserves especial mention for the good taste that was displayed in its formation. The error so often made has been avoided of over-filling the lawn with beds and leaving insufficient turf surface to set off the colours. Inattention to this point has had much to do with the discredit attached to massing out in the flower garden. The planting also has been very well done. T. B.

GLOXINIAS AT MESSRS. SUTTON AND SONS' NURSERY, READING.

As is now pretty well known by gardeners, the best strains of our commoner flowers and vegetables are quite as much the result of patient selection of types exhibiting some desirable characteristic—the work extending in almost all instances over many generations of the plants operated on—as of felicitous haphazard crosses. An instance of the results following patient selection of plants with good points is well shown in the Gloxinias at Reading. These favourite plants, which in this instance were sown last February, are arranged in several span houses, and well repaid a visit made to the nursery recently.

It is almost superfluous to say that the management of the plants is understood perfectly, and well they have responded to the art of the cultivator, as was seen in the robustness of both foliage and flower. Being now in flower the younger batches enjoy an atmosphere suited to their wants at that stage, and differing much from that prevailing in the houses during the growing season. There is much less moisture in the air, but little artificial heat, and to preserve the blooms at their best shading is constantly kept on. During the period of growth the air is kept extremely moist, and that without ever allowing the foliage to get actually touched by water; great care being also used in watering.

In selecting plants for hybridising several important points are kept in view, such as robust foliage of great substance and breadth, with shortness in the leaf-stalk, and an inclination to droop over the pot, so as to hide it from view. So much for the leaf; the flower must have a stalk sufficiently stout to require no support, the lobes of the flower overlapping, and the whole substance capable of retaining its proper form for a considerable length of time. The colours are as varied as possible, both in the erect and drooping varieties, consistent with elegance, and an effort is being made to secure them with a distinct white termination at the bottom of the throat. Some of the strains observed are netted over the area of the lobes like the Tydeas, the veins forming the

network being usually white, or white suffused with the prevailing colour of the flower. No crosses have been obtained with either this species or with the Gesnera, although seed-vessels sometimes result, but the seed is always infertile. A splendid white Gloxinia with a very long tube with overlapping lobes, and of great substance and fine foliage, was observed. This is an immense acquisition.

Under the careful efforts made here the finisimess of the plant has quite disappeared in flower and leaf, but the Gloxinia still remains a stove plant, or, at the most, a subject for the intermediate-house when in flower in the summer months, and has special requirements of treatment, which must be attended to by all who would excel in its cultivation, not the least of which are mild doses of liquid fertilisers. M.

TWO NEW ORCHIDS.

DENDROBIUM WILLIAMSIANUM. — This exceedingly rare species (fig. 32) was shown at South Kensington on July 13 by Mr. B. S.



FIG. 32.—DENDROBIUM WILLIAMSIANUM.

Williams, Paradise Nursery, Holloway, and received a First-class Certificate from the Committee. The Dendrobium was introduced from New Guinea eight years ago by Mr. Goldie, a traveller in those regions, but has only just now flowered for the first time. The racemes, which are produced from the upper part of the pseudobulb, bear about six flowers, which are of an ivory-white colour and of a roundish form; throat and lip purple. The pseudo-



FIG. 33.—PHAIUS HUMBLDTII.

bulbs are terete, slender, tapering, and possessing a few small leaves. Now that the plant has shown its beauty we hope to see it in general cultivation.

PHAIUS HUMBLDTII.

This elegant new little Orchid (fig. 33) was also shown at South Kensington on July 13, by Sir Trevor Lawrence, Bart., when a First-class Certificate was awarded to it. Phaius Humboldtii has oval sepals and petals of a pinkish-purple colour, and of an equal size; lip rosy-purple, white base, winged at the base, and having a bright yellow central crest; flower stems about 18 inches in height, bearing about eight flowers 2 inches in diameter; leaves like those of the genus generally; pseudobulbs stout and globular. The plant is a native of Madagascar, where it was discovered by the traveller whose name it bears—Humboldt, not Humboldt, who was never in Madagascar. This fact is to be remembered, as P. Humboldtii has been called by the misleading name of P. Humboldtii. The plant is well worthy of cultivation.

THE CUTTING OUT OF LANDSCAPES.

How often is it true that we cannot see the forest for the trees? The saying is equally and more forcibly true of landscapes. Their beauty is hidden, grown in by the very prodigality of their furnishing; a mere mass of wood or forest is not a landscape—trees or shrubs alone, or in combination, fail to form such. True, these must be present in sufficient number and bulk to form the basis—the shadows of the landscape—but open spaces, to enable these to be seen are essential to its completion. The latter are the lights that raise the shadows into matchless things of beauty—the joys for ever that win our hearts and captivate our imagination. But just as many a fine picture loses half its charm through its excess of shadow, so thousands of our fair landscapes have been marred and ruined through excessive planting, and the excessive use of coniferous trees; the latter having robbed many a bright landscape of all its cheerfulness, and brought it down to the sombre level of the old churchyards, except in spring and summer.

At last the mania for coniferous plants mainly, or only around demesnes, has been arrested. But before the planting can be nicely adapted to the light of our climate great clearances of coniferous trees must be made from many a landscape. The common Scotch Fir, as it grows in age and stature, does its best to neutralise the dense black shade of its top by the ruddy glow of its stems. But to derive any benefit from this natural relief the trees must be seen singly, or in groups of such size as to allow the light to play on the stems with such fulness and freedom as to bring out this ruddy glow of brightness; bringing us back to our starting-point, that no landscape can be complete without light as well as shadow—that is, masses of shrubs and trees and clear spaces between them, to enable the former to be seen to the best advantage. All this will be the more apparent if we take the primary meaning of landscape as a land view from a ship. The open sea between the beholder and the land floods the most beautiful objects upon the latter with light, and thus presents them to the beholder in the most enchanting and bewitching aspect. It is a mistake often made to affirm that it is distance alone that lends enchantment to landscapes from ships at sea. No doubt in many cases this has its influence; but the chief cause of the additional charm is the open space that enables each detail of form, colour, harmony, or contrast to be seen in all its full meaning and significance.

All this is merely to show the vital importance of cutting out landscapes—that is, of having sufficient clearance not only to balance our shadows with light, but to furnish view-space sufficient to enable every beholder to see all the beauties of the living picture. As well try to discover the merits of pictures crowded almost within touch of each other as to reveal the beauties of landscapes crowded into mere blocks of trees or shrubs. By cutting down full half or more of the trees in many parks or pleasure-grounds the landscapes would be marvellously enriched and even indefinitely extended. In such cases a part would then prove infinitely better—that is, richer and more beautiful—than the whole. In this sense open spaces are as much or more desiderated in the country as the town. In the latter they purify the air, in the former they extend and enrich our view-line, as well as give the atmosphere freer sweep around our dwellings.

The dense smotherings of trees and shrubs that too often surround our homes, that descended to us from the days when the single canon of "Hide all buildings" was accepted and practised by landscape planters as the alpha and omega of their art, are neither wholesome nor beautiful, and the sooner the axe is laid at the roots of many of those concealing belts the better. It is, however, in those and similar clearances that the true landscape artist develops his taste and his genius. Instead of a general clearance, resulting in baldness, the belts or woods should be broken up into groups, beautiful and graceful in themselves, while bringing out or letting in all the salient points of the building and of woods, parks or other features of interest in the near or distant landscape. The amount of beauty shut out of our landscapes by such unworthy motives as the confining them to the possessor's own property, and other personal or social limitations, are lamentable from an artistic and national point of view. Now that more catholic

views and tastes prevail, the cutting out of landscapes should include, as far as possible, every available feature of interest and object of beauty.

Fortunately these charms in most parts of the country—landscapes of superlative beauty—are waiting to be revealed—over the hedge or on the other side of the belt that environs hundreds and thousands of demesnes. The desire of isolation, the assumed necessity for shelter—the love of privacy—all combined to shut in gardens and demesnes from the outer world. Meanwhile not a few futile attempts were made to create landscapes within the limits of small estates, which never could by any amount of skill equal those so successfully shut out. With the view of crowding much into little space, these were mostly overplanted, and resulted in a mere crowding of trees and shrubs instead of a chaste and finished landscape. Under such circumstances few things are easier to skill and taste than to link the smaller elements of beauty within the demesne to the larger and broader features of interest outside.

Occasionally the mere cutting of a few gaps in narrow belts or hedgerows will reveal permanent features of surpassing richness and beauty, such, for example, as a group of Cedars of Lebanon on a knoll in a distant park, a mass of purple-hued Silver Birch, Wych Elm, Pines, or Horse Chestnuts—a distant lake or river flanked with drooping Willows, backed with a glimpse of a dark Pine forest in the far distance. These are but mere suggestions of simple elements of landscape beauty that may mostly be had in plenty by simply letting them in from a distance.

As already remarked, the interest, beauty, apparent extent, and enjoyability of most places, may be multiplied many-fold by cutting sufficiently large clearances to enable their many features of interest and beauty to be seen. In fine, the one want of thousands of landscapes is light—more light—and this may be had in any quantity by simply letting it in by cutting. D. T. Fish.

SCOTCH NOTES.

THE BOG GARDEN IN THE ROYAL BOTANIC GARDENS, EDINBURGH.

THIS feature in these well managed gardens, if not the most extensive or important, is one of the most interesting to the genuine lover of plants. The lessons to be learned by an inspection of the various plants growing in it are many and valuable. The most important of these to us, perhaps, was gathered from the extraordinary success that had attended the planting out of *Cyananthus lobatus*. Every one who has tried his hand on the culture of this lovely gem knows how coy a thing it is to manage satisfactorily. Here in this bog garden there is not only no difficulty experienced with it, but it absolutely luxuriates in patches from 15 to 18 inches in diameter, clothed with healthy foliage and masses of its lovely blue flowers, the latter of such enormous size as we have never seen before in the most successful specimens that have ever come under our notice. The plant is perfectly at home, and those who wish to succeed in like manner must copy the conditions under which it grows here.

The bog garden is slightly elevated above the level of the adjoining pond, devoted to aquatic plants, and only separated from it by the width of a commodious gravel walk and a strip of grass only a few feet wide. It was formerly a ditch, and was recently filled up by Mr. Lindsay with soil suitable for the plants that he wished to establish in it. A few drains were carried from the bed across the grass and path already mentioned in order to keep the surface dry and sweet. These are briefly the details of the construction of this bog garden, and Mr. Lindsay has been no less happy in settling them than in the selection of the plants that occupy it. Splendidly healthy clumps of *Saxifraga hirculus* and a kindred species from the Himalayas (*S. diversifolia*), yellow-flowered and spotted in the same delicate and beautiful manner, were growing and flowering most freely. The latter is a taller species than the former, and has broad ovate cordate radical and cauline leaves. *Primula denticulata* was simply marvellous in its luxuriance. The foliage was from 18 to 20 inches in height, and of proportionate breadth and substance, and the midribs were conspicuous in their breadth, and in the rich red colour that marked them throughout. Some of the flower-scapes were standing

though the flowers were over, and measured 2½ feet in length. *P. scotica* and *P. Stuarti* were equally remarkable for their abnormal luxuriance. *Caltha leptosepala*, a pure white-flowered North American species; *Parassia rubicola*, from the Himalayas, with much larger, but scarcely so pure white flowers as our native *P. palustris*, along with many other interesting things were all in the most satisfactory condition. Mr. Lindsay will, no doubt, extend his experiments in this way to other species usually cultivated in pots or on rockwork. What an advantage it would be to cultivators of plants of the classes indicated if they could dispense with the tedious troublesome methods usually practised in their management, and what an enhancing of their enjoyment if by such simple means they can attain like results to those described above with other equally desirable and more or less difficult subjects to manage in the common way.

THE ROCK GARDEN.

In the rock garden and other parts of the Botanic Gardens we noted an interesting form of *Chrysanthemum leucanthemum* with large tubular ray florets, discovered by Professor Dickson during a botanical ramble some years ago—a transition in form which may possibly lead up to a valuable hardy double white flower for cutting and decorative purposes; the purer white of the flowers, and the absence of the unpleasant odour of *Maticaria*, would give such an acquisition, if obtained, a first-class position in the estimation of florists who have to cater for the market in cheap flowers. A grand undetermined species of *Eriogonum* will be looked for with interest once it is named, and find its way into commerce. The plant grows to the height of about 2½ feet, with enormous rose-lilac heads of flower from 3 to 4 inches across. *Dianthus cinnabarinus* is a gem of great attractiveness, with flowers in the way of *Linum grandiflorum* as to colour, but a shade or two lighter, and very fragrant. The plant is neat and compact, about 9 inches high, rather wiry in habit, and with sparse foliage. *Delphinium Branonianum* (the Musk-scented Larkspur), was flowering freely, and if not one of the brightest of its tribe it is at least one of the most characteristic, apart from the powerful odour of musk it emits from nearly every part when it is handled. *Campanula trachelium* alba, raised by Mr. Grieve, Filrig Nurseries, Edinburgh, is unquestionably the best of dwarf white *Campanulas*, the purity of the colour is perfection. *Dianthus Atkinsonii*, as seen in the rock garden here, is evidently the single prototype of the better known double Pink, Napoleon III., and a brilliant free-flowering plant it is. *Gaillardia maxima* is, perhaps, the grandest of the species. The ray is rich golden-yellow, the disc brownish-orange, and the individual flower-heads range from 4 to 5 inches across. A large mass of *Cacalia alpina*, with bright rosy *Eupatorium*-like flowers in rich profusion, combined with an easy yet compact habit of growth, arrested the attention and suggested its fitness for a good position in ornamental herbaceous borders. The species is a native of the Swiss Alps. *Celmisia spectabilis*, with Cordylone-like habit and foliage, hoary, with silky adpressed down peculiar to many of the Composites, is a strikingly characteristic plant for rockwork. The flower-heads are large, the ray pure white, the disc deep yellow. The polypetalous form of *Campanula rotundifolia* deserves to be better known than it is; apart from the extraordinary eccentricity of the structure of its flowers it is one of the most ornamental and profuse blooming of the family. X.

TREES AND SHRUBS.

PHILADELPHUS GORDONIANUS.

APROPOS "R. D.'s" interesting remarks (p. 43) on the Sydney Gardens, Bath, I may be allowed to say, while endorsing all that your correspondent has so well said respecting them and their management, that nowhere else have I ever seen so many fine and well-flowered bushes of the *Philadelphus* as those which alike delighted the senses of seeing and smelling of the numerous visitors to the above-named gardens on the occasion of the recent Rose show there, the showy white and highly odiferous flowers filling the atmosphere of the gardens with their pleasant perfume. The simple leaves of these handsome shrubs are large and fine looking, the flowers being unusually

large (nearly 2 inches in diameter) and sweet. Judgment has been used in the planting of this not sufficiently often met with shrub singly in conspicuous places and at proper intervals from one another, so as not to render the air too strongly perfumed with their odour in any particular part of the gardens. Bearing in mind the easy culture of this American species of the "Syringa" of gardeners, together with the chaste and sweetly scented flowers which the plants produce so freely, the wonder is that it is not more extensively grown in shrubberies and other frequented spots near to the walks and drives. It will succeed in almost any description of soil and situation. H. W. W.

CARPENTERIA CALIFORNICA.

I was much pleased on seeing *Carpenteria californica* figured in the *Gardeners' Chronicle* last week. The figure is a very good one, showing the flowers of right size and shape; the leaves ought to be somewhat larger. Two or three years ago, at the time I was foreman at Wilhelmshöhe Castle, this species of *Carpenteria* flowered there for the first time in Germany. I sent flowers to Prof. Wittmack, who, (if I remember correctly) figured them in the *Garten Zeitung*. A plant of *Carpenteria* of now about 6 feet high in Wilhelmshöhe, is placed in a basket in the open ground during summer, and put in a cold frame in winter. So treated, it succeeds well, having flowered profusely these last three years. A smaller plant of it, left outside, survived two winters, when the cold did not exceed 20°, but the last winter, with 30° to 40° of cold, killed it.

RUBUS DELICIOSUS.

This is another fine flowering shrub. It is of shrubby habit, not climbing, spineless, the flowers being large, pure white, appearing at the end of the branches. This shrub must stand free, to show its full beauty; some pruning is necessary to keep it in good shape. Kept in good order, and planted on the right place, it is a beautiful thing, well worth a place in every collection. It is perfectly hardy, even in our Continental climate. C. Wissenbach. Friedhofs-Inspektor, Cassel, Germany.

The Flower Garden.

PROPAGATION OF PELARGONIUMS.

It is now time that steps were taken to secure the requisite stock of *Pelargonium* cuttings for the filling of the flower-beds next year. There are various methods employed to secure this purpose, but either of the following will meet the exigencies of most cases. In the first case you have a pit with a row of hot-water pipes all round to exclude frost and drive out damp. On a level hard bottom 3 or 4 inches of loam, leaf-mould, and sand in equal quantities is placed, after being passed through a three-quarter inch riddle. In this the cuttings are pricked from 2½ to 3 inches each way. The sashes are removed night and day, except during heavy and continuous rains. The plants remain here until the following February or March, when they are potted into 48 pots.

The next best plan is to use shallow wooden boxes, 2 feet long, 15 inches wide, and 4 inches deep. Each of these boxes will hold about fifty cuttings. The bottoms of the boxes must have a ready outlet for water. Place some of the rougher siftings of the compost in the bottom, then fill up to the edge with the compost previously recommended pressed moderately firm. As soon as the cuttings are put in they should receive a good watering through a fine rose, and be removed to the south side of a wall or hedge in the full blaze of the sun. The boxes are better placed on bricks or blocks of wood to prevent them from decay and to keep worms from entering. If a pit or frame can be spared to stand them in, the sashes can then be used to protect the cuttings from rains, but where these are not available some protection can be afforded them with mats or canvas. They will, however, required to be removed under protection on the slightest indication of frost or continuous rains.

The third system is to employ 48's, 32's, and 42 pots. This is a very suitable plan where a limited quantity is required, and recommends itself to the amateur where plants have to be wintered on narrow shelves; but

this system entails a greater amount of attention in the shape of watering than either of the former systems. The tricolors, gold and silver leaved kinds, should be started with. First secure one or two cuttings from each plant. These should not be less than 6 inches long, and they will be all the better if they are 8 or 9. They will require the foliage removed from the two joints next the base, and any wood remaining beyond the lowest joint should be cut off with a sharp knife. They will be none the worse for being spread out in the sun for an hour or so after they are made, to dry up the sap a little. *W. M. Baillie, Luton Hoo Garden.*

THE ORCHID HOUSES.

ODONTOGLOSSUMS AND MASDEVALLIAS.

WHEN a collection of Orchids is commenced in any place it is often said that that particular district is best suited to one particular class more than another, and I think this is so with cool Orchids. If I had the choice in the matter of locality in which to grow these in the best possible way, I should give this question some consideration. But as a rule there is but little choice allowed where to build an Orchid-house, and we must do what is best under the circumstances. If a gardener should see a better grown collection than his own, he can soon learn if they are treated about the same as his in the matter of ventilation, water, temperature, and shading; and if the treatment is the same, I should say the difference in appearance was due to locality. Many gardeners would think it rather curious practice to give plenty of air in wet and sunless weather, and reduce the ventilation as soon as the sun shines, but I would advise those that have *Odontoglossums* which are more brown or rusty-looking than they care to see to try this system; but care must be taken to have a thick shading. If the house is a span, running north and south, the shading can be raised 9 or 10 inches at the bottom to let in the light; if the span runs east and west, the shading on the north side can be raised at the bottom 1 foot 6 inches; and the same applies to a lean-to with a north aspect—in all cases letting the blind supports project beyond the eaves of the house, so that the sun cannot shine underneath the blind late in the afternoon. Where convenient a lean-to house facing east is good for cool *Odontoglossums* and *Masdevallias*.

ONCIDIUM JONESIANUM.

Oncidium Jonesianum will prove itself to be a fine Orchid when we discover its requirements. We have some growing close to the glass on the north side of the *Phalaenopsis*-house without shade, and near to the opening at the eaves; they appear to enjoy the afternoon sun, growing and flowering freely, some bearing spikes with upwards of twenty blooms. Some plants are growing in the Cattleya-house; these flower as freely but are rather later, and I think they are likely to keep in good health longer in the Cattleya-house. The roots of *O. Jonesianum* dislike any wet material about them, either peat or moss; and after trying them in different ways I find they will root fairly well on cork or wood with the bark left on, but after a time fungus makes its appearance. Some plants are fastened to pieces of tree fern stems, but if this be kept in a wet state the roots of the Orchid die off. At present those grow best that are fixed to Teak rafts having the leaves turned downwards; they are watered with the syringe two or three times in the day if the weather be bright, always letting them dry thoroughly before damping again. *Leptotes bicolor* and varieties also do well in the Cattleya-house, suspended from the roof.

GENERAL DIRECTIONS.

During dull weather very little syringing or damping down is required in any department; as our summers are so changeable I do not think there can be any rule laid down for damping any house a certain number of times in the day, for the state of the weather furnishes the best guide in the matter. If gardeners growing Orchids pay particular attention to this they will not be troubled with their fine growths rotting off after taking so much previous pains with them. Houses in which East Indian Orchids, Cattleyas, and *Dendrobiums* are grown should not be deprived of fire-heat entirely. In the early morning the air in these houses will feel very

chilly at times; and if we can prevent only one valuable plant from being thrown into bad health by giving a little heat, that alone will repay the cost of the fuel consumed. *C. Woolford, Downside.*

PLANTS AND THEIR CULTURE.

THE GREENHOUSE.

GREAT attention must be paid to the choicer kinds of greenhouse plants, to see that they do not get soddened with rain. A temporary framework with odd lights laid on makes a good protection, but a thick blind on rollers let down when required will answer very well. Keep a sharp eye for mildew, and when any trace of it is perceived dust over at once with flowers of sulphur. From this time onwards there will be many soft-wooded subjects in this department that require to be kept growing freely, such as *Cinerarias* and *Primulas*; the first lot of these should now be in 4ths, others should be shifted when large enough; and any plants that were marked when in bloom for seed or for propagation should now have the side shoots taken off carefully and potted: this applies to the *Cineraria*. A late sowing of each, as well as of *Calceolarias*, may be made. *Kalosanthes*, which are now going out of bloom, must be cut down to within 2 or 3 inches from where the shoot originated. Keep the plants in a light airy place for the present, reducing the amount of water at the roots. Put in cuttings; these strike freely in pits, frames, or on shelves. *Fuchsias* which are growing and are wanted to flower late should have a liberal supply of liquid manure, and be kept shaded and in a cool aspect. *Salvias*, *Solanums*, and early *Bouvardias* should now be in their blooming pots, this batch coming in most useful before the *Chrysanthemum*. Give them plenty of stimulating food as they fill their pots with roots. Plants of *Ardisia crenulata* are best placed in a light position when swelling their berries, giving sufficient warmth to enable them to grow freely. *Tropæolum Ball of Fire* should now be shifted on in its blooming pots; cuttings should also be put in for late supply. These when grown freely are good for training on main rafters.

Cuttings of *Ficus repens* put in now quite thickly in large 60's or 48's come in very useful for indoor furnishing, more especially during the winter, when the rooms are kept warm, and Ferns then go off quickly. *Lapagerias* which have been run up to the glass, and are now showing bloom, may be brought down to the balloon trellis to expand their blooms, when they may be moved into the conservatory or other place. All climbing plants which have done flowering should be well syringed to keep under red-spider. *Pelargoniums* which were placed under-of-doors to ripen their wood after flowering will now be ready for cutting back, which should be done at once, leaving from three to seven buds or eyes according to age or size of the plants, and for the purpose for which they are likely to be required next season. If required of a large size, shoots to the length of 5 inches may be left on them, as these can be pegged down or tied out to form the foundation of the specimen. After pruning they must be kept somewhat drier, as there will be less root-action till they begin to break; they should be placed in a pit or frame after the operation. An occasional dewing overhead will induce the buds to break. This remark applies more particularly to the fancy varieties, as they do not break so freely as the large leaved varieties. Propagate any variety which it is desirable to increase; these strike freely if placed in a cold frame or pit, and shaded, dewing them overhead on hot afternoons. *A. Evans, Lythe Hill, Haslemere.*

FRUITS UNDER GLASS.

MELONS.

PLANTS intended for supplying fruit during the months of November and December should, like plants intended for fruiting in spring and throughout the summer and autumn, be planted on the mounds before their roots become cramped in the seedling (3-inch) pots, but should the house in which they are to be fruited not be ready for their reception, shift the

plants into pots a size or two larger than those in which they are growing, so as to prevent them from experiencing a check, which would assuredly follow any stunting of growth. Plants now coming into flower should have their expanded flowers impregnated with the male pollen when it is dry, and a more airy and dry atmosphere is given to them, until the desired number of fruits to form the crop is secured. As soon as it can be seen which are going to swell, reduce the number to four or five, according to circumstances, on each plant. In houses and pits in which the fruits are ripe and ripening, maintain a free circulation of fresh air, so as to give flavour to the fruits. Plants swelling their fruits should have liberal supplies of liquid manure given at the roots, and the shoots should be kept well thinned and stopped. Shut up the houses, pits, and frames in which such plants are growing sufficiently early in the afternoon to raise the temperature to 90° with sun, affording plenty of atmospheric moisture at the same time. Put mats over plants growing in unheated pits and frames at night, and warm the pipes of houses so heated sufficiently to prevent the temperature in the same from falling below 70° or 65° between sunset and sunrise.

FIGS.

Houses in which the trees are swelling a second crop of fruit should be kept close and moist by syringing the trees morning and afternoon at closing time, when the temperature may be run up to 90° with sun-heat, and give adequate supplies of water at the roots when necessary. Houses in which the trees are ripening their crops should have abundance of fresh air admitted to them day and night on all favourable occasions. *H. W. Ward, Longford Castle.*

HARDY FRUIT GARDEN.

STRAWBERRY BEDS.

THE ground between the rows of plants which have finished fruiting should be cleared of weeds, and all useless runners removed. Old plantations of plants which have stood their allotted time and are worn out, should be grubbed up, the ground trenched and manured, and planted with some useful winter vegetable crops. This is a good time to thin out the crowns of plants, which are to remain to supply dessert fruit next year, removing the centre crowns, and leaving from four to six of the outer ones.

BUSH FRUITS.

Nets should be removed from the different quarters of black Currants, &c., as soon as the fruit is gathered, being careful not to store them until perfectly dry. Any weeds that may have accumulated between the bushes during the past busy time of fruit gathering and watering should be cleared off, and the quarters left tidy and clean. Young Currant trees which have grown strongly, and the shoots are too many to allow them to ripen thoroughly, should by all means be thinned out as early as possible, and if time can be spared they may with advantage be thinned to the extent that no further autumn or winter pruning will be required. In fact, these remarks apply with equal force to all kinds of bushes from which the fruit has been gathered. Red and white Currant trees may have nets placed over a limited number of bushes, with the view of keeping the fruit for a longer period of time. *G. H. Richards, Smerley, Ringwood.*

HEAT AS A STANDARD FOR COMPARISON WITH THE PROGRESS OF VEGETATION.—General Strachey has endeavoured to establish a simple method of computing the quantity of heat received at any place and proper to use as a standard for comparison with the progress of vegetation. Recognising the fact that it is not the absolute temperature that should be summed up from day to day for this purpose, but that it is the excess above a definite minimum, and that below this minimum active vegetative processes are not possible, General Strachey has endeavoured to establish the minimum limit, and to devise convenient methods for summing up the excess above it. Numerical tables are given to assist the computation. By assuming 45° Fahr. a base temperature, it results that a very close approximation is given by simply subtracting this figure from the true mean temperature on each pentade, and summing the remainders.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, Aug. 10	Royal Horticultural Society: Meetings of the Fruit and Floral Committees, at 11 A.M.; Show of Plants &c. City Cross Horticultural Society's Annual Show.
THURSDAY, Aug. 12	Sale of Dr. Munz's Collection of Orchids, at Froehner & Morris' Rooms.
FRIDAY, Aug. 13	Sale of Orchids in Flower, and of Importations of Orchids, &c., at Stevens' Rooms.
FRIDAY, Aug. 13	Sale of Importations of Orchids from Mr. Sander, at Froehner & Morris' Rooms.
SATURDAY, Aug. 14	Sale of the First Consignment of Dutch Bulbs (lot to suit the Trade), at Stevens' Rooms.

IN endeavouring to discriminate between one plant and another, botanists make use of whatever "characters" may be available, recognising that some of these carry more weight than others. In pre-Darwinian days constancy or persistence was a point to which the greatest importance was attached, as indeed it is also now, but for a different and more philosophical reason. Certain characteristics, for instance, are or seem to be immutable, others are clearly variable according to circumstances. The latter furnish illustrations of the pliability of the plant, and its capacity for adaptation to different circumstances and conditions. These are the points the gardener consciously or unconsciously gets hold of, and by virtue of which he is enabled to select and develop tendencies according to his own will and pleasure. These physiological characteristics, in fact, are the great things for the cultivator to attend to.

The other relatively unchangeable characters are those most appreciated by systematic botanists, not only because they save much trouble and afford a comparatively secure basis for comparison, but also because—and here the Darwinian theory comes in—they afford evidence of the hereditary or congenital endowments which pass on from generation to generation unaffected, or relatively so, by variations in the kind or amount of nourishment and other circumstances. According to these views in studying the POTATO the botanist would lay much more stress upon the flowers and seeds than he would upon the haulm or the tuber, because both the latter, and especially the tuber, have been "selected" by man to suit his own purposes, and any tendency to change has been by him fostered and encouraged with the result that while there is infinite variety in haulm or tuber there is comparatively little in the flower, and the flower, therefore, is considered to afford better evidence than the tuber of the ancestry and genealogy of the Potato.

M. DE CANDOLLE, who has recently published some researches on this subject, points out that the Potato as cultivated differs from the plant figured by BAKER (*Journ. Lin. Soc.*, vol. xx., p. 489, &c.) in its sharply pointed, not obtuse calyx lobes. The difference, it will be seen, is of no direct cultural importance, but it may be of great significance as an indication of affinity. For these latter purposes attention should be given to those parts which man has had no interest in changing. The Potato of CLUSIUS and GERARD is, so far as foliage and flower go, the Potato of the present day; but who shall enumerate the varieties in the tuber that now exist or that have existed since the introduction of the tuber? To illustrate this point Messrs. SUTTON were good enough to forward some information which was communicated to M. DE CANDOLLE. In brief, Messrs. SUTTON declared that they had never in their vast experience seen a Potato with blunt calyx-lobes. We cannot follow M. DE CANDOLLE in all the details of his communication. It must suffice to say, that in his opinion *S. tuberosum* and *S. Maglia* are specifically the same, or rather of the species *tuberosum*. M. DE CANDOLLE admits four varieties—1, chilense, from Chiloe, identical as to flowers with the cultivated form; 2, cultum, the cul-

tivated plant; 3, Sabini, which is the *Maglia* of HOOKER (*Bot. Mag.*, t. 6756); and 4, *Maglia*, from Chili, the plant of BAKER.

In addition M. DE CANDOLLE describes as a new species *S. Bridgesii* from Chili and to which he refers the *S. tuberosum* of BAKER's figure before cited; and another species, called *S. Mandoni*, from the mountains of Bolivia. It is admitted that the distinctions between these species are very slight and very inconstant, but that is the more reason why attention should be paid to the inherited characteristics which are not so much subjected to modification either naturally or by the hand of man. Potato growers would do a service, now that the Potatoes are in flower, if they would observe any variation in the form of the calyx from the ordinary sharply pointed lobes outside the blue or white corolla.

The returns of the Potato crop, which will be found in the previous pages, afford evidence of the damage resulting all over the kingdom from the excessive dryness of June and July. The quality of the early crops is generally good, if the produce be not over-abundant. Late and main crops promise well should the late rains have been generally distributed, and no disease should appear. It is a singular fact, and one pointing to the low average temperatures of the present summer, that Potatoes suffered slightly from frost in July in Ross-shire.

—PRIZE ESSAY ON ROOTS.—Next week we intend to publish Mr. P. SEWELL's essay on "Roots and their Work." It is the essay which obtained the First Prize in the recent competition among young gardeners, and will be illustrated.

—DENDROBIUM STRATIOTES.—We are indebted to the Compagnie Continentale of Ghent for the opportunity of figuring this very remarkable and very attractive Orchid (fig. 34). The Director has also obligingly furnished us with flowers, which have enabled us to examine their singular structure. The figure supplies an explanation of the name attributed to the species by Prof. REICHENBACH. The "soldier" Dendrobium, in fact, with its mass of erect pseudobulbs, resembles a company of soldiers, the position of the petals, now erect, at other times directed forward, resembling their bayonets in various positions. The plant was described in our columns by Prof. REICHENBACH (p. 266, vol. xxv.), and a coloured figure has been given in the *Lindenia*, p. 91, so that any further technical description is unnecessary. Connoisseurs will appreciate the plant for the singularity of its habit and the profusion and beauty of the flowers, whose "scheme of colour," ivory-white in the sepals, pale green in the petals, with the rich violet venation of the lip is sure to attract attention. The plant is a native of the Sonda Isles, whence it was sent by MM. AUGUSTE LINDEN and AUGUSTE DE RONNE. As is the case with most Orchids, the flower of this Dendrobium is specially modified for cross-fertilisation by insect agency. The sepals and petals are so many banners hung out to attract attention; the lip is like the alighting-board of a bee. Once alighted on the convenient landing-stage so provided, the insect is probably beguiled by the smell of honey in the spur, and is directed in the way he should go to get it by the purple guiding lines of the lip, and especially by the tunnel-like basal part of the lip with the groove on the floor, compelling the insect to keep the track, and in so doing necessitating the contact of his head or thorax with the anther. This effected the insect rifles the honey, probably all unconscious that he is being made a tool of by the flower.

—MALPIGHIA.—The publication of a new botanical journal is announced under the above title. The new botanical review will be edited by Professors BORZI, PENZIO, and PIROTTA, and published by Messrs. GARTANO, CAPRA & Co., of Messina. Original articles, bibliographical information, critical notes, botanical notes and queries, after the pattern of *Notes and Queries*, will be given. The annual subscription for twelve monthly numbers is 25 francs (11s.). Separate numbers will not be sold.

—PORTUGUESE CISTI.—In speaking lately of the monograph of these beautiful plants lately issued in the *Bollettin de Soc. Brotariana*, we attributed, in the absence of any indication, the authorship to the Editor. Professor HENRIQUES, however, writes that the work is due to M. J. DAYEAV, the Curator of the Lisbon Botanic Gardens.

—REVIVAL OF THE HOLLYHOCK.—In the interests of horticulture we are glad to know that Mr. BLUNDELL, The Nurseries, West Dulwich, has preserved some of the best varieties of CHATER's and LAING's Hollyhock flowers, which have long been absent from most gardens, owing to a fungous disease that almost swept them off the face of the earth. The blooms sent us were of fine form, from a florist's point of view, and the colours very pleasing; the foliage, too, is clean and healthy.

—THE HOFBURG GARTEN IN VIENNA.—The post of Hofburg Garten Inspector, rendered vacant by the death of FRANZ ANTOINE, has been conferred on Herr FRANZ MALY, the Curator of the Flora Austriaca, otherwise Arboretum Hostii, at the Schloss Belvedere. This collection of living specimens of all the plants of Austria is unique in the country.

—PURVEYOR OF BULBS TO THE ROYAL PARKS.—We understand that Her Majesty's Commissioners of Works have accepted the tender of Mr. B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, for supplying Hyacinths, Tulips, Crocus, Daffodils, &c., for the following Royal Parks, &c.:—Hyde Park, Regent's Park, Victoria Park, Bethnal Green Museum, Battersea Park, Kennington Park, and Hampton Court Gardens.

—DR. HANCE.—With much concern we learn from the *Journal of Botany* of the death at Canton of this learned and acute botanist. No one was better acquainted than he with the flora of China, nor published more to the purpose concerning it. We had occasion from time to time to consult him upon Chinese trees and other plants in the interests of the readers of this journal, and always received replies as full of information as they were courteous in tone. Dr. HANCE had been in ill-health for some months, so that his death will not come as a surprise, but it is not easy to see how the void in the department of botanical work which he made his own is to be filled up. Dr. HANCE was for many years Consul or Vice-Consul at Whampoa.

—COMMEMORATIVE TREES.—A SUGGESTION.—A correspondent of the *Gardeners' Magazine* makes the following excellent suggestion, which we hope will be followed out, and moreover we trust that the Victoria jubilee will be celebrated in like manner, by the formation of memorial groups, and by the planting of barren hillsides and other suitable localities, where shelter, beauty, and profit may be judiciously combined with historic associations:—"Seventy-six years ago was celebrated the jubilee of King GEORGE III. On that occasion, and at the coronation of Queen VICTORIA, in 1838, the jubilee of which is approaching, many commemorative trees were planted in public and private grounds in all parts of the kingdom. It has struck me that it would be interesting to collect information respecting the present condition of such of these trees as are now worth notice. Brief records of their present state, accompanied by a few simple measurements on some uniform plan, would possess practical value and interest for the arboriculturists of the present and still more those of the future."

—INSECT KILLING BOTTLES.—Mr. RICHARD BREMIDGIE, Registrar of the Pharmaceutical Society of Great Britain, has forwarded to us the following note with the request that we should call attention to the circumstances:—"The public danger arising from the sale of insect-killing bottles containing cyanide of potassium by naturalists and other persons not registered as chemists and druggists, and without compliance with other provisions of the Pharmacy Act, 1868, has recently been brought under the notice of the Council of this Society, and I have been instructed to call the immediate attention of such persons to the fact that the sale of these insect killing bottles by them is contrary to the provisions of the



FIG. 34.—DENDROBIUM STRATIOTES: FLOWERS CREAM-COLOURED, PETALS GREENISH, LIP WITH VIOLET STREAKS. (SEE P. 176.)

above-mentioned Act of Parliament, and that the penalty to which they render themselves liable is £5 for every sale."

— **THE OXFORD CARNATION AND PICOTEER UNION.**—The second gathering of the Union at Oxford on Tuesday last proved quite as successful as the first; the day was beautifully fine, the flowers were seen to the best advantage, and a large number of visitors, rich and poor alike, who had free access to the gardens, came to inspect the "feast;" among them the Mayor and Mayoress of Oxford, both being present at the luncheon afterwards in the hall of Cowley St. John's High School, where from sixty to seventy persons being present. The Mayor of Oxford occupied the chair, Mr. SHIRLEY HIBBERD and Mr. RIPPON, Editor of the *Oxford Times*, being in the vice-chairs. The post-prandial proceedings were of an interesting character. The Mayor made an excellent chairman, and Mr. SHIRLEY HIBBERD was especially felicitous, particularly so in response to the toast of the horticultural and local Press, in which he traced the history of the horticultural Press to the present day. A great number of the floral fraternity attended from various parts of the country.

— **"THE SKELETON IN THE CUPBOARD."**—Under this title Dr. RICHARDSON, in the remarkably instructive periodical the *Asclepiad*, which he writes and edits single-handed, calls attention to our national food supply, and to the serious consequences that would ensue if from war or other causes that supply were cut off. As a physician he "stands appalled at the insanity of luxury that he witnesses by the side of the awful destitution to which the luxury is bound hand and foot in common peril. We are living as if we had in the country at least a year's store of food in reserve, while in fact we may not have a week's." Dr. RICHARDSON then proceeds to enquire how far by cultivation, economy, husbandry, and skill we can prevent the necessity of importing food for the healthy maintenance of the people of these islands. Admitting that this is nowadays impossible as a whole, there is no question that much might be done to increase our homegrown food supplies by reclamation of waste lands, improved land-laws, economy in production, increased use of labour-saving machinery, prevention of waste especially the colossal waste of sewage, and the hardly less wasteful consumption of alcoholic drinks in excess, and the development of habits of thrift.

— **LAWN AND GARDEN APPARATUS.**—Messrs. MERRYWEATHER & SONS, the originators of the famed "antimonia" garden hose, which has gained a character for strength and long usage during the last nine years, have made for Baron ROTHSCHILD a new lawn and garden apparatus, after the Paris system, with various improvements.

— **THE GARDENS OF OLYMPIA.**—An important additional feature has been added to the New National Agricultural Hall, the great enterprise at Kensington, which will be popularly known as "Olympia." The Directors, of which the Earl of LATHOM is Chairman, and Sir JOHN HUMPHREYS the Deputy-Chairman, have made a purchase of land adjoining their present estate, with the intention of transforming it into a garden, where the people, after the close of the Colonial Exhibition, may continue to enjoy music and accompanying pleasures in the open air. The company now possesses 12 acres of land of great value, 4 acres of which is being covered with buildings, while there will be 8 acres of open ground available for recreation.

— **FELTHAM HORTICULTURAL SOCIETY.**—The seventh annual exhibition of this Society took place on the 28th ult., and may be regarded as in every way a gratifying success, flowers, fruit, and vegetables being shown somewhat extensively, and in capital condition. Conspicuous features in the exhibition were magnificent non-competitive groups of hardy trees and shrubs, choice stove and greenhouse plants and cut roses, from the branch nurseries of Messrs. CHARLES LEE & SON, Isleworth and Feltham. Mr. H. WILLMER, Springfield Nursery, Sunbury, put up a splendid lot of Carnations and Picotees, not for competition, which took the fancy of the numerous visitors. Mr. COLE, The Vineyard, Feltham, staged a neat group of flowering plants, tastefully interspersed with Maidenhair Ferns, and that successful

vegetable exhibitor this season, Mr. C. J. WAITE, Glenhurst Gardens, Esher, gained the "Open to All England" prize for the best collection of vegetables, eight distinct kinds—a very creditable lot. A very fine collection of vegetables, sent by Mr. POPE, gardener to the Right Hon. the Earl of CARNARVON, Highclere Castle, Newbury, arrived too late for competition, but was deservedly awarded an extra prize.

— **THE SOCIETY OF AMERICAN FLORISTS.**—The second annual meeting will be held at Philadelphia from August 18 to 20 when the following interesting papers will be read before the meeting:—

"What the craft has been doing the past forty years." Peter Henderson, Jersey City.

"Treatment of Tea Roses during the summer," with list of best bedding varieties. Antoine Winter, West Grove, Pa.

"H.P. Roses for outdoor summer bloom," with list of best varieties. John Henderson, Flushing, L.I.

"Pot-grown roses for market purposes, their care and treatment." Robert Craig, Philadelphia.

"Fungal diseases of the Rose." H. J. Sackersdorff, Bayside, N.Y.

"Model greenhouses and how to build them." John N. May, Summit, N.J.

Report of Hall Committee and discussion of the subject.

"The advantages of hot water over steam for heating purposes." J. D. Carmody, Evansville, Ind.

"The advantages of steam over hot water for heating purposes." J. H. Taylor, Bayside, N.Y.

"How to build a flue." Wm. Hamilton, Allegheny, Pa.

"Pot-grown decorative foliage plants for general purposes." James Taplin, Maywood, N.J.

"Carnations and their treatment." Joseph Tailby, Wellesley, Mass.

"The making-up of floral designs in the most effective manner, and suggestions for developing the best taste." A. Le Mout, New York city. (Mr. Le Mout will illustrate his paper with actual work on the stage, with fresh flowers supplied by the Philadelphia florists.)

Exhibits of greenhouse appliances, such as boilers, ventilating apparatus, hose, pots, building materials, &c., are solicited; also florists' requisites, and articles employed in the arrangement of cut flowers are desired. It is not the intention to have a regular exhibit of plants, but the executive committee request that all persons having novelties, or scarce and rare plants, should exhibit them. The committee on nomenclature of plants, appointed at the last meeting of the society will pass judgment and award certificates to deserving plants.

— **AN EARLY FLOWERING CROCUS.**—The beautiful Caucasian species, *Crocus Scharjani*, is the first of all to flower after its summer rest. On July 25 the buds were appearing above-ground in the *Crocus* collection at Kew, and a week later (August 1), six of the large orange-yellow flowers were expanded, and formed quite an interesting little clump. The species possesses a double interest, for besides its early flowering, it is the only yellow autumn-flowering species, the other yellow-flowered species not appearing till the spring. At present it is rather scarce, but in course of time it will probably become more common, not only on account of its singularity, but because of its beauty.

— **ARISEMA LAMINATUM.**—A coloured plate of this small but extremely pretty and interesting species is given in BLUME'S *Rumphia*, tome i., t. 27, and an analysis of the flowers and organs of fructification, uncoloured, at t. 37. The plant is dioecious, and occurs, but not very plentifully, in primeval forests in the western regions of Java, where it flowers in June. It was received at Kew from Glasnevin about two years ago, and flowers in May in a stove temperature. In the coloured plate above mentioned the male and female plants are figured furnished only with a single leaf each, but those at Kew have a pair of leaves, and each generally with three more or less perfect leaflets. The male plant is the smaller, and, excepting the organs of fructification, both are otherwise exactly similar. The most interesting feature lies in the tri or quadri-coloured spathe. The closed and tubular part surrounding the inflorescence is of a creamy-white colour, mottled or streaked with faint brown and purple markings, while the ovate acuminate lamina is of a deep shining green, and distinctly separated from the white tube by a transverse deep purple band. The disagreeable odour emanating

from some members of this genus does not seem to occur here. Both in the genus *Ariseema* and in many other members of the same family the fetid odour as of putrifying flesh seems to be connected with those species having a lurid red or brownish-red spathe. A specimen, *Amorphophallus campanulatus*, *Typhonium divaricatum*, and the *Saurautums* may be mentioned as familiar and well known examples.

— **NEW ZEALAND.**—Our New Zealand exchanges are full of the details of the great volcanic catastrophe which has destroyed a native village, and covered the land with mud and stones to a depth in some places of 30 feet. The outbreak occurred on June 10 on Mount Tarawera, close to Lake Rotomahana. Dr. HECTOR proceeded at once to the scene of disaster, and from him we may look for a valuable account of the effects of the catastrophe. About 100 natives and fourteen Europeans have perished, and the peculiar terraces described as the "wonder land of the Pacific," and alluded to as conveying a sense of supernatural loveliness by FROUDE in his *Oceana*, have been destroyed.

— **A MONSTROUS BEGONIA.**—Nature frequently reveals the secrets of her handiwork by freaks and irregularities, which we generally regard as sports or monstrosities. A double-flowered variety of the tuberous-rooted section of *Begonia* grown at Gunnersbury Park under the name *Jules Sequin*, exhibits a most singular doubling of the female flower. Usually doubling is brought about by the stamens of the male flower becoming petaloid while the female flower in the same plant is normal; but in this instance the usually inferior trigynous ovary is absent. There is, further, a perfect separation and a great duplication of the carpellary leaves, which in normal flowers are only three in number. Many of these are tipped by more or less fragmentary or perfect stigmas, while their edges on the lower half are covered with two broad almost confluent bands of white granular matter. These two bands correspond to the placentas on the margins of open carpels, and a microscopic examination of the white granular matter shows the latter to consist of a dense mass of apparently perfectly formed reticulated and anatropous ovules, each with a very short funiculus, and attached to ridges or shallow plates running longitudinally, and covering the broad placentas. The latter are very broad in the normally formed fruit. All these characters speak plainly for themselves, and evidently demonstrate the foliar origin of the carpels composing the fruit of flowering plants. They are petaloid, and highly coloured in this instance, but there are cases in other plants of their becoming green and foliaceous.

— **M. MALOU.**—Our excellent colleagues of the Belgian horticultural Press are bemoaning the loss of M. JULES MALOU, whose name is not wholly unfamiliar in this country as a politician. Few, however, were aware that M. MALOU sought solace from the worries and labours of party politics in the practice of horticulture. M. MALOU was, it seems, ardently attached to gardening pursuits, and conducted in his park experiments on acclimation, and, to use the words of Count KERCHOVE, was as earnest in his endeavours to inspire admiration for a new plant as to convert a political adversary. The Minister might often be seen in the lobbies of the Parliament house extracting from his pocket seeds, and even Potatoes, like *Magnum Bonum* and *White Elephant*, and descanting upon their merits and their utility in increasing the food-resources of the country. M. MALOU became President of the *Compagnie Continentale d'Horticulture*, and thus in various ways contributed to the development of horticultural progress and the welfare of his country. When inquiry is made in the future as to the person commemorated in *Cattleya Malouana* and *Labisia Malouana*, the reply will be that the names commemorate a Belgian statesman far-sighted enough to see that the national welfare did not wholly depend on the debates and disputes of party politics, but on the more practical development of good cultivation and improved material.

— **ERINEUM ON THE FLOWERS OF THE VINE.**—M. J. E. FLANCHON, in the last number of *La Vigne Americaine*, calls attention to the presence of *Erineum* on vine flowers. M. FLANCHON says that *Erineum* is usually found on the inferior surface of the leaves, but nevertheless sometimes it is met with on the upper surface, where in spring it is troublesome,

but almost harmless in summer, because of the rapid growth of the leaf. The *Ereum* would be most hurtful on the flowers of the Vine, where it has been observed at Joigny (Yonne) by M. Eug. BENOIT, and at Beaune (Côte-d'Or) by M. J. RICAUD. M. BENOIT intends to lay his note of observations before the Société de Paris, but he has communicated it in MS., with specimens, to M. GUSTAVE PLANCHON. M. RICAUD has kindly sent some parts (main axis, secondary branches, and the pedicels) bearing the *Ereum*. Although the presence of *Ereum* on the bunches may do no great damage, it may still have an influence on the crop.

— *MACROCEPIS OBOVATA*.—Like many other forest and tropical *Asclepiads* this tall twiner is able to subsist by supporting itself on neighbouring vegetation, and so obtaining a due share of necessary light. The most striking feature of the stems and leaves is the bearded or villous appearance presented by the copious long brown hairs with which they are clothed, recalling that of *Ficus barbata*, with similarly extensible stems, scandent habit, and dense covering of rusty hairs. The flattened or expanded flowers are produced in axillary cymes, and are of a peculiar deep shining brown. Their glossy appearance is not well represented in the *Botanical Magazine*, t. 6815, although the other characters, structural and otherwise, are clearly enough defined. The leaves are obovate, as the name implies, but owing to a slight constriction above the base they present a panduriform or fiddle-shaped appearance to some extent. A small plant flowered recently in the Palm-house at Kew, where it is planted out in a narrow border, and allowed plenty of head room on wires running upwards and parallel under the curvilinear glass roof. The plant enjoys a rather extensive distribution in the tropical parts of America from Mexico to Peru, having been picked up by several collectors, but, like many others of its allies whose flowers prove of but little attraction to the general public, it is probably not destined to enjoy great popularity. They are, however, of great interest and curiosity, while they are also comparatively large for the order.

— *ONCIDIUM MACULATUM*.—A form of this extremely variable species has been flowering for some considerable time in the cool Orchid-house at Kew. The specimen has a simply racemose inflorescence, but the typical form figured in the *Sertum Orchidacearum*, t. 25, exhibits a paniced inflorescence or compound raceme. The variety under notice agrees in structure with that figured in the *Botanical Magazine*, t. 3836, under the name of *Cyrtorchilum maculatum* var. *ecornutum*, the varietal name being derived from the absence of two horn-like processes of the crest, that are characteristic of the type. The colour, however, in the figures above quoted consists of a greenish-yellow heavily spotted with deep brown, while in this instance the sepals and petals are of a uniform deep shining chocolate-brown, with the exception of a few transverse yellow bars and a yellow tip. The labellum is white with a large pale brown blotch about the middle. A singular monstrosity is exhibited by one flower possessing two perfect labella, four sepals, and the two pollinia rather distantly separated, each possessing a pedicel and gland instead of both being fixed to one pedicel and gland. Several varieties of the species have been recorded under the old generic name *Cyrtorchilum*, the species of which have with few exceptions been included under two of the groups of *Oncidium* by the *Genera Plantarum*. The form under notice is less attractive than the type and those possessing more distinctly maculated flowers, and its value is also greatly increased when the inflorescence is paniced—a condition most prevalent amongst the species of *Cyrtorchilum*.

— *BUDDEA CURVIFLORA*.—Excepting *B. globosa* none of the species have become widely disseminated in British gardens—a fact easily accounted for by their not being sufficiently hardy to withstand our climate unprotected. The species under notice is said to be hardy, and should it ultimately prove so after being thoroughly tested in different parts of the country, it would be a decided acquisition for our shrubberies. The individual flowers are small and rosy-lilac, but produced in dense terminal spikes, 4–6 or more inches in length, which arch or curve in a graceful manner, suggestive of the specific name. There is a figure of the plant in the *Illustration Hor-*

ticole, xvii., pl. 25, which represents the species with tolerable exactitude in all save the graceful curve of the branch bearing the inflorescence. This is straight in the plate, giving the inflorescence a rigid and unnatural appearance. A small circular bed on the grass in the botanic grounds, Kew, has been gay for some time, and seems likely to last for a long time yet. It is totally different from all other kinds of shrubby vegetation flowering at present, later and altogether distinct in appearance from the well known globose heads and orange flowers of *Buddlea globosa*. The leaves, the small tubular flowers and their densely cymose or pseudo-verticillate arrangement forcibly reminds one of a Labiate, although the structure, especially of the fruit, is very different.

— *GRIFFINIA BLUMENAVIA*.—In this genus we have a departure from the generally prevalent type of foliage in the order, and which (departure) is also well represented in *Eucharis*. The leaves are broad and contracted into a distinct, sometimes elongated, petiole, and the longitudinal nerves are connected by smaller, more or less distinct transverse ones. *G. Blumenavia*, however, departs in several particulars from the originally described type to which its congeners conform. In the first place the leaves are narrow, oblong-lanceolate, and very shortly petiolate; and secondly, the stamens are all equally declinate, although of unequal lengths, while in the type one stamen rises up away from the rest. Curiously enough, the lower segment of the perianth is pure white, while the other five are more or less suffused and transversely banded with a delicate rose colour. The transverse lines correspond to the venation, which in this respect recalls the venation of the foliage. Furthermore, it is a highly attractive species, resembling an *Amaryllis*, of low stature and accommodating dimensions. The flower-scape does not exceed 6 or 8 inches in height, bearing four to eight flowers in an umbel. It flowered recently in the Begonia stove at Kew, where it proved a highly attractive and delicately coloured species. Its popularity is also attested by it having been figured in several gardening and botanical works, amongst which is the figure in the *Botanical Magazine*, t. 5666, and that in the *Gardeners' Chronicle*, 1871, p. 711. The seven or eight known species are all Brazilian.

— *CALANTHE VERSICOLOR*.—Last year a species of *Calanthe* from King William's Town flowered at Kew and was described in the *Gardeners' Chronicle*, xiv., p. 78, under the name of *C. natalensis*, and was said to be flowering, probably for the first time in Europe. There is little doubt it is identical with the description of *C. natalensis* as described by REICHENBACH in *Bonplandia*, 1856, p. 322. It is also identical with a more minute description of *C. versicolor*, given by LINDLEY in the *Sertum Orchidacearum*, where it is also figured, t. 42. Gardening books record it as having been introduced in 1836 from the Mauritius, while LINDLEY states it to be a native of the East Indies, sent from the Calcutta Botanic Gardens to the Horticultural Society. It flowered at Syon House in September, 1840. LINDLEY's name ought therefore to have the right of priority. A figure in the *Botanical Magazine*, t. 6344, under the name of *C. natalensis*, is almost identical in every point with LINDLEY's figure above quoted. The most noticeable difference in the colour is that of the labellum when it fades, but that might be owing to the age of the flower when painted, or to the difficulty the artist might have had in reproducing the colour exactly. The difference, however, is so very slight that there is not the least importance attached. The description in two of the cases above cited says the peduncle is pubescent all over on the upper part, but a close inspection of the living plant shows it to be pubescent to the base, or nearly so, with the hairs only shorter and less conspicuous, but quite evident. LINDLEY's figure and description was published in 1841, and consequently had the priority by fifteen years over the description in *Bonplandia*.

— PUBLICATIONS RECEIVED.—*Department of Agriculture (Canada): Report of the Entomologist*. By J. FLETCHER, F.R.S.C., 1885.—*The Asclepiad*. By B. W. RICHARDSON, M.D., F.R.S. (London: LONGMANS, GREEN & Co.)—*Chambre Syndicale des Horticulteurs Belges, Gand: Rapport Annuel*, 1885

(Gand : C. ANNOOT-BRÆCKMAN, AD. HOSTE SUCCESSEUR).

— GARDENING APPOINTMENT.—Mr. WM. LEIGHTON has been appointed Head Gardener to Mrs. BROMLEY, Mansion House, Stone, Staffordshire.

Notices of Books.

Rus in Urbe: or, Flowers that Thrive in London Gardens and Smoky Towns. By Mrs. HAWES. Illustrated. London: Field & Tuer, The Leadenhall Press, E.C.

This quaintly-bound little volume contains many useful hints for those who are compelled to live in densely populated localities, and yet love a garden, or something that reminds them of one. Mrs. HAWES shows that some plants will grow everywhere, and many will thrive and flourish well, if due attention and care are bestowed on them, according to their requirements. Mrs. HAWES not only discourses upon plants and how to grow them, but gives some hints also as to their arrangement for decorative purposes. We quite agree with her in her remarks about the white Lily, which in a giant form has lately become fashionable. "A flower too strong in scent," says Mrs. HAWES, "ought not to be used in quantities; better choose another class of white blossom—there are any amount, Heaven knows!—rather than nip off the golden pistils (*stix*) (stamens) which make half the beauty of the flower. To one who loves flowers the impression is as disagreeable as the sight of a woman with her nose removed; and at a dinner-table the imprisonment is long with the horrid object. This is an instance of complete want of 'taste,' discrimination, and feeling for beauty." Mrs. HAWES also discourses on the arrangement and use of flowers in rooms, and for personal adornment, and she suggests a spray of *Laurustinus* as a useful and pretty flower for the hair. We quite agree with Mrs. HAWES. One of the prettiest wreaths of the kind we ever saw was composed of *Laurustinus*.

Mrs. HAWES names many homely and easily obtained plants and leaves useful for decorative purposes, amongst them Oats and sprouting Wheat. We may add to these Carrot leaves and Asparagus, the crimson berries of which are very ornamental.

We cannot praise the illustrations in this little volume; they are hard and crude, and not distinguished by the grace or elegance possessed by the plants they represent. The list of plants also should be corrected in the next edition. It is too full of printer's errors.

Those, however, who wish to add interest to a city life may with advantage consult this little book, and will find the light and pleasant style in which it is written help to wile away an hour, and perchance they may be reminded of homely plants and flowers they knew long ago which might thrive in their city home with care and attention, and surely only the attempt to grow a few flowers (or even leaves) is full of interest and pleasure for him who attempts it!

COLUMBIAN PLANTS.

WHILE travelling in the United State of Columbia I found, amongst thousands of fine and desirable plants, two which I tried unsuccessfully to introduce to our gardens. On my return I gave the necessary indications to my friends, Mr. Linden and Messrs. Veitch; but as they did not succeed, and have not for the moment the intention to send there any collectors, and on the other hand, as I have heard that in one of the localities at least extensive clearings are taking place, I am afraid the plants may be lost by further delay. I will try to put collectors on the scent, and amongst them the two who advertised lately in your columns.

I. In crossing the Quindío range from Ibagué to Cartago, a little above El Toche, amongst the first or lower clumps of *Ceroxylon andicola*, which are here interspersed with a fine *Chamé-dorea*, I found an epiphyte the most beautiful by far of all the Bromelias I ever saw; and what adds to its value as a garden plant is its habitat in such a cold climate; a Masdevallia-house will probably be sufficient for it. It lasts in full beauty certainly for more than a month.

Description.—Plant the size and shape of Bil-

bergia thyrsoides. Spike branching in a fine pyramid, but gracefully inclined from half its height, which would be 2 feet long if erect; at the base of each branch is a large open bract, diminishing at each stage; flowers like those of *Echmea fulgens* in size and shape, or a little larger, white. Fruit a triangular capsule, seeds, silky, as in *Vriesea* or *Guzmania*; the whole inflorescence, stem, bracts, branches, and calyx, translucent as wax and of the brightest golden colour, or rather orange. Is not that glorious?

Below that spot I noticed a fine variety of *Brugmansia suaveolens*, of a true nankin colour, growing amongst a whole copse of the type, but scarce. In the neighbourhood plenty of *Orchids*, *Odontoglossum*, *Stanhopea*, *Houllettia*, *Trichopilia*; they were not in blossom on my passage (end of May), and besides as they grow in the crown of the trees it is difficult to see them, even with a spy-glass, at 60 feet and more above-ground. The only chance is to arrive at the spot while a clearing is going on; then shiploads might be gathered on a few square rods.

The *Bromelia* grows at a higher altitude than *Brugmansia* and *Lycium fuchsoides*, of which latter fine plant I have given a live specimen to Kew.

2. On the northern entrance to Pasto in a hollow road, just in the suburb, I saw a fine Passion-flower, bright scarlet with a black crown. Its beauty consists in its free flowering, the shortness of branches (3 or 4 yards at the utmost), its cold habitat amongst the *Brugmansia sanguinea*; (local name *oando*), a native of the place; its fruits are like Gooseberries. The nearest approach to the *Bromelia* I recommend is a very inconspicuous, not to say ugly plant of the same genus I saw exposed this spring in Brussels, under the name of *Calopsis paniculata*. *Jean van Volxem, Brussels*. [The plant correctly so named, is a *Restiad*, of rather elegant appearance. Ed.]

FORESTRY.

PROPAGATION.

CUTTINGS of the Laurel, Bay, Box, Privet, Holly, Yew, and *Laurustinus* may now be put in, as it is found that root formation is more rapid during the present month, when the earth and air are more of an equal temperature than at any other time of the year. The cuttings should be made of the present year's shoots, with about an inch—a "heel"—of old or last year's wood, and about 9 inches in length. Insert them in the ground from 5 to 6 inches, and pack them so thickly in the lines that they will be touching each other. Well worked soil of a free, sandy nature should be chosen in which to plant cuttings, and where the latter quality is deficient the addition of a little sharp river sand will be found of great advantage in hastening the formation of rootlets.

Towards the end of the month cuttings of the rare and more desirable *Conifere* should be inserted as follows:—Cutting-boxes made of ordinary deal wood—the most convenient size we find to be 2 feet long, by 18 inches wide, by 15 inches deep, and made of inch thick wood—should be filled to within an inch of the top with fibrous loam and leaf-mould in about equal proportions and one-fourth of fine sharp sand; the whole mixed well together and pressed firmly down. Insert the cuttings 3 inches in the soil, and at a distance of 3 inches apart, and sprinkle over the surface a slight coating of finely powdered sand. Place the boxes in an unheated frame, and shade from direct sunshine for a month, attending with a moderate supply of fresh soft water, when the condition of the soil suggests that such is necessary.

In this way many of our rarest and most valuable *Conifers* have here been raised, including such choice subjects as *Fitzroya patagonica*, *Thuopsis dolabrata*, *Juniperus recurva*, *Cephalotaxus pedunculata*, *Retinospora* of all kinds; *Libocedrus tetragona*, *Podocarpus koraensis*, *Cupressus*, of sorts, and many others. Some persons are not in favour of raising *Conifers* from cuttings, but we have found it to answer well here, and have found the produce to be even superior to grafts and certainly stronger and sooner fit for permanent position in the woods and grounds than such plants as have been raised from seed.

Layering from old stools, whether in the woodland or nursery, should, likewise, receive immediate attention as this is both a quick and inexpensive method of extending game covers, or obtaining an immediate

supply of young stock in the nursery. Fork the ground around the stools well over; bend down the strongest shoots in a circle around the parent stem, and fasten each one to the soil with a stout hooked peg. To hasten the formation of roots place a spadeful of soil on that portion of the bent branch where it comes in contact with the ground. The extension of game covers is gone about in a similar manner, only it may not be found at all times necessary to loosen the soil around the parent plants nor to have the layers pegged down in a circle around the stem. Remove superfluous shoots from the stem after a sufficient number has been layered, leaving just enough for a similar course of treatment next year, thus imparting extra vigour to the remaining ones. *A. D. Webster, Penryn Castle, Bangor*.

The Apiary.

TAKING OUT FRAMES, &c.

I PROMISED in my last to say a little on this subject. It will soon be a proper time to take the honey; it is useless to delay doing this till the end of September. It is well at once to decide how many stocks you are going to keep all the winter, for though you need not kill any of the bees, yet it is not necessary to winter them all in separate hives, especially if

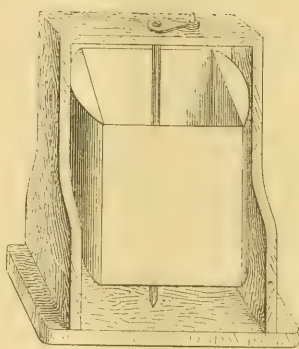


FIG. 35.—MESSRS. EDEY'S EXTRACTOR.

they are weak. Suppose you have twelve hives, and only want six, bring them closer together, a little every day in pairs, you can then take all the honey out of six hives, and give the bees to their nearest neighbours. Before doing this, smoke both hives well, and if they fight, smoke them again and again. The queens will be sure to fight; never mind that, it will ensure "the survival of the fittest." Take out the frames carefully and without jarring; shake the bees off, and sweep off the remainder with a goose-quill, or better still, a *Yucca* brush. The latter is eminently suitable, as (being so soft) it does not irritate the bees; it is the product of a plant which grows in Southern California. In all these operations, I would advise the use of a veil and gloves, especially the veil. The temper of bees can never be known in advance, and after reading about the death of the ex-mayor of Ludlow by his own bees, we are more than ever convinced, that "discretion is the better part of valour."

A very useful possession is the extractor, and I would call attention to one invented and manufactured by Messrs. Edey & Son, of St. Neot's, and which is here illustrated (fig. 35). The inventors acted on the principle of making a machine of as few parts as possible, for the fewer parts there are to a machine the less liable it is to get out of order, and the easier it is to mend when it is out of order. This machine is entirely different in design to any other machine in the market. The ordinary cylindrical extractor is a rather cumbersome and expensive thing, but here is one which answers every purpose, and is just about one-half the price of the ordinary extractor. The illustration shows how it is worked. It revolves

two combs at once, which is quite sufficient work for most people. The honey is emptied by a valve at the foot, which, however, is not shown in the illustration. I have gone rather fully into this, because there are many people who avoid the modern system of keeping bees, not so much because they do not believe in it, but because there seem to be so many expensive articles required. *Walter Chitty, Pewsey*.

SANDAL WOOD.*

THE true Sandal-wood tree is a native of the mountainous parts of India, but is found more especially in the Mysore and Coimbatore, extending northwards into Canara. It likewise grows on the Coromandel coast, in Madras, Assam, and Cochin China (?). As a garden plant it appears as far north as Saharunpore. The same tree (or a variety) is met with in several islands of the Eastern Archipelago, namely, Eastern Java, Sumba, Timor, and probably others. In India the natural habitat of the tree is said to have been reduced by cultivation,† and it is now raised, principally from seed, in Government plantations in the Madras Presidency and the Mysore.

Sandal wood is yielded by other plants of the *Santalaceae*. In the Fiji Islands it is obtained from *S. Yasi*, Seemann, *S. Spyrularium*, A. Gray; and *S. Freycinetianum*, Gaudichaud, furnish a supply in the Sandwich Islands; in New Caledonia *S. Austro-Caledonicum*, Vieillard; in Western Australia *Fusanus spicatus*, Brown (*S. spicatum*, DC., and *S. cygnoform*, Miquel); in Tahiti *S. insulare*, Bertero. An inferior kind has been met with in the Percy Isles, Repulse Bay, Cape Upstart, and the Palm Islands; it is the wood of *Exocarpos latifolia*, R. Brown.‡ The wood of *Plamieria alba*, belonging to the *Apocynaceae*, is sometimes substituted for Sandal wood. Balfour also states that a white Sandal wood, called *Lava*, or *Lawa*, is imported from Zanzibar into Bombay.§

When the Sandal-wood trees have reached perfection, which they do in from twenty to thirty years, having then a diameter of from 9 to 12 inches just above the root, at the end of the year they are either cut down or dug up; if the former, the roots are generally dug up afterwards. Worthless branches are removed, as is also the bark if the work is done properly, and the trunk is buried for six or eight weeks, sometimes left lying on the ground, in order that the white ants may eat off the inodorous sap-wood. It is then taken up and sent to the depôts, where it is sorted into three kinds. Concerning the sorting, Buchanan§ says:—"The deeper the colour the higher the perfume, hence the merchants sometimes divide Sandal wood into red, yellow, and white; but these are only different shades of the same colour, and do not arise from any difference of species." He distinctly implies that the three kinds are derived from the heart-wood. To the same effect is the following statement by Udoy Chand Dutt¶, when writing of white and yellow Sandal wood:—"These varieties are founded on the difference in depth of colour of the heart-wood." From this it appears that the statement which has been made by some writers, that white Sandal wood is the sapwood of *S. album*, is, to say the least, somewhat misleading. The sapwood is, nevertheless, found in commerce, for Balfour** describes it as "coated with thick compact bark, has a grey and brownish epidermis, it is nearly inodorous, and has a slightly bitter taste." As the white is doubtless a lighter shade of the yellow, so is the red (apart from that obtained from *Pterocarpus santalinus*, which is truly red) a deeper shade. The red kind was not recognised in Sanskrit medical works, the only kinds mentioned being *Srikhandana*, or white Sandal wood, and *Pitchandana*, or yellow Sandal wood. When the wood has reached the depôts it is cut into billets from 2 to 4 feet long. In cutting down the trees the earth is removed from about the root, so that the collectors may cut as low as possible. The billet taken from the trunk immediately above the root is called the root-billet, and is of superior quality.

The tree grows freely in hedges and gardens, and

* Paper read before the Sheffield Pharmaceutical and Chemical Society, February 10.

† Drury, *Useful Plants of India* (1893), 383.

‡ Balfour, *Cyclopædia of India*, 2d ed., v (1873).

§ Op. cit.

¶ Buchanan, *A Journey from Madras through the Countries of the Mysore, Canara, and Malabar*, vol. ii (1801), 133.

** U. C. Dutt, *The Materia Medica of the Hindus* (1877), 225.

*** Op. cit.

in a rich soil attains its full size; but in such localities the timber is of little value, and has scarcely any smell. Soil and elevation have great influence on the amount of oil produced. It thrives up to an elevation of 4000 feet, and yields the largest quantity of oil when grown in dry, sunny, rocky, mountainous districts, although it does not reach its full height. It is rarely found in forests. As has been previously stated, it is now grown in Government plantations from seed; but it also springs from roots which have been left in the ground.

Sandal Wood.—Sanskrit, Chandana, Srikhanda Vernacular: Bengali, Chandan; Hindi, Safed chandan. The wood and essential oil have been esteemed for the last 2000 years by the Hindus. The straight pieces of heart-wood are much valued for carving boxes, desks, and other useful and ornamental articles. Rich natives use the wood for burning their dead relatives, and all classes add at least one piece to the funeral pile. In powder the Brahmims mix it with the pigments they use for making their caste marks. As a medicine it is considered by them as bitter, cooling, and astringent. Reduced to powder it is taken in Cocoa-nut water, and an emulsion is used to anoint the body with after bathing. It is also burned to perfume temples and dwellings.

Sandal wood is imported into this country in logs from 3 to 4 feet long, and from 3 to 8 (rarely 14) inches in diameter. That the albumen is imported is very doubtful, as I have not found any mention of its presence here. The duramen is very heavy, somewhat hard to cut transversely, but easily cleft. In colour it is yellow, fawn-coloured, or reddish-brown. It has a very strong, persistent, agreeable odour. The taste is aromatic. "Three sorts are recognised in the commercial houses of China, namely, South Sea Island, Timor, and Malabar; the last fetches from three to four times as high a price as either of the others." *William Kirby, F.R.M.S., in the "Pharmaceutical Journal."*

The Herbaceous Border.

ADONIS PYRENAICA.

LOOKING over the herbaceous border at Kew a few days since I observed a tuft of *Adonis vernalis* labelled "*Adonis pyrenaica*." This led me to make inquiries amongst amateurs who keep herbaceous collections, and I find that hardly one has *Adonis pyrenaica*, though several have *Adonis vernalis* under this name. One amateur who knows the plant told me that the Continental dealers who have *A. pyrenaica* in their catalogues nearly always send *A. vernalis* for it, and that he is certain that some take the precaution of scalding the root to death before sending it out! I know that Messrs. Ware had some of the true plant a few years ago, as I had one from them, but it died in a year or two, and I have always found it a difficult plant to keep. I have several times received it from the Pyrenees, where it is rare, being found only in one or two spots growing on sandy soil. It is entirely distinct in appearance from *A. vernalis*, having long-stalked stout broad leaves like those of a Carrot. The divisions of the leaves are much thicker than those of *Adonis vernalis*, which has stalks tuft to the bottom, and branching at the top like a fox's tail. *C. Wolley Dod, Edge Hall, Malpas, August 2.*

CALLIPSYPE MIRAABILIS.

This is probably the least ornamental, and, from a garden standpoint, the least important of the three known species; but any one who has seen it must admit that it is a singular-looking plant. A pair of broadish, oblong leaves are produced, but not till after the flowering period is over, so that the scape and flowers receive all due prominence. The former attains a height of 2 to 3 feet, bearing an umbellate inflorescence of nodding flowers that radiate equally all round. The perianth is comparatively small, and greenish-yellow, and is in this respect much inferior to *C. aurantiaca*, which also flowered at Kew last year about this time. The stamens, however, attain the same remarkable proportions, and protrude about 3 inches beyond the flower. They are white, and, together with the style, which is an inch longer, bend downwards and forwards in a body, with the apparent object of offering a convenient landing-stage for insects. A flowering specimen might lately be seen in the Begonia-house, at Kew. There is a figure

of the species in the *Refugium Botanicum*, tab. 168. The plant does not recommend itself for decorative purposes, but for those who make bulbs a speciality it is an object of much curiosity and interest. *J. F.*

LODOICEA SEYCHELLARUM (DOUBLE COCOA-NUT).

I DO not think the successful cultivation of the double Cocoa-nut is a matter of much difficulty if one or two important matters are attended to, the first being to grow it in a warm, moist atmosphere, where the thermometer is never allowed to fall below 70°. The most important of all is to carefully guard from injury the fleshy cotyledon, as shown by your figure (122, p. 557, vol. xxv.). It is from the extreme point of this remarkable growth that the true plumule and radicle are produced, and the thickened termination which gradually develops into the cup-like base. This must not be separated from the seed until the roots are sufficiently developed to support the plant, which certainly does not take place under two or three years, and then I would advise that it should only be separated by gradual decay, as the young plant, during the first three years, is supported almost entirely by the parent seed. The same thing takes place more or less in all large-seeded Palms. The treatment of the Liverpool plant was very simple, and as it led to success, I will briefly state it. The ultimate loss of the plant did not arise from any cultural difficulty experienced by those in whose care I left it, but on account of delay in erect-

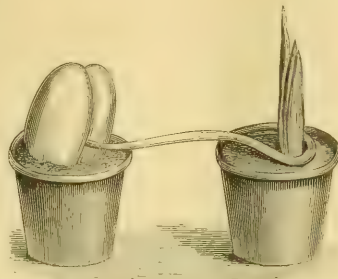


FIG. 36.—GERMINATION OF THE DOUBLE COCOA-NUT.

ing the new plant-houses when the entire collection were exposed to the frost of a severe winter, which destroyed this and many other valuable plants. On receipt of the nut from the Seychelles it was partially plunged in a bed of Cocoa-nut fibre and sand. At the end of about four months the cotyledon first made its appearance. As this gradually lengthened it showed a tendency to penetrate deep into the plunging material, but this was prevented by gradually raising the tip to the surface and covering it with 2 or three inches of light sandy soil. On this very important point I felt depended failure or success, and personally attended to it. I was aware that all previous attempts had failed by allowing this soft fleshy cotyledon to penetrate into an ungenial medium and atmosphere. When the cotyledon had extended its full length it became thickened at the extreme point, and ultimately produced the true plumule and radicle. For convenience of removal it was then potted in light sandy soil, a second pot being used to accommodate the seed (see fig. 36). At the end of three years the pot was full of strong healthy roots, the thickened base had gradually developed, two or three well developed Fern-shaped leaves had been produced, and the stout cotyledon remained firm and healthy as from the first. *J. Tyerman.*

DENDROBIUM BREVIFLORUM, Lindl.—This little Orchid, which Mr. Rolfe speaks of as "long lost," has been flowering under the care of Mr. Chadley, my excellent gardener, every summer for the last twelve years, my plant's blossom having been identified by Prof. Reichenbach's own kindness, in August, 1875. It is now in copious bud. *P. H. Gosse, F.R.S., Sandhurst, Torquay.*

CHOICE SHRUBS AT APPELEY TOWERS.

CERTAINLY in the Isle of Wight, and probably in the entire kingdom, there are few gardens more worthy of a visit for the sake of the choice and beautiful semi-exotic shrubs and plants found growing there so liberally in the open. That these things have often been written about is true, but hardly too often, as it may help some gardeners in reference to their cultivation in houses to learn that outdoors at Appley without protection at any time, they thrive grandly and are full of interest and beauty. Take such a plant, for instance, as the climbing *Trachelospermum jasminoides*, of which there is a beautiful specimen growing against an arched wall at the eastern end of the lawn. This is several feet broad and high, is in the most robust health and full of bloom, and yet in scores of conservatories it is found half starved and dirty. But on the other side of the wall there is the variegated form of this plant, doing well also. A partly covered way leads down into the stoekhole of the adjoining conservatory, and upon the arched brickwork a bed has been made up of peaty turf, and upon it the plant thrives admirably, making strong growth. On the same side of the wall, and close by, is a greenhouse climber, *Aekbia quinata*, with its five-lobed leaves, that thrives admirably; then at the other side of the wall, and rather shaded by a large overhanging tree, are both the red and white *Lapagerias*, well established, and making very robust growths.

To very many the huge Rhubarb-like plant growing in a corner here is a stranger, because seldom seen. Its stems are some 4–5 feet in height, and covered with spines, whilst the leaves vary from 3 to 5 feet across. It is *Gunnera scabra*, so noble looking here, where it has ample space. Out in the open lawn, where beds are filled almost exclusively with trees and shrubs somewhat rare outdoors, Palms, such as *Chamerops Fortunei*, thrive grandly; indeed, one huge bed is full almost solely of these Palms and *Aralia Sieboldi*, making splendid growth—such large glossy leafage, indeed, that anything finer in the way of a foliage shrub is hardly conceivable. Here, too, in another bed, is that very odd and singularly fleshy shrub, *Colletia bictonensis*. This looks like a veritable monkey puzzle, for the solid fleshy spiny projections on each side of the branches, and called leaves for form's sake, find the next pair above transposed with the most irregular diversity, and thus they are alternated over the entire shrub. Then just by, in bloom, is a semi-climbing shrub, which much resembles a *Cotoneaster* in growth; this is in full bloom, producing spikes of white flowers very freely, whilst the brownish-green berries of the previous year's production remains. This is *Leptospermum lanigerum*, and very rare it is. *Desfontanea spinosa*, represented by a fine bush, is covered with yellowish-red blooms of a semi-trumpet form, and that commonly assumed stone evergreen, *Choisya ternata*, is found in a bed a huge bush 9 feet through. A big mass of the old Lemon plants, *Aloysia citrodora*, is in full bloom, and rich in perfume. *Fuchsias*, especially the old *Riccartoni* and *coccinea*, are everywhere in big bushes, and on one part of the terrace garden the former forms quite a noble hedge all aglow with its blood-red pendent blooms. How wondrously these *Fuchsias* thrive all about Ryde only those who can realise who have seen the huge trees and bushes about St. Helen's Green, for instance, where they constantly burst upon the eyes of the inland visitor with wondrous beauty. *Veronicas*, too, do finely, *Hendersoni*, *Anderseni*, and *Traversii*, seem never to suffer from frost or any weather. The Blue Gum has some noble vigorous specimens on the slope overlooking Southsea, that bear remarkable comparison to the ragged samples found on the mainland after the recent winter's frosts. These are some 20 to 25 feet high. Of *Spiræas* of the shrubby section, a great beauty is *ariefolia* with beautiful white flowers, but the rarest and noblest is *S. Hookeri*, which produces gigantic plumes, some 18 to 20 inches in length, and fairly rivaling those of the Pampas-grass in size and beauty. [Is *S. Lindleyana* the one meant?]

Camellias grow finely in a mass; *Azalea indica* in variety also does well. In one place there is a most beautiful Japanese *Acer polymorphum decussatum* growing as a single lawn shrub, feathered most elegantly to the grass all round, and is large and spreading. The Camphor tree, *Laurus camphora*, is a fine specimen, and close by is the Cinnamon tree

* Flückiger and Hanbury, *Pharmacographia* (1874), 543.

also doing well. Amongst deciduous trees the American Lime, with its fine broad leaves, merits notice. This is certainly a rare tree in gardens, yet its foliage is specially noticeable, leaves measuring 6 inches by 7 inches, and of a dark green hue. Also very striking as a lawn tree is *Sophora japonica pendula*; it has a curious pendent or drooping form, somewhat resembling an awning to a throne.

These are but a few of the interesting things to be found at Appley Towers, gathered from time to time by the late Sir William Hutt, who was an enthusiastic gardener, and happily placed where Nature is all tolerant. The grounds are of the most delightful kind, and very well kept by Mr. Miles, the gardener, in spite of difficulties. The fine plant of the Japanese *Diospyros Kaki* in the orchard-house will not fruit very freely this year, as it cropped somewhat profusely last year; still it is doing well. As shown here, once a strong plant is obtained it will thrive readily in a cool house. A. D.

THE LITERATURE OF THE COLONIAL EXHIBITION.

REFERRING to the above subject (*Gardeners' Chronicle*, July 31, p. 146), I may perhaps be allowed to make the list more complete by the addition of a few notes on some publications not there enumerated. Referring to New South Wales it is stated that no list of products has been published, but the fact is that a very good *Official Catalogue of Exhibits from the Colony* has appeared. This catalogue consists of 478 pages, and comprises, besides various other matters, several excellent descriptive lists of woods, in some of which the native and scientific names are given, also the qualities of the timbers and the uses to which they are put, size and distribution of the trees. Some very interesting notes are given on the ethnological collection from New Guinea, such for instance as that on the "man catchers," which consist of a piece of Bamboo, bent in a circular form, and enclosing a spike. "This terrible weapon," it is said, "is slipped over the victim's head and the spike runs through his throat." In a collection of grasses and fodder plants from the Lachlan River district the interesting *Nardoo* plant occurs, described here as *Marsilia hirsuta* of R. Br., but referred to in the *Flora Australiensis* as *Marsilia Drummondii* of A. Br. This plant it is stated "is found only on the margins of swamps, or where water collects in shallow ponds after rain. The seeds which it bears profusely germinate in the water, and, rising to the surface, cover it with a green coat, resembling a scum. As the water subsides these small plants take root in the soft mud, and should no more rain occur they . . . cover the ground with a dense coating of vegetation, seeding profusely; and should the weather continue dry the plant withers off, leaving the ground covered with seed. Should, however, rain come before the plant has withered, and the ground be again covered with water, this growth is arrested, and the plant assumes another form, the previous leaves decaying, and others somewhat different take their place. These rise on long slender stems (according to the depth of water) to the surface, where they float on the top; these changes go on according to the weather. It never bears seed whilst growing in the water, no matter how long that period may last. Stock of all kinds are extremely fond of this plant, which affords a most nutritious fodder. In former years the seeds were largely used by the natives as an article of food. The unfortunate explorers, Burke and Wills, existed for some time on them."

Victoria, besides its well illustrated *Handbook*, issues a *Catalogue of Exhibits* containing a detailed list of the fine set of Victorian timbers, an enumeration of Mr. Bosisto's exhibits of *Eucalyptus* resins and oils, and a valuable descriptive list of native fibre-producing plants, of which a corresponding collection of dried plants alphabetically arranged is shown.

The West Indian courts are far from being the "least well represented" in the subject of literary matter. An excellent *Catalogue and Handbook to the West Indies and British Honduras* has recently appeared. It is illustrated with three coloured views of the West Indian court, and an engraving of the court devoted to each colony, a brief history and description of which, with notes on their products, is also given. Besides this book, which is sold at the stalls, there is also a pamphlet of some sixty pages,

which gives much information on the situation, population, history, constitution, health, trade, productions, gardens, plantations, natural history, &c. of Jamaica. This book is freely distributed, being laid about the court in large numbers for visitors to take. In the Cape of Good Hope, besides the catalogue already alluded to, mention ought to be made of the very excellent official handbook of the history, productions, and resources of the Cape, one of the cheapest and best books of the whole Exhibition Series.

The uniformity in size of the Handbooks and Catalogues issuing from the present Exhibition is a great improvement over its predecessors; it enables them to be bound up in uniform volumes, and thus kept together as a record of the condition and prospects of the colonies in the year 1886. John R. Jackson, Curator, Museums, Royal Gardens, Kew. [In the note in question allusion was made to all the catalogues our reporter was able to purchase at the bookstalls. Some of the other books mentioned by our correspondent had been previously alluded to, e.g., the excellent Cape Handbook. The West India, Victorian, and Indian Handbooks are unknown to us. Ed.]

HOME CORRESPONDENCE.

A New Pea.—Prodigy, sent out by Messrs. Veitch this season. Surely this must have been the Pea hinted at by the raiser, Mr. Culverwell, of Thorpe Perrow, in the discussion on Telegraph and Telephone Peas, as the one that was to come to eclipse Telephone; if so, I for one am well satisfied with it. Grown side by side the superiority of Prodigy is very marked, and it is by far the best early Marrow I have yet grown. I say early, for, sown with William I., it is ready about the same time—only a few days between them. I enclose a sample of Prodigy for you, Mr. Editor, to admire and taste, if you will. I fancy your keen eye will at once detect we have in this Prodigy, as we had and still have in Telegraph, light and dark green pods and Peas. I hope they will not be unfortunate enough to be named two varieties, for they are grand as one T. Keddell, Darley Abbey. [The sample sent to us was too old to be a good cooking test. It bears a well filled pod of large Marrow Peas, and would make a market Pea where quantity and earliness are the chief considerations. Ed.]

Boiler Contest, Liverpool.—At p. 118, Mr. Wood complains that his two competitors in the 2000 feet contest were "not qualified, because they did not fix their piping according to Rule 5," "that the piping should not rise more than 6 inches in 100 feet," but as the contest was between the boilers on their own merits, as much as on the results as shown by the thermometer, a good boiler was not made a bad boiler because of the level the piping was laid at, and in any case Mr. Wood scored a point owing to his being right with his level, and also through being the best in his result as to temperature. As regards the reading of Rule 5, if Mr. Wood is in the right it would exclude all boilers which, having waterway-bars, refuse to connect them with the upper part of the boiler, as Mr. Wood considers the flow and return from the waterway-bars separate flows and returns, whereas the boiler would not be complete without them. Though it might be interesting to your general readers to hear all the merits and demerits of each boiler, it might not be so interesting to the makers, so I only remarking that Mr. Wood gets full justice, he should remember that there are other points. J. B., Jr.

Rock Gardening.—In my humble opinion there is no gardening like hardy plant gardening, and no hardy plant gardening like that on rockwork and mounds. I have just returned home from a visit to Edge Hall in Cheshire, where rockwork gardening is admirably carried out. Much had been done since my last visit; the rockwork with its varieties of stone is wonderfully successful, and shows what energy, perseverance, and study, assisted by an excellent library, will do in a climate colder and damper than our home counties. Many of the plants, some of them difficult ones, grow in such vigour that it shows that the climate suits them; but sheltering rock and judicious lighting of soil makes others grow which prefer warmer and drier situations. Campanulas have always been favourites of Mr. Wolley Dod, some of the rarer ones were simply masses of bloom, a favourite plant of my old friend Mr. Atkins, of Painswick, Onosma laevis, had grown more luxuriously than I ever before saw it. Arnebia coccinea showed itself thoroughly at home, as did many of the rare Saxifragas. I will not attempt to enumerate the different plants which are in great numbers, and many of them rare. I was much interested to find that Mr. Dod, by his broken granite, had arrived at results which we have been attaining by different means but on the same principle. In his garden

beds *Lilium pardalinum* in all its varieties, and *L. testaceum* were very fine and in great vigour; and in a rough, cold Lily-house *L. Parryi*, *L. Humboldtii*, *L. Washingtonianum*, and *L. Dalmaticum* were as fine as I have ever seen them under any treatment. People often speak of gardening as a pleasant amusement; it is of course a pleasant occupation, but carried out as it is at Edge Hall, it is as much a study and a science as any of the more recognised sciences. In conclusion, I would advise any one with plants, especially alpine, which they cannot master, to send some to the Rev. C. Wolley Dod, Edge Hall, Malpas, Cheshire, and I shall be surprised if he does not discover how to make them grow. George F. Wilson.

Godelias.—Godelias, where properly and well cultivated, have made good displays this season. After having been properly planted in good soil early in the season and supplied with a fair quantity of moisture they delight in dry hot sunny weather. Too frequently the same mistake is made in connection with their culture as with most other annuals. It consists of sowing them thickly and neglecting to plant many plants to grow together, as well as neglect in the matter of transplanting. The Godelia is found to no other annual for the ease with which they can be transplanted. Transplanted into rich soil during showery weather each plant is capable of making plants 18 inches high and 9 inches through, clothed throughout with an abundant mass of its large showy blooms. Very large beds so grown are before me as I write, and are exceedingly gay. Probably few annuals repay election in the matter of seedlings as do these. Normally they are prone to run in the matter of colour, hence too much attention cannot be given to the simple matter of seed saving. Godelias do well in tubs and boxes, transplanted therein somewhat singly as suggested. From their known partiality to warm sunshine they would succeed well in sunny outside window boxes. Seeds sown in a warm garden border in the early spring would soon form plants fit for transplanting therein, with the assurance that a few degrees of frost would not affect them adversely. William Early.

The Origin of the Garden Pentstemon.—In reference to Mr. Douglas's reply to my remarks on this subject I must point out that I took his notes as they stood, and could not be supposed to be acquainted with all his previous papers. Believing his speculations to be misleading I ventured to point out what appeared to me a serious omission. In the absence of any evidence to the contrary I am still of opinion that our bedding Pentstemons are the lineal descendants of the *P. Hartwegii* of Bentham, and I also repeat, what every botanist knows, that this plant was incorrectly figured and described both in the *Botanical Register* and the *Botanical Magazine* as *P. gentianoides*. It is true that the latter was described and figured by Humboldt long previously, but it had not been actually introduced into cultivation until subsequent to the publication of the figures above referred to, it was but little known. I grew the plant for a season or two about the years 1842-3, having received it under the name of *P. gentianoides* verus (it was written vera by the way). It proved to be a robust plant, of bushy but somewhat stiff habit, and by the time it bloomed, which was not till the second season after planting out, had reached the height of 3 or 4 feet. Its short, horizontally disposed flowers, of a purplish-violet colour, were pretty freely produced. If "J. D." can refer to Professor Asa Gray's Synopsis of the genus, in the *Proceedings of the American Academy of Arts and Science*, October 14, 1862, he will find both of the species under discussion described and referred to their respective figures. He will also find, in *Paxton's Flower Garden*, a correction of the error committed in the *Botanical Register*, but I cannot quote chapter and verse, not having the volumes at hand. If he is not ungenerous I can only refer him to the nearest botanist of his acquaintance. *Solanum*.

Time of Seed Sowing.—Your correspondent, "Pisum" (p. 135) has opened a question in which common-sense and experience must alone be the teachers, especially as regards the rules for sowing laid down in seedsmen's catalogues, as these can only apply approximately. Almost everything in sowing seeds depends upon the situation and the state of the weather, and upon whether it be the market gardener or a gentleman's gardener. The aim of the market gardener will be to endeavour to get his crops out, and take them to market when he thinks the most profit can be made; but the gentleman's gardener has to be guided by the wants and wishes of his employer, and by the possibilities of the place; everything has to bow to these, therefore the latter will have to continue sowing and planting, and learning from his failures and successes, and doing the best he can under all circumstances. It would never be advisable for a private gardener to sow his first crop of Peas in April; he must have three or four crops of these under weigh before then, and his first crop should be in bloom by that time, if he

means to pick useable pods in May, as he ought to be able to do in fine seasons. I know it is often said that we do not gain anything by early sowing or planting, but that is a statement few gardeners believe, and, moreover, he has to be content with small quantities of nearly everything he grows in the early part of the year, and to this end he has to cut and contrive and utilise all sorts of structures and shelters. The warmest borders and sheltered corners have to be utilised, and he has to take advantage of everything that will assist him, or his next neighbour may chance to be in advance of him. The great thing is to get a little of everything early. The time to get in the main crops is the months of March and April, these main crops being sown on quarters properly prepared for their reception; and as the time comes round and then during April, May, and June, these crops have to be watched, in order to make good any failures as soon as perceived. The good gardener does not wake up by fits and starts, but has everything at his fingers' ends, and knows when and where and how to do his work. In looking back upon my gardening life I remember doing nearly everything each year almost on the same day of the month, and as the seasons have come round I have attended to each operation as a matter of course, and have not neglected to watch for improvement in method in this go-ahead age. Everybody thinks he knows something, and there are many among all classes who have some amount of success, but this is very different to being a gardener by training, and book knowledge does not help much unless combined with experience. C. D.

Lapagerias.—A *Lapageria*-house is a rarity and a luxury too. I am only able to place on record one private garden where a greenhouse is styled a "Lapageria-house." [There is one at Saltaire. Ed.] Since the Rose is denominated "the Queen of the garden," the *Lapageria* ought to rank as "the monarch of the greenhouse," because it is perhaps the most beautiful of climbing plants. The house under notice is a charming little structure some 9 feet by 13 feet, hid away as it were, at the rear of the stoves and Orchid-houses in the famous gardens of John Marshall, Esq., Mount Nebo, Taunton. It is a lean-to building with upright front sashes and contains three or four thriving plants of the white *Lapageria*, whose luxuriant growths are trained methodically to the roof, and the result is that just now their pendulous flowers of pure white cover all the plant, in fact hang down in clusters, one of which I have seen from your yard that you may form a better idea of the vigour of the plants. The gardener, Mr. Lucas, recommends a west aspect for a *Lapageria*-house, strong plants to commence with, much patience on the part of the cultivator, and the utter annihilation of all slugs. His plants are planted out in prepared beds above the floor line, and the roots are enclosed in limited spaces by slates. The compost used consists mostly of fibrous peat and plenty of sharp sand with an addition of some charcoal. Frequent syringing, and copious supplies of water are indulged in whilst the plants are in active growth, and a cool temperature is maintained. W. Rann, *Alphington Cross*. [A fine terminal truss accompanied this communication. Ed.]

Annuals as Decorative Flowers.—A few days since, having to wait for a train at Southampton, I took the opportunity to look in at a small enclosure of some half dozen acres of land close to the railway station, and which a few years since was converted from a rather rough piece of pasture rejoicing then in the plebeian appellation of Porter's Mead, to a pleasure garden, now more ambitiously designated Queen's Park. Neither trees nor shrubs had yet made any appreciable growth, and it is a matter for opinion whether some of the expanses of grass so pleasant as recreation grounds for myriads of little ones were not a bit over-done with big but otherwise rather bad beds of shrubs. However the town garden had literally taken possession of the house, and for the greater part of the summer these beds were made singularly gay by means of single and double Poppies of the most varied and beautiful kinds, so that beds and borders were aglow with colour of the most charming description. Simply sown broadcast and raked in, the labour involved has been of the smallest, whilst the results have been of the happiest. Added to Poppies, *Clarkia elegans*, dwarf *Rockets*, *Larkspurs*, *Candytufts*, *Echioshorbia erecta*, *Convolvulus minor*, *Gillia tricolor*, and other hardy annuals were employed as lines and edgings with admirable effect, creating beauty that, if somewhat fugitive, certainly is beauty of the most pleasing kind whilst it lasts. In beds were such good old bedders as the yellow *Gazania splendens*, *Phlox Drummondii* in variety, and making capital masses; striped and self *Petunias*, *Lobelias*, &c., and were very effective. So much gaiety from such simple elements is not often met with, and all these too in an open space close to the seaside, exposed to the sweep of southerly winds, and on its upper sides encompassed by houses. But for the happy thought of the gardener in sowing annuals so

liberally the park might, beyond its verdure, have been a sort of wilderness. In laying out places of this kind there is perhaps too much anxiety to offer a design which looks pretty upon paper; hence more beds and borders than needful are formed, and circular or serpentine paths, which lead nowhere, are designed. Nothing can excel the permanent beauty found in broad expanses of verdure and good turf, but flowers will help to gloss over many imperfections. A. D.

Lilium candidum.—Narrow-petalled Variety. —Seldom has *Lilium candidum* bloomed so finely as during the present season. On all sides around, especially in cottage gardens, immense spikes of finely developed blooms have been observed. I have here a narrow-petalled variety of this Lily, which certainly deserves some further notice than has yet been given, more especially now that Lilies have come into more favour generally. The original *L. candidum* possesses, as is well known, wide petals, that offer an obstacle to its use generally in bouquets and other arrangements of cut flowers, but intermixed with Iris or other similar leaves, this narrow-petalled variety is second to none. Spikes of this Lily, and common white *Jasmine* flowers and shoots arranged in a vase, are both beautiful and fragrant. Botanical works register four varieties of these Levant Lilies, but this narrow-petalled variety finds no place amongst them, unless indeed *Lilium spicatum* refers to it, which I fail to believe, judging their blooms structurally, yet it would seem the variety is distinct enough, even though it be a garden sport, as to deserve recognition. W. E.

Trees at Devonhurst, Chiswick.—This place, the residence of E. H. Watts, Esq., will ever possess interest for every true horticulturist, for it was once a part of the Royal Horticultural Society's garden—the arboretum, in fact. A very interesting reminiscence of the famous Chiswick show existed in this shape up to last year, when it was sold, in the place of an old tent, zinc-roofed, 120 feet long by 12 feet wide, in which the magnificent exhibits of Mrs. Lawrence's stove and greenhouse plants, the genial and successful Barnes Brothers (William and James), of Camberwell and Bickton; Glendinning, Chiswick; Lee, Hammersmith; Rolleston, Tooting; Lane, Berkhampstead, and a crowd of other horticultural notabilities who shone so brilliantly on those days at Chiswick. Referring again to the arboretum, it may not be out of place to quote here some remarks made by the late Dr. Lindley in an article on the Society and its prospects in the *Gardeners' Chronicle*, in the year 1862, about the time when the Society was migrating—had, indeed, migrated—to South Kensington:—"It would also be fortunate if we should persuade those who are merely in search of the beautiful to examine some points in this garden in merely an artist's spirit. The trees in the arboretum are now forty years old, in many cases having grown unchecked and unpruned, and displaying a variety of natural forms to great advantage, and forming some charming studies for the landscape gardener. Then there are deserted byways fringed with Spanish Chestnuts and other trees, whose arms meet overhead, and cover a mass of tangled foliage on either side, producing the effect of narrow country lanes, with the exception that they are as free from dust as interruption. We strongly recommend this scene, especially when in half light, to young artists in search of studies from Nature." And what a host of fine things in the tree way may be seen there now—practically the arboretum as it was in the old times. What a change from the busy high road of Chiswick (on which the estate abuts) into this sylvan retreat. One might imagine oneself to be 200 miles off in the country. By the house is a magnificent specimen of Spanish Chestnut, grandly proportioned, 40 to 50 feet in height. Near this is a fine group of *Acer* in variety. At the apophyllum an indeed splendid example of tree growth, being specially notable—the spread of foliage is about 120 feet through. It also possesses a degree of interest for lovers of old and venerable things, in that the label recording the name is one that was written when the Horticultural Society was "in possession." It is now scarcely legible; but there it is, forming a link with the past in the history of the Society. Next to demand attention is a noble specimen of *Cedrus atlantica* some 60 feet in height, probably one of the finest plants in the country of this grand tree; it is coming freely this year. The old Oaks, as might be expected, figure prominently, particularly fine being an evergreen variety, *Quercus Ilex integrifolia*, with a spread of foliage some 50 feet through. A Copper Beech, 60 to 70 feet in height, very imposing from a landscape and picturesque point of view. Wych and English Elm make a striking feature. Space forbids us mentioning a tide of the many remarkable things to be seen in the tree way. We have not, for instance, referred to the fine Planes, Walnut, Ash, Golden Sycamores, &c.; but sufficient has been said to show that it is a place of no ordinary attraction to lovers of arboriculture, and was enriched in former

years with many fine species and varieties of ornamental and useful trees as are possessed by no other suburban garden. B.

Zinnias.—There are just now a few beds of these annuals in full beauty at Chiswick, brilliant with scarlet-crimson, rose-coloured, buff, or white flower-heads. The *Zinnias* have one great advantage over most other summer annuals in that their beauty is retained for several weeks. A. B.

Reports of Societies.

WILTS HORTICULTURAL: July 29.

THIS, the second show (resuscitated from the old society), was held, by kind permission of the Bishop, in the Palace grounds, Salisbury, and a more suitable place for the holding of such an exhibition it would be difficult to find, and still more so to secure.

The committee and the indefatigable and courteous Hon. Secretary (Mr. W. H. Williams) are to be congratulated upon the success of their efforts to make the show a thoroughly good and representative one, a circumstance which, as Mr. T. Challis remarked at the luncheon, it is to be hoped will "encourage the committee to continue their efforts, so that Salisbury would in the future be as it had been in the past, the leading town in the county for horticulture." Most of the classes were well contested and the exhibits generally of excellent quality. The magnificent plants staged by Messrs. Lock, Cypher, Rann, and Mould, were greatly admired especially the *Crotons*, which were alike remarkable for their great size and the stamp of great cultural skill which they exhibited. Fruit though shown fairly well, was not so abundant as it was last year, when the show was held three weeks later.

PLANTS (OPEN CLASSES).

For twelve stove and greenhouse flowering plants there were only two entries, Mr. James Cypher, Cheltenham, and Mr. Rann, Handcross Park, Crawley, who took the prizes in that order with well-flowered plants. Mr. Cypher's collection contained, among others, *Phenocoma prolifera* Barnesii, 5 feet through, and grandly flowered; *Ixora amabilis*, very bright in colour, and covered with flower; *I. Pilgrimii*, having large bold trusses; *Stephanotis floribunda*, *Erica Irbiana*, *E. retorta* major, E. Thomsoni, and *Allamanda Hendersoni*. Mr. Rann's best plants were *Erica Williamsii*, large, and profusely flowered; *Succisa*, and *Alchemilla Wardiana*.

In the class for the same number of variegated and fine-foliaged stove and greenhouse plants four excellent collections were staged, the plants in the 1st and equal 2d being very close in point of merit, thereby necessitating considerable time being spent by the judges in determining the relative positions of three such uniformly good lots of plants. 1st, Mr. Lock, gr. to W. B. Cleave, Esq., Newcombe House, Crediton, Devon; equal 2d, Messrs. Cypher and Rann.

Mr. Lock's best plants—and it is difficult to particularise where all were so good—were *Gleichenia spelunca*, 12 feet over, beautifully trained and in fine condition; *Crotons*, Warreni, Williamsi, Disraeli Johannis, and Chelsoni (all highly coloured), *Cocos Weddelliana* (a grand plant of the kind), *Cycas revoluta*, *Dasyliorion acrotichum*, *Latania borbonica*, and *Kentia Balmorana*.

Mr. Cypher's best plants were *Thrinax elegans*, very fine; *Cycas circinalis*, C. revoluta, *Crotons majesticus* and Prince of Wales, *Kentia Fosteriana*, *Cordylina indivisa*, having dark green leaves 4 inches wide; *Dasyliorion acrotichum*; Mr. Rann's best being *Croton Warreni*, 9 feet over, and grandly coloured; his other plants, similar to those two in the other collections, being equally good. Mr. Mould, Pewsey, Wilts, was awarded an extra prize in this class for smaller but fresh, clean, well-grown plants.

GENTLEMEN'S GARDENERS' CLASSES (AMATEURS).

Mr. Lock was 1st for six stove and greenhouse flowering plants, distinct, showing fresh, well-flowered plants of *Erica coccinea*, E. Barnesii, E. Thompsoni, E. ampullacea, *Dipladenia amabilis*, and *Anthurium Scherzerianum*; the 2d going to Mr. Mould for a nice even lot of plants.

For a like number of variegated and fine-foliage stove and greenhouse plants there was the same number of entries. 1st, Mr. Lock, whose best plants were *Alcaeus macrophylla*, variegatum, *Thunbergia elegans*, and *Kentia Fosteriana*; Mr. F. Smith, gr. to the Lord Bishop of Salisbury, being a very good 2d, showing in his collection good plants of *Pandanus Veitchii* and *Croton Weismanni*. In the class for nine exotic Ferns and Selaginellas the same exhibitors were 1st and 2d, both showing well.

Mr. H. W. Ward, gr. to the Earl of Radnor, Long-

ford Castle, Salisbury, was 1st for six pots of *Liliums*, showing well flowered plants of *L. speciosum* Kratzeri.

Dr. F. W. Coates, Salisbury, was a capital 1st in the class for six tuberous-rooted *Begonias*, showing neat, fresh, well-flowered plants; the 2d prize going to Mr. Thornton, gr. to Mr. Greenwood, Harnham Cliff, Salisbury.

Mr. Lock had the best six plants of *Gloxinias*, showing good, well-flowered plants; Mr. T. Wilkens, gr. to Lady Theodore Guest, Inwood House, near Shaftesbury, the 2d best; and Dr. F. W. Coates the 3d best, all three showing well.

AMATEURS.

These classes were fairly well contested, and the exhibits generally of merit. Mr. John Curry, gr. to Colonel Pepper, Elm Grove, Salisbury, showed the best six stove and greenhouse plants, distinct; and Mr. Lovibond, St. Anne's Street, Salisbury, the 2d best, both showing well.

There were three collections of six Ferns staged; 1st, Mr. J. Curry, with small but fresh plants of *Gymnogramma chrysophylla*, *Adiantum gracillimum*, a good plant, &c.; 2d, Mr. Gregory, The Mill, Salisbury; the 3d going to Mr. Lovibond, all three showing very creditably grown plants.

Four lots of six *Coleus*, distinct, were staged. 1st, Mr. T. S. Fulcher; 2d, Mr. J. Rockett, gr. to G. Smith, Esq.; 3d, Mr. Lovibond—all of Salisbury, for neatly-trained, well-coloured plants.

Dr. Coates was 1st for three pots of *Liliums*, showing good plants of *L. Harrisi*, the flowers being large and fresh; 2d, Mr. L. Gregory.

Messrs. John Curry, T. S. Fulcher, and Lovibond took the prizes for six zonal *Pelargoniums*, distinct, in the order in which their names appear, in a well contested class.

The prizes for four distinct varieties of variegated-foliage *Pelargoniums* went respectively to Messrs. E. L. Brown, Portland Place, Salisbury, and T. S. Fulcher, both showing very little plants.

Dr. Coates was again 1st for six *Begonias*, showing, as in the class open to gentlemen's gardeners and amateurs, well-flowered plants; Mr. Curry being placed 2d.

FRUIT (OPEN).

Three collections of eight kinds were staged, the contest between Mr. W. Iggluden, gr. to the Earl of Cork, Marston House, Frome, and Mr. H. W. Ward, being a very close one, but the points which the Black Hamburgh and Muscat of Alexandria Grapes and Apricots in the latter's collection gained over those in his opponent's he lost in Peaches and Nectarines, the latter being Mr. Ward's weakest dish. Mr. Iggluden staged Black Hamburgh and Foster's Seedling Grapes, a neat Queen Pise, good Gros Mignonne Peaches and Victoria Nectarines, Brown Turkey Figs, a good fruit of Blenheim Orange Melon, and Moor Park Apricots; 3d, Mr. J. Evans, gr. to Lady Ashburton, Melchet Court, Romsey.

Mr. Ward had the best Pine-apple, and Mr. J. Evans the 2d best, both showing Queen of the South Grapes.—Seven three-bunch stands of Muscat of Alexandria were observed, the majority of which were quite unripe. Mr. Pratt, gr. to the Marquis of Bath, Longleat, Warminster, was 1st, with large and fairly well-ripened bunches for their size and season; Mr. James Budd, gr. to F. G. Dalgety, Esq., Lockerby Hall, Ramsey, being a good 2d, showing smaller but slightly better-coloured bunches; 3d, Mr. J. Northeast, gr. to Mrs. Torrence, Norton House, Heytesbury, Wilt.

In the corresponding class for Black Hamburghs, Mr. Pratt was a good 1st, showing large well-coloured bunches carrying a fine bloom, which like the Muscats, were placed 1st a couple of days later at Southampton. Mr. Charles Warden, gr. to Sir J. H. Bathurst, Bart., Clarendon Park, Salisbury, was a creditable 2d; and Mr. Iggluden 3d, both showing smaller and well finished bunches.

In the class for a like number of bunches of any other white Grape than Muscat of Alexandria, and any other black than Hamburgh, Mr. Ward was 1st, with well ripened bunches of Buckland Sweetwater; Mr. Warden following closely with the same variety; Mr. Budd being 3d, with good but rather green bunches of Mrs. Pearson; several lots of unripe examples of Foster's Seedling were shown in this class.

The last-named exhibitor was 1st, with Madresfield Court Black Muscat; Mr. Warden 2d, with the same variety; and Mr. Ward 3d, with Black Prince.

MELONS.

Several lots of these were shown, Mr. Pratt securing 1st place with a fine, large, and highly-flavoured fruit of Longleat Perfection, and Mr. Iggluden 2d with a smaller fruit of the same variety.

Out of several dishes of Peaches, Mr. J. Evans was 1st with highly-coloured fruits of Royal George.

In the class for six Nectarines, Mr. Budd was an excellent 1st with Elruge.

FRUIT (AMATEURS).

For a collection of six kinds of fruits.—1st, Mr. Gregory; 2d, Mr. J. Curry. Messrs. Lovibond and Gregory were placed 1st and 2d respectively for two bunches of Black Grapes, both showing creditable bunches—Mr. Gregory and Mr. Curry taking 1st and 2d in that order, for two bunches of white Grapes.

Mr. E. L. Brown was the only exhibitor of Peaches in this class, showing the best fruit in the show.

Mr. Gregory was the only exhibitor of Melons in this class.

VEGETABLES (OPEN).

The only class provided for these in the schedule was that for a collection of twelve kinds, and a right good competition was brought out. The awards in the 1st and 2d prize collections were not accepted by many gardeners who are competent to form an opinion. 1st, Mr. Wilkens; 2d, Mr. Haines, gr. to the Earl of Radnor, Colehill House, Highworth, Berks; and Mr. A. Miller, gr. to W. H. Long, Esq., M.P., Rood Ashton Park, Trowbridge, was 3d. Mr. Pratt, who made his first appearance as an exhibitor of vegetables, also showed well in this class.

Amateurs and cottagers also showed vegetables well in their respective classes, there being notable improvement in the different kinds of garden produce since last year.

CUT FLOWER CLASSES (GARDENERS AND AMATEURS).

Roses.—These were shown very well for the time of year. T. W. Girdleston, Esq., Sunningdale, Bagshot, was 1st for thirty-six single trusses, distinct, with a good, fresh even lot of blooms. Mr. Campbell was 1st for twenty-four trebles, distinct varieties.

In the corresponding class for a like number of single trusses, distinct varieties (not open to exhibitors in the two preceding classes), Mr. J. Marlow, gr. to Mrs. Pigott, Cholderton House, Salisbury, was 1st, showing a good lot of blooms. Five stands were put up.

Only two stands of twelve spikes of *Gladioli* (not less than six varieties) were put up by Mr. J. Evans, and Mr. R. West, gr. to J. R. Wigram, Esq., Northlands, Salisbury, who took 1st and 2d prizes in that order.

AMATEURS (RESIDING WITHIN TWELVE MILES OF SALISBURY).

Mr. H. G. Gibbs was 1st for eighteen Roses, distinct, showing a very good lot of blooms, and Mr. J. Marlow, Fisherton, Salisbury, was 1st for twelve Roses.

LADIES' CLASSES.

These brought forth a spirited competition, and really good arrangements of choice flowers intermixed and fringed with grasses, sprays of Fern, and leaves.

NOT FOR COMPETITION.

The Messrs. Keynes, Williams & Co. of the Castle Street Nurseries, Salisbury, had a tastefully arranged group of miscellaneous foliage and flowering plants, Roses, and other cut flowers, which were bedewed overhead by the sprays of a small fountain at play in their midst.

The several stands of Roses, having a variety of plants as a background, arranged by Messrs. Brittan & Son, The Waterloo Nursery, Salisbury, on one of the side stages in the large tent containing, in the centre, the magnificent foliage plants of Messrs. Lock, Cypher, and Rann, and the Roses and other cut flowers on the side stages were also a notable feature in the show.

SOUTHAMPTON ROYAL HORTICULTURAL: July 31.

This exhibition must be again recorded as a success, and as a magnificent show; particularly does this latter apply to the plants, which were arranged in a tent 200 feet long and 75 feet wide. The groups were numerous, and, as they always are at these exhibitions, most tastefully arranged.

Table decorations and bouquets were extensive and of high merit. This remark applies to cut flowers, particularly Roses, for so late in the season; Dahlias and herbaceous flowers.

Fruit was not quite so largely represented, owing to the unfavourable season, but there were some capital specimens of black Grapes, Melons, and other indoor kinds.

Vegetables especially were a strong feature, whilst the quality was good. Cottage productions were excellent in the vegetable classes.

A fine exhibit of cut blooms of tuberous *Begonias*, both double and single, came from Messrs. J. Laing & Co., Forest Hill, London, S.E., as were also the seedling double *Hollyhocks* from the same firm.

Messrs. Keynes, Williams & Co., Salisbury, staged a capital lot of *Gladioli*, *Verbenas*, pompon and show Dahlias and Roses, not for competition, which were much admired.

The new yellow *Carnation*, *Pride of Penhurst*, which was certificated at the last meeting at South Kensington, was well represented by a bouquet arranged with its grass, and showed its excellence to the best advantage.

At the entrance to the tent specially set apart for their Royal Highnesses the Prince and Princess Henry of Battenberg were two magnificent *Fuchsias*, each 9 feet high and 4 feet through, grown by Mr. E. Wills, gr. to Mrs. Pearce, The Firs, Basset, Southampton. Mr. Cypher, Cheltenham, presented a bouquet of *Orchids* to Her Royal Highness.

GROUPS.

The class for twelve stove and greenhouse plants, six in bloom and six foliage, distinct (open), made a splendid array. Mr. G. Lock, gr. to B. W. Cleave, Esq., Newcome House, Crediton, was placed 1st; his foliage plants were of good quality, but the flowering ones were rather weak; *Latania borbonica*, *Euphorbia villosa*, *ampliatas*, *Croton Warreni*, 6 feet in diameter, with beautifully coloured leaves; also C. *Williamsii*, equally good; *Ixora coccinea* was represented by a fine specimen; *Erica Thompsoni* was likewise a fine plant. 2d, Mr. J. Cypher, nurseryman, Cheltenham, with a fine lot of plants, superior in flowering but weaker in foliage plants; particularly good were *Dipladenia amabilis*, *Stephanotis floribunda*, and *Phenocoma proliфера* Barnesi; *Cycas circinalis* was excellent, but *Croton majesticus* was weak. 3d prize was awarded to Mr. C. Rann, gr. to J. Warren, Esq., Crawley, Sussex.

For the same number of plants as in the above class, but confined to nurserymen, Mr. J. F. Mould, Pewsey, Wilts, was awarded 1st, *Erica Maroccanica*, rich and fresh in colour, being one of his best plants; 2d, Mr. James, Castle Nurseries, Norwood, who had an extra fine specimen of *Latania borbonica*; Messrs. J. C. & H. Ransom, Shirley, were 3d.

With the same number of plants as in the two former classes (amateurs) a very fine show was made 1st was awarded to Mr. E. Wills, gr. to Mrs. Pearce, The Firs, Basset, Southampton, his best plants being *Stephanotis profusa*, 5 feet in diameter, profusely bloomed, and of a rich colour; a full-flowered specimen of *Stephanotis floribunda*, *Cycas revoluta*, and *Verschaffeltii splendens*, in capital condition. Mr. J. A. Ams, gr. to the Hon. Mrs. C. Yorke, Netley Cliff, was 2d, with a fine plant of *Allamanda Hendersoni*, *Erica tricolor*, *vera*, *Trachelospermum jasminoides*, freely flowered; and a healthy specimen of *Cycas revoluta*; but his other foliage plants were somewhat weak. Mr. N. Blandford, gr. to Mrs. Haslefoot, Moorfields, Bitterne, was 3d.

Still another class was provided for specimen plants, but in this case nine was the number required, various, not less than three to be in bloom. Mr. E. Molyneux, gr. to W. H. Myers, Esq., Swannore Park, Bishop's Waltham, was 1st, with *Taxodium ceruleum*, a plant seldom well shown; *Allamanda Hendersoni*, and a well-coloured *Croton variegatus*, as the chief plants; Mr. J. Reynolds, gr. to Colonel the Hon. H. Crichton, Netley Castle, was 2d—*Croton Mortii* and *Cycas revoluta* being the best plants. Mr. W. Peel, gr. to Miss Todd, Sidford Lodge, Shirley, was 3d.

For the best group of miscellaneous plants arranged for effect in half-circle, 16 feet, the tallest plant not to exceed 7 feet in height, there were numerous entries, the groups filling one side of the large tent. The 1st prize was awarded to Mr. H. James, with a choice collection of plants most effectively arranged. At the back were *Caladiums* and *Dracenas*, and some good plants of *Cocos Weddelliana*. The middle and front were filled with light plants, such as small *Orchids*, &c.; a front row of *Isolepis gracilis* completed this handsome group. 2d, Messrs. J. C. & J. Ransom, with a carefully arranged group, including *Begonias*, *Gloxinias*, *Crotons*, *Palms*, *Panicum variegatum*, and *Maidenhair Ferns*; 3d, Mr. J. Reynolds: 4th, Mr. E. Wills; 5th, Mr. J. Ams.

ORCHIDS.

The collection of *Orchids* staged by Mr. T. Osborne, gr. to H. J. Buchan, Esq., Southampton, was choice in quality, although the individual plants were not large; *Dendrobium Dearei*, *Cattleya crispa*, *C. superba*, *C. Gaskelliana*, *Odontoglossum Alexandre*, *Epidendrum vitellinum majus* being some of the finest.

The best single specimen *Orchid*, not a made-up plant, was shown by Mr. Budd, gr. to F. J. Dalgety, Esq., Lockerby Hall, Ramsey, it was *Calanthe veratrifolia*; Messrs. Osborne & Blandford were 2d.

MISCELLANEOUS.

Mr. Cypher showed the best *Heath*, *Erica retorta* major; 2d, Mr. James; 3d, Mr. G. Lock. Mr. Ams staged a grand specimen of *Allamanda Hendersoni*, 6 feet in diameter with flowers of an extra large size, as the best flowering plant; Mr. Wills was 2d, with *Sieris floribunda*.

For double flowered *Begonias*, *Fuchsias*, hardy Ferns, and *Celosia pyramidalis*, Mr. Wills was 1st.

For the best foliage plants Mr. Rann with a grand specimen of *Celastrus Varreii* was 1st; and Mr. Lock with *C. Disraeli* was 2d.

Mr. Ams had the best pyramidal Coleus.

Mr. Reynolds was 1st for six pots of Mignonette, with specimens 2 feet 6 inches in diameter. Mr. Molyneux had the best table plants.

CUT FLOWERS.

For the most tastefully arranged basket (ladies) Miss B. Flight was 1st; Miss M. Hobby 2d; Miss E. Golding 3d. Mr. Cypher was well to the fore with bouquets; he was awarded 1st prize for both ball and bridal bouquets. Mr. H. Rogers, nurseryman was 2d for bridal bouquets.

For twelve bunches of cut flowers Mr. Budd was 1st, followed by Mr. J. Evans, gr. to Lady Ashbury, Melchet Court, Romsey; 3d, Mr. H. James; all choice collections. For twelve varieties of herbaceous cut flowers, Mr. E. Molyneux was an easy 1st with a charming box of flowers. Mr. W. Gilbert, Bishop's Waltham, was 1st for twelve Carnations with a choice assortment. Messrs. Keynes, Williams & Co. staged the best Dahlias and Roses; the former were particularly good, being so early in the season.

FRUIT.

There were only two collections of eight dishes, Pines excluded. Mr. Ward, gr. to Earl of Radnor, Longford Castle, Salisbury, was adjudged 1st prize. His best dishes were Black Hamburg Grapes, good in colour though small in berry, good Muscats, though a trifle green. Melon, and good Wood Park Apples. 2d, Mr. J. Evans; Muscat Alexandria Grapes, Best of All Melon, and Barrington Peaches were his best dishes. For the best three bunches black Grapes there were eight competitors. Mr. W. Pratt, gr. to Marquis of Bath, Longleat, Salisbury, gaining 1st with large clusters of Black Hamburg, fine in berry and colour, but slightly rubbed. 2d prize, Mr. E. Molyneux, for same variety, not so large in berry and berry, but more highly finished. 3d, Mr. C. Warden, gr. to Sir F. Bathurst, Clarendon Park, Salisbury, with smaller bunches scarcely coloured.

For three bunches of white Grapes Mr. Pratt was again 1st with five bunches of Muscat of Alexandria, perfect in every way except colour; 2d Mr. Budd. For two bunches of black Grapes Mr. W. Browning, gr. to J. Wylie, Esq., West Cliffe Hall, Hythe, was placed 1st, with large bunches of Black Hamburg, excellent in quality.

For two bunches of white Grapes Mr. Allan was 1st. The best single bunch of black Grapes was shown by Mr. Browning. The best single bunch was one of Muscat of Alexandria, from Mr. Budd.

Messrs. Drover had the best scarlet Melon, called Scarlet Perfection; the best green-fleshed was Hero of Lockinge, from Mr. Sanders.

Mr. J. Windebank was the 1st for Peaches, and also for kitchen Apples. Mr. Budd had the best Nectarines, and the best six dishes of hardy fruit.

VEGETABLES.

For twelve varieties a very close contest lay between Mr. Cox, gr. to R. K. Wyndham, Esq., Corhampton House, Bishop's Waltham, and Mr. G. H. Richards, gr. to Earl of Normanton, Somerley, Ringwood; 1st prize was awarded to the former exhibitor, who had magnificent White Elephant Onions, good Cauliflowers, and Carrots, Tomatos, Celery, and Fag-nell's Beet; his Artichokes and Cucumbers were weak. The 2d prize lot contained fine Artichokes, very fine Sutton's Gem Carrot, good Cauliflowers, fine Tomatos, and good Canadian Wonder Beans, while the weak dishes were Onions and Turnips. 3d, Mr. Sanders, who had fine Tomatos; 4th, Mr. J. Ams.

For nine varieties some good lots were staged. The first prize was awarded to Mr. E. Molyneux for fine Elephant Onions, Midsummer Kidney Potatos, Nine Horn Carrots, and fine Celery. Mr. J. Allen was 2d with fine Tomatos as his best dish; 3d, Mr. Oxford; 4th, Mr. A. Richards.

There was a brisk competition for four dishes of round and four dishes of kidney Potatos. Mr. Sanders had 1st prize with a clean even lot; 2d, Mr. West; 3d, Mr. Oxford. Mr. Allen had 1st prize for twelve spring-sown Onions, while Mr. Cox had the same for nine numbers of autumn-sown Onions. Mr. J. Brown had the best brace of Cucumbers as 1st prize; 2d, Messrs. Drover.

NORTHAMPTON HORTICULTURAL:

August 2 and 3.

HOWEVER meritorious the productions that go to make an exhibition may be, there are other matters that require to be taken into account before success can be attained, not the least of which is a suitable site whereon to hold the show. In this the Northampton committee are fortunate, as it would be difficult to point to a place so well adapted for the purpose as the beautiful park at Delapre, where,

amongst the fine old trees, the tents containing the various productions are dotted about. Independent of the interest attached to the contents of these the park in itself is a great attraction to the vast numbers of people who, on the two days of the annual gathering, enjoy the treat here provided for them. It is now four years since the first show was held, and on no previous occasion have the number of fine plants exhibited been near equal to the present year.

In the open class for sixteen stove and greenhouse plants, eight in flower and eight fine-foliage, there were four competitors. These groups, along with an equal number of collections in the class for ten, five in flower and five fine-leaved, occupied the centre of a very large circular tent, and made altogether one of the most effective displays we have seen for some time. The whole were arranged on the grass, with nothing beyond such improvised appliances as the exhibitors found necessary to raise the specimens which formed the back of their groups.

STOVE AND GREENHOUSE PLANTS.

In the open class, in which prizes of £18, £10, and £5 were offered, Mr. Cypher, Cheltenham, was well in front, showing a fine collection of remarkable plants; 2d, Mr. Finch, gr. to J. Marriott, Esq., Coventry, with a beautiful lot of flowering specimens; Mr. Roberts, gr. to A. Nicholson, Esq., Highfield Hall, Leek, who was a close 3d, had a fine lot of foliage specimens, but some of his blooming plants were weak.

For ten stove and greenhouse plants in flower, and five fine-leaved, Mr. Bird, gr. to A. Seymour, Esq., Norton Hall, Daventry, was 1st, having a pretty group; 2d, Mr. Miller, gr. to R. Loder, Esq., Whitebury, who also staged a nice collection.

GROUPS ARRANGED FOR EFFECT.

In the open class Mr. Cypher was 1st with a nicely arranged exhibit containing the right amount of colour; Mr. Parker, Victoria Nursery, Rugby; 2d; Mr. Roberts 3d.

In the class for groups in the second division of the schedule Mr. Bird was a good 1st with a nice arrangement; 2d, Mr. Miller; 3d, Mr. Holland, gr. to W. Jeffery, Esq., Billing Road.

MISCELLANEOUS.

Ferns were very well shown by Mr. Bird, who took the lead with a well grown half-dozen, the best of which were Davallia Mooreana, some 8 feet in diameter; Gymnogramma chrysophylla, 6 feet; and Asplenium nidus-avis; 2d, Mr. Holland, whose best examples were Adiantum Farleyense and Gleichenia Mendellii.

Caladiums.—With six Mr. Holland had 1st, Mr. Farr, gr. to Sir R. Knightley, Fawsley Park, 2d.

Coleus.—These were well grown and finely coloured. Mr. Underwood, gr. to J. A. S. Bouvier, Esq., Delapre, 1st; 2d, Mr. Kightly, gr. to Sir Herwald Wake.

Gloxinias.—Of these Mr. Davey, gr. to F. Simson, Esq., was the only exhibitor, having 1st with medium sized examples.

Fuchsias.—1st, Mr. Kightly, who staged medium sized examples, not too stiffly trained; 2d, Mr. Beard. Zonal Pelargoniums.—Single varieties: 1st, Mr. Kightly, with large nicely flowered specimens, not over-trained; 2d, Mr. Underwood, who also had nice plants. Double varieties: 1st, Mr. Underwood; 2d, Mr. Beard.

Gloxinias.—Nicely grown plants, of large, prettily marked, erect flowered varieties were shown by Mr. Bird, who took 1st; Mr. Holland being 2d.

TABLE PLANTS

were well shown by Mr. Holland, who had 1st honours for twelve; 2d, Mr. Underwood.

CUT FLOWERS.

Stove and greenhouse, as well as hardy kinds, were well represented, collectively making an effective display. With twenty-four bunches of stove and greenhouse variety, Mr. Finch was 1st, having a good lot; 2d, Mr. Parker. Twelve bunches: 1st, Mr. Miller; 2d, Mr. Kightly. Twelve bunches hardy herbaceous varieties: 1st, Mr. Miller, with a good dozen.

Roses were very well shown, and were fairly numerous for the advanced season. With twenty-four single blooms, Messrs. Perkins had 1st, staging even fresh flowers. Messrs. R. Mack & Sons, Caterick Bridge, who were a close 2d, also had a good stand.

Twelve Roses.—1st, Messrs. Perkins; 2d, Mr. Bennett, gr. to the Rev. W. H. Jackson, Stagden Vicarage. Here again the competition was as close as it well could be, both exhibitors staging fine flowers. With twelve Tea varieties Mr. Bennett was a long way ahead, again having beautiful blooms. 2d, Messrs. March.

Eighteen Roses (amateurs).—1st, Mr. Bennett, who here again had a good set of flowers; 2d, Mr. Ingram, gr. to W. Butlin, Esq.

Twelve (amateurs).—1st, Mr. Bennett; 2d, Mr. Ingram.

FRUIT.

Three bunches of black Grapes.—1st, Mr. Beech, gr. to the Marquis of Northampton, Castle Ashby, with medium-sized, finely finished bunches of Black Hamburg; 2d, Mr. Miller, who had smaller examples, but nicely finished.

White Grapes, three bunches.—1st, Mr. Farr, with Trebbiano, small, but well coloured; 2d, Mr. Bird.

Dish of Peaches.—With these, Mr. Bird took 1st, staging a nice dish of highly coloured fruit, unnamed; 2d, Mr. Finch, with Royal George.

Dish of Nectarines.—1st, Mr. Bird; 2d, Mr. Farr. Melon.—1st, Mr. Finch.

THE OXFORD CARNATION AND PICOTEE UNION: August 3.

MR. E. S. DODWELL provided an excellent show for the lovers of the Carnation and Picotee in his garden in the Stanley Road, Oxford, on the above date. Not only was the competitive exhibition in itself a thoroughly good one, and the blooms characterised by a high average of quality, but there was, in addition, Mr. Dodwell's extensive collection in full bloom, all his canvases-covered stages being aglow with Carnations and Picotees, and in the open ground large beds of seedlings—plants of the most vigorous growth, carrying wonderful heads of bloom. If any person entertains the notion that the florist "coddles" the Carnation and Picotee, or gives them the protection of glass and canvas only to screen them from the effects of the weather, but with an abundance of air flowing in on every side. By raising the pots on stages under canvas the flowers are brought up nearly level with the line of sight, and their beauties can be examined under the most favourable circumstances.

CARNATIONS.

The competition blooms were arranged under a canvas tent, open at the sides, set up in a vacant space in Mr. Dodwell's garden. The leading class was for twelve blooms: dissimilar, seven prizes being offered, and six stands competed: the three first placed being remarkably good. The highest honours went to Mr. Lakin, Temple Cowley, in Oxford, a very successful and enthusiastic amateur. His flowers consisted of Scarlet bizarres, Arthur Medhurst and Robert Lord, the last named a flower of remarkable finish; Crimson bizarres, Master Fred and Rifleman; Purple flakes, Sarah Payne, Squire Meynell, George Melville, and Squire Whitbair; Scarlet flakes, Tom Chapman and John Ball; Rose flakes, Mr. Symonds and Rob Roy. 2d, Mr. W. L. Walker, Bulmershe Road, Reading, who had S.B., Charles Phillips, George and Arthur Medhurst; C.B., John Laney; P.P.B., Sarah Payne and Harrison Weir; P.F., Henry Startup; S.F., Henry Cannell, John Whitbair, and Sportsman; and R.F., Tim Bobbin and Biddy Malone. 3d, Mr. M. Rowan, Manor Street, Clapham, London, with a very good lot indeed, though two or three flowers showed signs of being past their best; 4th, Mr. W. A. Slacks Chesterfield; 5th, Mr. George Chaundry, Marston Lane, Oxford; 6th, Mr. William Wardell, Park Street West, Luton. In the class for six Carnations, dissimilar, there was a very vigorous competition, twelve collections being staged. Mr. Thomas Bower, of Bradford, Yorkshire, being 1st, with a very fine lot, consisting of S.B., Dr. Symonds, J. D. Hestall, and Rifleman; P.F., Florence Nightingale; S.F., John Ball; and P.F., Mrs. Symonds. 2d, Mr. J. S. Hedderley, Swinton, Nottingham, with an excellent stand, consisting of S.B., Mars and Admiral Curzon; C.B., Harrison Weir; P.F., Mayor of Nottingham; S.F., Sportsman; and R.F., Sybil. 3d, Mr. Robert Lord, Todmorden, with S.B., Mars; C.B., George Fawcett; S.F., Clipper; P.F., Dr. Foster; R.F., Sybil and Cristo-galli. 4th, G. Wynne, gr. to H. Morris, Esq., The Nest, Hayes, Kent; 5th, Mr. C. Phillips, Earley, Reading; 6th, Mr. T. Anstiss, Brill; 7th, Mr. T. E. Henwood, Earley, Reading; 8th, Mr. S. Brown, Crompton Road, Handsworth, Birmingham.

In the eight classes for single specimen Carnations, five prizes being offered in each, a large number of flowers were staged, and the task of judging proved to be one of some difficulty. S.B. 1st, Mr. C. Phillips, with Robert Lord; 2d, Mr. J. Lakin with Fred; 3d, Mr. M. Rowan, with the same; 4th, Mr. T. E. Henwood, with George; 5th, Mr. C. Phillips, with Charles Phillips. C.B., 1st, Mr. J. Lakin, with Rifleman; 2d, Mr. S. Brown, with John Laing; 3d, Mr. Rowan, with Master

Fred; 4th, Mr. J. Lakin with Samuel Barlow; 5th, Mr. Brown, with Black Diamond seedling, P.P.B., 1st and 2d, Mr. C. Phillips, with Faust; 3d, Mr. H. Startup, 3, Stanley Road, Bromley, Kent, with Master Fred, and 4th, with Samuel Barlow; 5th, Mr. W. Walker, with Master Fred, P.P., 1st, Mr. Walker, with Henry Startup; 2d, Mr. T. E. Henwood, with Sarah Payne; 3d, Mr. Robert Lord, with James Douglas, and 4th with Dr. Foster; 5th, Mr. Hedderley, with Mayor of Nottingham. S.F., Mr. Hedderley took 1st, 2d, 3d and 4th prizes with fine blooms of Sportsman, a sport from Admiral Curzon, S.B., which originated with Mr. Hedderley thirty years ago, and he states that he has never known it revert to the original form; Mr. J. Lakin being 5th with Tom Lord. R.F., 1st, Mr. J. Lakin, with Mrs. Synmonds; 2d, Mr. Hedderley, with Sybil; 3d, Mr. Rowan, with Dolly Varden; 4th, Mr. A. R. Brown, Handsworth, Birmingham, with Miss Burton (new); 5th, Mr. J. Lakin, with Rob Roy.

The premier Carnation selected from the whole show was S.B., Robert Lord, shown by Mr. J. Lakin in his 1st prize stand of twelve blooms.

FANCY AND SELF CARNATIONS.

These were largely shown, and they were greatly admired for their variety of colour. In this class of twelve blooms there were eleven competitors, and the competition was exceedingly keen. Mr. W. Read, gr. to A. H. Dodwell, Esq., Stanley Road, Oxford, being 1st with a very fine lot, consisting of: Fancies: Huson Morris, Mrs. Mostyn Owen, Eurydice, Jessica, and William Bacon; Selfs: Mrs. Morris (white), Florence (buff), and some fine seedlings. Equal 1st, Mr. J. Lakin, with Fancies, Princess Teck, Mr. W. Musgrave, Jani, and Sir B. Seymour; Selfs: Florence, Emma Lakin (white), Polly Clarke, Black Knight, Pride of Penshurst, and seedling; 3d, Mr. Huson Morris, with a fine lot, including Marchal Niel, a high-class yellow Self, and Queen of Yellow; 4th, Mr. Rowall; 5th, Mr. T. Austiss; 6th, Mr. Geo. Chaudry; 7th, Mr. H. Hovell, gr. to G. H. Morrell, Esq., Headington Hill, Oxford.

In the class for six blooms there were nine collections, and here Mr. Phillips was 1st with an admirable lot, consisting of Mrs. Dodwell, Huson Morris, and Muriel (Fancies), Mark Antony, Cleopatra, and Florence (Selfs); 2d, Mr. R. Lord, with Sir Toby Belch (a good bloom), George Fawcett, Stanley Hudson, Huntsman, and two seedlings; 3d, Mr. Walker; 4th, W. Gawn, Esq., Ilfield Road, Oxford; 5th, Mr. Hedderley; 6th, exhibitor unnamed; 7th, Mr. T. E. Henwood; 8th, Mr. Slack.

Five prizes were offered in each case for the best single bloom of Fancies and Selfs. With Fancies, Mr. R. Lord was 1st, with George Fawcett; 2d, Mr. J. Lakin with Huson Morris; 3d, Mr. T. Austiss with Mrs. Pratt; 4th, Mr. J. Lakin, with seedling; 5th, Mr. Henwood, with Cleopatra.

Mr. R. Lord also had the best self in Huntsman; 2d, Mr. Walker, with Cleopatra; 3d, Mr. Austiss, and 4th, Mr. Lakin, with seedlings; 5th, Mr. Henwood, with Cleopatra.

The premier fancy or self was Sir Toby Belch, shown by Mr. R. Lord.

PICOTEES.

Four stands of twelve varieties competed, and very fine they were. Mr. J. Lakin was placed 1st, with—Heavy red edge: Brunette, Mrs. Dodwell, and Mrs. Summers. Heavy purple: Purple Prince and Mrs. Niven. Light purple: Jessie and Nymph. Heavy rose: Constance Heron, Royal Visit, Mrs. Payne, and Edith d'Ombra. Light rose: Favourite, 2d, Mr. Robert Lord, with—Heavy red: Emily, Master Norman, and Waverley Esther. Heavy purple: Zerlina. Light purple: Clara Penson. Heavy rose: Lady Holmesdale, Constance Heron, Royal Visit, and Mrs. Rudd. Light rose: Nellie, Miss Wood, and Favourite. 3d, Mr. Rowan; 4th, Mr. George Chaudry.

In the class for six blooms fifteen collections competed, Mr. John Payne, Worcester College, St. Paul's, Oxford, being 1st, with—Heavy red: Muriel and John Smith. Heavy purple: Zerlina. Light purple: Thomas Witham. Heavy rose: Royal Visit and Mrs. Payne. 2d, Mr. Henwood, with—Heavy red: Brunette. Light red: Clara. Heavy purple: Purple Prince. Light purple: Jessie. Heavy rose: Royal Visit and Mrs. Rudd. 3d, Mr. C. Phillips; 4th, Mr. J. S. Hedderley; 5th, no name; 6th, Mr. C. Thomas Austiss; 7th, Mr. T. Bower; 8th, no name.

In the classes for single blooms of Picotees the awards were as follows:—Heavy red: 1st and 2d, Mr. T. Austiss, with Mary D. Austiss; 3d, Mr. C. Phillips, with John Smith; 4th, Mr. Henwood, with Mrs. Dodwell; 5th, Mr. Phillips, with Brunette. Light red: 1st, 3d, and 5th, Mr. Phillips, with Thomas William; 2d, Mr. Lakin, with Mrs. Girtton; 4th, Mr. H. Startup, with Thomas William. Heavy purple: 1st and 5th, Mr. Walker, with Purple Prince; 2d, Mr. Rowan, with Alliance; 3d, Mr. Startup,

with Purple Prince; 4th, Mr. Phillips, with Zerlina. Light purple: Mr. Hedderley was 1st and 2d, with Clara Penson; and Mr. T. Austiss 3d and 4th with the same; Mr. Walker being 5th with Mary. Heavy rose: Mr. Rowan was 1st, 2d, and 3d, with Mrs. Payne; Mr. Henwood 4th, with Edith d'Ombra; and Mr. J. Lakin 5th, with Elise. Light rose: Mr. Rowan was 1st, 2d, 3d, and 4th, with beautiful blooms of Rudd's Nellie; Mr. T. Austiss being 5th, with Favourite.

YELLOW GROUND PICOTEES.

Mr. Hedderley was 1st, with Edith; Mr. Lakin 2d, with Midas; Mr. Phillips 3d, and Mr. Henwood 4th, with Florence; Pride of Penshurst without an exhibitor's name being 5th.

The premier Picotee was a truly wonderful bloom of Liddington's Favourite, shown by Mr. J. Lakin. A First-class Certificate of Merit was awarded to Mr. T. Austiss, Brill, for heavy red edge Picotee Mary D. Austiss, with the way of Fellow's Morna, pure in the ground, smooth in the petal, and with a well defined edge of red.

COLONIAL NOTES.

MORTALITY IN PLANTS, &c., RECEIVED AT NATAL.

—In the report for 1885 of the Natal Botanic Society, Mr. Wood, speaking of plants received, says:—"It should be remarked that of the large number of plants which were dead on arrival, or died afterwards, no less than sixty, or half the number, were different varieties of Clematis, of which plant we received a large shipment, a few only of which are alive at the present time, and even these are not doing well."

"Of the seeds which failed, forty-two packets were received from one correspondent, only one of which germinated, and from another correspondent no seed we have yet received has shown any sign of growth."

"This is very disheartening, and more care should, I think, be exercised in sending out seeds, as it is worse than useless to send those which can be of no use whatever to the recipient. From other correspondents most of the seeds we have received have germinated well, though from different causes we do not always succeed in rearing the plants."

METEOROLOGICAL OBSERVATIONS FOR NATAL.

The following information, useful to growers of Natal plants, is taken from the abstract of the meteorological observations for the year 1885, taken at the Natal Observatory, and published in the report of the Natal Botanic Society for 1885. Readings at 9 A.M. :—

	Jan.	Feb.	Mar.	April.	May.	June.
Thermometer shade—						
Highest ..	95.7	98.3	94.8	87.4	88.5	92.8
Lowest ..	59.6	61.7	51.9	50.0	47.1	43.7
Mean ..	74.6	76.9	72.7	69.9	64.4	63.9
Rainfall (inches)	4.40	2.36	2.91	2.13	1.00	0.26

	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Thermometer shade—						
Highest ..	85.8	84.9	85.4	98.9	88.3	96.1
Lowest ..	47.3	47.0	50.1	54.1	57.2	61.3
Mean ..	62.5	64.0	67.3	70.8	73.2	76.3
Rainfall (inches)	0.03	0.61	10.43	2.75	3.15	4.03

NATIVE TREES OF THE CAPE.

Mr. Wood, the Curator of the Natal Botanic Society, states in his annual report :—

"When Sir H. E. Balwer visited the gardens prior to his departure from the colony, he suggested that it would be advisable to set apart a portion of the ground solely for native trees. I pointed out to His Excellency that we have already in cultivation many of our indigenous trees, and that we are constantly adding to the number. Whether it is practicable to reserve part of the small area still available for this purpose is a matter that will, I think, require further consideration, though I shall lose no opportunity of procuring seeds or plants of our indigenous trees or shrubs to add to our collection."

"Amongst others, the coast 'Yellow Wood,' *Podocarpus elongata*, L'Her., is, I think, worthy of preservation, as, in the vicinity of Durban at least, it is in

danger of being exterminated. I have noticed that persons will purchase readily plants of the up-country Yellow Wood tree, *P. latifolius*, which are hardly likely to do well on the coast, while they neglect altogether this species, which will thrive here. Perhaps the reason may be found in the fact that what may be had for the taking away is little esteemed, while plants which cost money are, of course, considered to be valuable."

CEDRELA ODORATA IN SOUTH AFRICA ("WEST INDIAN CEDAR").

We have propagated during the year as many of these plants as we could from seed gathered in the gardens. A small bag of seed was also received from the Director of Kew Gardens, but unfortunately the greater part of it did not germinate, though every care was taken of it. Plants have been sent to the railway department for planting along the lines and at the stations, also to the Maritzburg Botanic Gardens for trial in that locality, and have been sold to different applicants. This tree appears to be well suited to the coast districts, and grows rapidly. One which was planted in the gardens in November, 1884, is now 5 feet high, and I have heard of some plants in more favourable localities which have attained nearly double this height in about the same time; and it has the great advantage that the white ants which destroy so many young trees upon the coast, especially the *Eucalypti*, do not appear to molest this one. *J. M. Wood, in Report of Natal Botanic Society.*

PINUS SINENSIS IN SOUTH AFRICA.

This is a tree which I think will be likely to succeed in the colony, and as yet it does not appear to be known here. I received a small packet of the seed from Hong Kong some time ago, and plants raised from it appear so far to be doing well. I applied to Mr. Ford, of the Botanic Gardens, Hong Kong, for a larger supply, and he very kindly sent me quite sufficient to let the plant have a fair trial. I have distributed this seed to farmers and others in different parts of the colony, both in the coast and inland districts, and hope to receive favourable reports of its growth and progress. *J. M. Wood, in Report of Natal Botanic Society.*

SEEDLING ARAUCARIAS IN THE CAPE.

The Curator of the Natal Botanic Society, in his annual report for 1885 states:—"Two species of Araucarias in the gardens have borne fruit for several years, but the seeds have always been infertile. During last season one of the trees of *A. Cunninghamii* bore seeds which germinated, and the gardener has succeeded in rearing a few plants from them; these are, so far as I am aware, the first Araucarias reared from seed in the Colony. The age of the tree which produced the seed I am unfortunately unable to ascertain with certainty, but I believe it to be about twenty-five years."

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, AUGUST 4, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.		HYGROMETRIC REDUCTIONS from Glaisher's Tables 7th Edition.		WIND.	RAINFALL.
	Mean Reduced to 32° Fahr.	Day Average of 48 hours.	Highest.	Lowest.	Range.	Mean for 59 years.		
July	In.	In.	In.	In.	In.	In.		In.
29	29.85	+0.09	69.51	81.7	26.3	29.51	71	S.S.W. 0.00
30	29.56	+0.20	74.05	61.0	66.3	29.58	28	S.S.W. 0.00
31	29.56	+0.22	68.55	61.2	60.6	29.51	71	W.N.W. 0.06
1	29.63	+0.13	67.05	67.0	58.0	29.40	68	S.W. 0.16
2	29.53	+0.02	68.35	64.4	67.57	29.40	75	N.W. 0.02
3	29.60	+0.15	68.04	61.8	57.9	29.41	66	N.W. 0.00
4	29.94	+0.10	63.50	61.3	95.5	29.51	77	S.W. 0.00
Mean	29.71	+0.05	67.6	51.3	75.9	29.1	74	S.W. 0.04

July 29.—Fine, but frequently cloudy and dull.
 30.—Mostly cloudy and dull, but fine occasionally.
 31.—Rain early in the morning, afterwards fine and bright; dull night.
 Aug. 1.—Fine morning; rain after 3 P.M.
 2.—Dull morning, with rain; fine afternoon.
 3.—Fine day, frequently bright and cheerful.
 4.—Moderately fine morning, chiefly dull, but fine day and night.

LONDON: *Atmospheric Pressure.*—During the week ending July 31, the reading of the barometer at the level of the sea decreased from 29.69 inches at the beginning of the week, to 29.48 inches by 9 A.M. on the 26th, increased to 29.12 inches by 1 P.M. on the 28th, decreased to 29.68 inches by 5 P.M. on the 30th, and was 29.78 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.78 inches, being 0.04 inch lower than last week, and 0.15 inch lower than the average of the week.

Temperature.—The highest temperature in the shade in the week was 74° on the 31st; on the 27th the highest was 60°.4. The mean of the seven high day temperatures was 67°.6.

The lowest temperature in the week was 45°.7, on the 28th; on the 31st the lowest was 55°.6. The mean of the seven low night temperatures was 52°.5.

The greatest range of temperature in one day was 19°, on the 30th; the smallest was 6°.6 on the 27th. The mean of the seven daily ranges was 15°.1.

The mean daily temperatures were, 60°.2 on the 25th; 60°.7 on the 26th; 55°.5 on the 27th; 54° on the 28th; 60°.3 on the 29th; 63°.8 on the 30th; and 60°.4 on the 31st, and these were all below their averages, with the exception of the 30th, which was 1°.5 above, by 2°, 1°.5, 6°.7, 8°.2, 2° and 1°.9 respectively.

The mean temperature of the week was 59°.3, being 5°.4 lower than that of last week, and 3° below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun, was 126° on the 30th. The mean of the seven readings was 116°.

Rain.—Rain fell on three days to the amount of 0.85 inch.

ENGLAND: *Temperature.*—During the week ending July 24, the highest temperatures were 76° at Cambridge, 74° at Blackheath, 72° at Brighton; the highest at Hull and Preston was 66°, at Bradford, 64°.6, and at Newcastle 62°. The general mean was 68°.2.

The lowest temperatures were 38°.9 at Wolverhampton, 42° at Hull, 45°.7 at Blackheath; the lowest at Preston was 50°, at Leeds was 49°, and at Brighton was 48°.8. The general mean was 46°.2.

The greatest ranges were at Wolverhampton, 32°.6, at Cambridge 30°, and at Blackheath, 28°.3; the least ranges were 16° at Preston and Newcastle, 16°.8 at Bradford. The general mean was 22°.2.

The mean of the seven high day temperatures was highest at Cambridge 70°.8, at Brighton, 69°.1, and at Blackheath, 67°.6; was lowest at Newcastle, 59°.1, at Bradford, 60°.2, and at Liverpool, 61°. The general mean was 64°.3.

The mean of the seven low night temperatures was highest at Brighton, 54°.3, at Truro 53°.9, and at Plymouth 53°.2; and was lowest at Wolverhampton, 48°.1, at Hull 49°.3, and at Newcastle 50°.1. The general mean was 51°.6.

The mean daily range was greatest at Wolverhampton, 15°.3, at Blackheath 15°.1, and at Brighton 14°.8; and was least at Newcastle and Bradford, 9°.1, and Liverpool 9°.5. The general mean was 12°.7.

The mean temperature was highest at Brighton, 59°.9, at Cambridge 59°.3, and at Truro 58°.2; and was lowest at Newcastle, 59°.9, at Sheffield, 53°.5, and at Bradford 53°.9. The general mean was 56°.

Rain.—The largest fall was 4.26 inches at Leeds, 3.36 inches at Bradford, and 2.25 inches at Preston; the smallest fall was 0.56 inch at Truro, 0.60 inch at Brighton, and 0.85 inch at Blackheath. The general mean fall was 1.64 inch.

SCOTLAND: *Temperature.*—During the week ending July 31, the highest temperature was 73°.3, at Paisley; at Aberdeen the highest was 61°. The general mean was 66°.

The lowest temperature in the week was 39°.5, at Glasgow; at Aberdeen the lowest temperature was 45°. The general mean was 42°.7.

The mean temperature was highest at Paisley, 56°.1; and lowest at Aberdeen, 52°.1. The general mean was 54°.3.

Rain.—The largest fall was 0.64 inch at Aberdeen, and the smallest fall was 0.20 inch at Dundee. The general mean fall was 0.41 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, August 2, 1886, issued by the Meteorological Office, 116, Victoria Street, London, S.W.1.—The weather has continued in a very unsettled condition generally, with cloudy or overcast skies and occasional falls of rain.

The temperature has been below the mean in all districts, the deficit ranging from 2° in the "Channel Islands," and three in the south and south-west of England to as much as 5° in all other parts of England, the north of Ireland, and the east of Scotland, and to 6° in "Scotland, N." The highest of the maxima, which were registered on different days in the various districts, ranged from 74° in "England, S." to 63° in "Scotland, W.," and to 57° in "Scotland, N." On July 27 the daily maxima at nearly all of our stations were below 60°. The lowest of the minima, which were generally recorded either on July 28 or 29, ranged from 30° in "Scotland, N." (at Wick), to 38° in the "Midland Counties," and 39° in "England, S.W." and to 51° in the "Channel Islands."

Rainfall has been more than the mean in "Scotland, N.," and "Ireland, S.," and equal to it in "England, N.W.," but rather less in all other districts.

Bright sunshine has not differed materially from that recorded last week, the percentages of the possible amount of duration ranging from 19 in "Scotland, N." to 39 in "England, N.W.," and 42 in the "Channel Islands."

Depressions observed.—Barometric pressure over our islands and their neighbourhood has continued in an unstable condition, the mercury being highest over Spain and the South of France, while several small shallow depressions have travelled from the westward over the United Kingdom and the North Sea. Moderate to fresh breezes, from the southward, as the disturbances advanced, and from the westward or northward as they passed away, have consequently been prevalent on most parts of our coasts; in the extreme north, however, moderate easterly airs were experienced on July 30.

Obituary.

MR. THOMAS BUSH.—Many of our readers will learn with regret of the death of Mr. Thomas Bush, of the Cotham Nurseries, near Bristol, formerly a partner of the late Mr. Thomas Parker, of St. Michael's Hill. The death was the result of an accident which occurred recently. Mr. Bush was driving with a friend to his nursery at Brenty, when his horse stumbled on a stone near the hill at Westbury and fell, so suddenly and with such force that Mr. Bush, who was driving, was thrown over the animal's head. He was forty-five years of age, and of a most unassuming manner, yet frank and genial—these qualities being allied to a generous disposition and ever-pleasing address, which won him a very large circle of friends who will lament his loss. He was well known as one of the most skilled florists in the western counties, and had a thoroughly practical knowledge of the various branches of the florist's art.

Enquiries.

"He that questioneth much shall learn much."—BACON.

NOTICE TO LEAVE.—Will some reader kindly say what notice of dismissal a gardener could legally claim who has received his salary half-yearly only, and where no arrangements of any kind were made when engaged, only that wages should be paid half-yearly? Also, has it been decided in any court of law that a gardener is a domestic servant? H. P.

Answers to Correspondents.

GRAPES: *Dids.* The berries are affected with rust caused by the sun shining on them when wet. Cold draughts of air will also cause the appearance at certain stages.

LOZULA ALBIDA: P. T. 7. We do not suppose this plant to be indigenous in your district, but it may have been brought from foreign sources.

NAMES OF PLANTS: A. B. *Chrysanthemum segetum.*—

G. A. 1. *Achillea Millefolium*; 2. *Butomus umbellatus*; 3. *Malva moschata*; 4. *Erythraea Centaureum*; 5. *Solidago virga aurea*; 6. *Verbascum Blattaria*.—*R. J. W.* Lotus corniculatus, double-flowered variety.—*J. R. 1.* *Aspidex quinqueveneris*; 2. *Gnaphalium arvense*; 3. *Hieracium aurantiacum, alias "Jim the Collier."*—*J. H.* Apparently the American water weed, *Anacharis alismifolius*, but the specimen was withered.—*P. W. B.* *Eupatorium glochiformis.*—*W. W.* *Nerium Oleander.* We do not give florists' names. For the names of the Pelargoniums you should apply to some nurseryman who grows them largely.—*P. T. L. 1.* *Bromus asper*; 2. *Juniperus communis*, the common juniper; 5. *Maticaria incana.*—*J. S.* An Eryngium, probably *E. amethystinum.*—*J. E. D.* *Lilium testaceum.*—*H. D. 1.* *Lilium Hansonii*; 2. *L. canadense.* Both specimens were withered beyond certain recognition.—*W. A.* *Dendrobium longicornu.*—*G. A.* *Trachelium cornu-leum.*

RATING: *J. Scarle.* You will find as much information as is necessary in our columns for 1877, vol. viii., p. 261; 1883, vol. xi., p. 45; 1885, vol. xiii., p. 678; 1885, vol. xiv., p. 155; 1883, 498, 720, 758, 876, particularly in the two first references.

ROSES: *W. B.* All the blooms should be fully grown.

WEED-HEAP: C. D. If you could mix a quantity of stable litter with the weeds, so as to set up a heat, say about 100° Fahr., the weed seeds and roots would be killed, and the material would be rendered better fitted for plant food, and could be used in water having been turned, and allowed to ferment a second time, for a week or thereabouts. You could keep in much of the ammonia given off by the fermentation by covering with 3 or 4 inches of soil well patted down with the spade, or you might use wood-ashes or a little salt with the weeds, or water the heap with the contents of the manure-tank before wheeling on the quarters.

CATALOGUES RECEIVED.

JAMES DICKSON & SONS, 108, Eastgate Street, Chester—Bulbous Flower Roots, &c.
 L. SPATH, Rixdoy, Berlin—Flowering Bulbs, &c.
 ALFRED LEGERTON, 5, Aldgate, London, E.—Wholesale List of Dutch and other Flower Roots.
 W. BAYLOR HARTLAND, Cork—Ye Original Little Book of Daffodils, Oxlips, &c.
 DICKSONS & CO., 1, Waterloo Place, Edinburgh, N.B.—Flower Roots.
 G. E. ELLIOTT, 97, Bradford Road, Huddersfield—Flower Roots, &c.
 JAMES DE COCK, Faubourg St. Lievin, Ghent—Trade Catalogue of Plants.

COMMUNICATIONS RECEIVED.—A. B.—H. W. W. (many thanks—suggestions under consideration—short note on the two places mentioned desirable).—L. B. Vokohama (many thanks).—M. L., Eaden Road.—J. D. H. W. M. B. W. F. P.—J. M. K.—and B. A. B.—E. W. (next week).—W. N.—G. G.—C. E. F.—De Marr.—J. O'B.—H. E.—W. Little.—E. V. S.—C. E. F.

Markets.

COVENT GARDEN, August 5.

SUPPLIES not quite so heavy this week, and prices better all round. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Cherries, ½-sieve	3 0-8	Peaches, per dozen	2 0-15
Currants, ½-sieve	2 3-3	Pears, per dozen	1 0-16
Figs, per dozen	1 0-0	Pine-apples, Eng. lb.	0 2-3
Grapes, per lb.	1 0-3	—St. Michael, each 2	6-8
Lemons, per case	18 3-0	Strawberries, per lb.	0 3-0
Melons, each	1 0-3		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, per doz.	4 0-6	Mushrooms, punnet	6 0-6
Asparagus, Eng. 100	4 0-6	Mustard and Cress, doz.	4 0-6
Beans, kidney, lb.	0 8-	Onions, per bushel	4 0-
Beet, red, per dozen	1 0-2	Parley, dozen bunch	3 0-4
Carrots, per bunch	0 6-	Potatoes, per cwt.	4 0-5
Cauliflowers, per doz.	3 0-	—kidney, per cwt	4 0-5
Celery, per bundle	1 6-2	Shallots, per pound	0 3-9
Cucumbers, each	0 6-1	Spinach, per bush	5 0-
Endive, per dozen	1 0-2	Spruce Asparagus, per bundle	1 0-
Herbs, per bunch	0 4-	Tomatoes, per lb.	0 6-
Leeks, per bunch	0 4-	Turnips, bunch	0 6-6
Lettuce, per dozen	1 0-16	Veget. Mar., each	0 6-
Mint, green, bunch	0 4-		

POTATOES:—Jersey best Kidneys, 6s.; do. Rounds, 4s.; Kent Kidneys, 5s. to 6s.; do. Rounds, 4s. per cwt.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-10	Foliage Plants, various, each	2 0-10
Balms, per dozen	3 0-6	Fuchsias, dozen	3 0-6
Bedding Plants, various, per dozen	0 2-0	Hydrangeas, doz.	6 0-12
Begonias, per dozen	6 0-12	Lilies, in var., doz.	12 0-30
Bouvardias, doz.	12 0-18	Lobelias, per dozen	3 0-4
Calceolarias, per doz.	4 0-8	Magnolia Daisy, per doz.	6 0-12
Cockscombs, dozen	2 0-6	Mignonette, per doz.	4 0-6
Cyperus, per dozen	4 0-12	Musk, per dozen	2 0-4
Dracena terminalis, per dozen	30 0-60	Nyctag. per dozen	6 0-12
—viridis, per doz.	12 0-24	Nasturtiums, dozen	3 0-6
Euonymus, in var., per dozen	6 0-18	Palms in var., each 2	6-21
Evergreen, in var., per dozen	6 0-12	Pelargoniums, doz.	6 0-12
—6 0-12		—scarlet, per doz.	3 0-6
Flus rhodatis, each	1 6-7	Petunias, dozen	3 0-6
Ferns, in var., dozen	4 0-18	Rhodantides, dozen	6 0-9

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

d. d. d.	d. d. d.
Arum Lilies, 12 blms. 4 0-6 0	Marguerites, 12 bun. 3 0-6 0
Asters, 12 blooms 0 3-6 0	Mignonette, 12 bun. 1 0-3 0
Bouvardias, per bun. 0 6-1 0	Parsons, 12 bunches 1 0-3 0
Campanulas, 12 bun. 4 0-9 0	Pelargoniums, per 12 trusses 1 0-9 0
Carnations, 12 blms. 1 0-3 0	—scarlet, 12 trusses 0 3-6 0
Caranflowers, 12 bun. 1 0-3 0	Pinks, various, 12 bunches 1 0-3 0
Daisies, common, 12 bunches 1 0-3 0	Pyrethraums, 12 bun. 2 0-6 0
Delphiniums, 12 bun. 3 0-6 0	Rhodanthus, 12 bun. 6 0-9 0
Eucharis, per dozen 6 0-9 0	Roses, Tea, per doz. 0 9-2 0
Forget-me-Not, or Myosotis, 12 bun. 2 0-4 0	—red, per dozen 2 0-4 0
Gardenias, 12 blooms 2 0-4 0	—outdoor, 12 bun. 2 0-6 0
Jasmine, white, bun. 0 6-9 0	Stephanotis, 12 syms. 1 6-3 0
Lagerania, 12 bl. 1 0-2 0	Sweet Peas, 12 bun. 6 0-9 0
Lilium candidum, 12 blooms 0 6-1 0	Sweet Sultan, 12 bun. 3 0-6 0
Lilium longiflorum, 12 blooms 1 0-2 0	Tropaeolums, 12 bun. 1 0-2 0
	Tuberose, 12 blms. 4 0-9 0

SEEDS.

LONDON: August 4.—Messrs. John Shaw & Sons, Seed Merchants, of 37, Mark Lane, E.C., write that the seed market to-day was of quite a holiday character, and very little business was transacted. For sowing white Mustard there is a good demand, and prices are consequently rather firmer. New Tricolorum Mustard offering at very moderate figures, orders from the country are coming forward freely. The recent advance in white Clover is well maintained, owing to the adverse reports of the new crop which continue to be received from Germany. Rolling Peas still find favour. Hemp and Canary seed are both very dull of sale. Rape seed also moves off slowly at late rates. Feeding Linseed is steady.

CORN.

MARK LANE: Aug. 2.—This being a Bank Holiday there was no business done on the Corn Exchange.

Aug. 4.—The market opened with a very thin attendance, and extreme dullness. There appeared to be a foregone conclusion that nothing was to be done, and virtually nothing was done throughout the day. Wheat could only have been forced off at cheaper rates. Flour was in about the same position as Wheat. The imports of Wheat and flour into London this week are fair, but into the Kingdom last week they showed a further decrease, and again fell considerably short of last year at the corresponding period. For spring corn prices remained nominal in the absence of sufficient business to test the current value.

FRUITS AND VEGETABLES.

COLUMBIA (East London): August 4.—Good supplies continue to arrive, and meet with a good demand at fair rates. Prices:—Cherries, 2s. to 2s. 6d. per basket; red Currants, 2s. to 2s. 6d. per sieve; black Currants, 2s. to 2s. 6d. do.; Apples, 1s. 6d. to 2s. per half sieve; Vegetable Marrows, 2s. to 3s. per dozen; Scarlet Beans, 3s. 6d. to 4s. 6d. per sieve; Cabbages, 3s. to 4s. per tally; Peas, 2s. 6d. to 4s. 6d. per bag; bunch spring Onions, 4s. 6d. to 5s. 6d. per dozen bunches; ditto Carrots, 2s. do.

STRATFORD: August 3.—The market has been well supplied, and a fair trade was transacted at the undermentioned prices:—Cabbages, 2s. to 4s. per tally; Turnips, 1s. 6d. to 2s. per dozen bunches; Carrots, cattle feeding, 1s. to 2s. do.; Apples, 2s. 6d. to 3s. per bushel; Cherries, 1s. 6d. to 6s. per half-sieve; berries, 1s. 6d. to 2s. per half-sieve; ditto 3s. to 4s. per bushel; Apples, 1s. 6d. to 2s. 6d. per half-sieve; green Peas, 3s. to 5s. per half; black Currants, 3s. to 3s. 6d. per half-bushel; do. red, 2s. 6d. to 3s. do.; Cucumbers, English, 1s. 6d. to 2s. per dozen; Marrows, 1s. 6d. to 2s. 6d. per dozen; Broad Beans, 2s. 6d. to 3s. per bag; Scarlet Beans, 4s. to 6s. per bushel.

POTATOS.

BOROUGH AND SPITALFIELDS: Aug. 3.—There were good supplies, but a slow trade at late rates.

COLUMBIA (East London): Aug. 4.—Quotations:—Essex Regents, 3s. to 4s.; Myatts, 4s. to 4s. 6d.; Shaws, 3s. to 3s. 6d.; Jersey, 4s. to 5s.; St. Malo, 3s. to 3s. 6d. per cwt.

STRATFORD: Aug. 3.—Quotations:—Early Rose, 6s. to 7s.; Hebron, 8s. to 9s.; Regents, 11s. to 12s. per ton.

HAY.

WHITECHAPEL: Aug. 3.—Supplies fair, with an exceedingly dull trade. Quotations:—Clover, prime, 90s. to 108s.; inferior, 70s. to 85s.; hay, prime, 70s. to 94s.; inferior, 45s. to 65s.; and straw, 27s. to 37s. per load.

Aug. 5.—There was a good supply on sale. The trade was dull, at late rates.

CUMBERLAND (Regent's Park): Aug. 3.—A large supply, but few buyers, and prices in favour of buyers. Quotations:—Clover, best, 90s. to 102s.; seconds, 75s. to 85s.; hay, best, 84s. to 94s.; seconds, 70s. to 80s.; and straw, 30s. to 36s. per load.

STRATFORD: Aug. 3.—Quotations:—Hay, 80s. to 110s.; Clover 90s. to 110s.; and straw, 30s. to 35s. per load.

Government Stock.—Consols closed on Tuesday and Wednesday at 101½ to 101½ for both delivery and the account. The final quotations of Thursday were 101½ to 101½ for both transactions.

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LAWN WATERING MACHINE.
With Powerful Garden Engine, combined.

This implement is most useful in large gardens; it is fitted with valve and spreader for distributing water or liquid manure. Waterpots and pails can be fitted when the spreader is not in use. Cash Price—Carriage Paid. Complete (55 gallons) £55 10s.



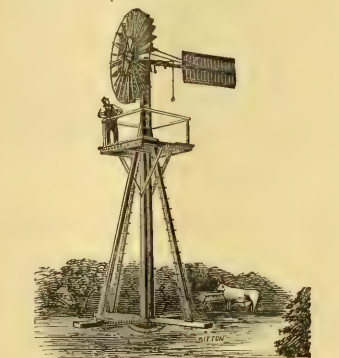
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Strong Wrought Garden Barrow.



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"Dear Sirs.—I enclose a cheque in payment of account for the Windmill, which is working admirably. So far it is a decided success, and the previous hand-cumbersome saved much laborious work.—Yours truly, 'JOHN JAMES STEWART.'"

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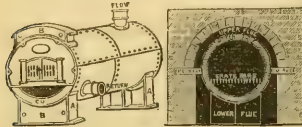
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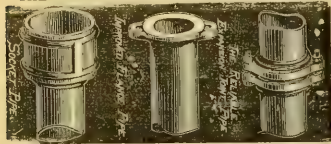
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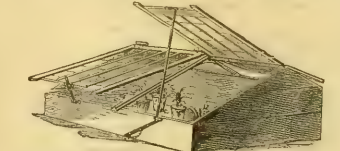
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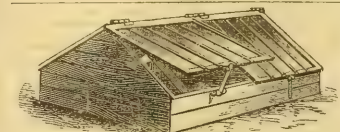
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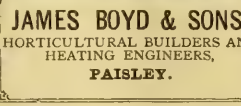
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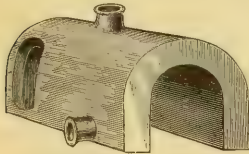
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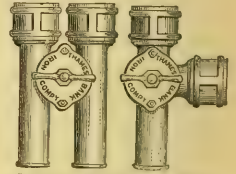
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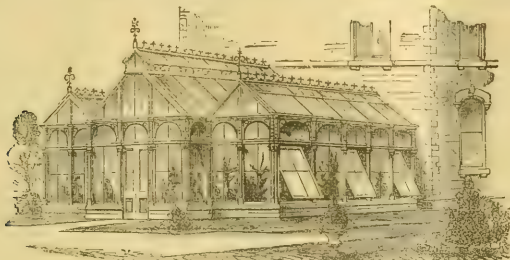
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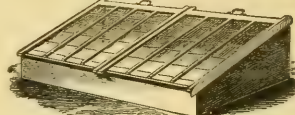
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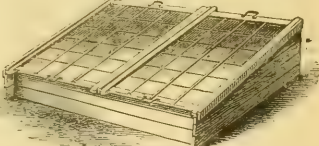
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THE

Gardeners' Chronicle.

SATURDAY, AUGUST 14, 1886.

ROOTS AND THEIR WORK.

THE following is the text of the essay to which the First Prize was awarded in the recent competition among young gardeners instituted by the conductors of this journal. The prizes were announced at the Provincial Show of the Royal Horticultural Society at Liverpool, by Sir Trevor Lawrence, Bart., M.P., the President of the Royal Horticultural Society, the First Prize being allotted to Mr. Sewell, late of the Royal Botanic Gardens, Edinburgh, whose essay, with its accompanying illustrations, are here reproduced with as little alteration as possible. It will be remembered that the term root was to be taken in its widest garden significance, and that special stress was laid on evidence of personal observation as contrasted with book-knowledge:—

Any one who has had under his care a considerable number of herbaceous or alpine plants will know how much he has been helped in growing them successfully—selecting suitable soils and positions for them—by having observed their British allies growing wild in fields and woods, by streams, or in bogs.

Some such knowledge of our "wild flowers" helps us even in the culture of greenhouse and stove plants; indeed, knowledge derived from the careful observation of any one plant in its natural home cannot fail to be of aid in teaching us how to grow any plant in our gardens.

But further, if by carefully comparing several plants together, we in time were able to determine, fairly correctly, from the appearance of root, of stem, and of leaves, as to the habit of the plant, as to its likely home—what an advantage this would be to us in our horticulture.

We believe that to a considerable extent this can be done, and the object of this essay is both to describe carefully the most common forms of roots, to tell what is the relation of the various roots to the rest of the plant, and then to try and reap facts of practical value to horticulture from the foregoing more purely botanical ones.

We are too apt to disassociate botany and horticulture; some of us seem to think them almost antagonistic; but surely any true fact regarding plants—their development, organs, or habitat, such as are comprised in the science of botany, must be of more than slight interest to those of us who have to deal practically with so many varied forms belonging to the great vegetable kingdom.

Lately there has been in very many gardens a great amount of talk and argument as to what a root is, and what it is not. Intending essay writers have been nearly overwhelmed with assurances as to the complexity of the subject, and of the exceeding great difficulty which the ordinary mind would have in endeavouring to understand anything definitely as to the nature of a root. I feel sure that those who have been so discouraged have been torturing themselves

over terms and over the meaning of botanical words, rather than seeking themselves to examine the thing itself—the roots we all know so well, and which in our earliest days we had no difficulty in recognising.

FORMS OF ROOT.

I purpose to treat in the following pages of those downward directed—generally colourless growths, either stringy or very much branched, but always having some part soft and seemingly porous in its nature, which would be called “roots” by any ordinary person. I shall later have to refer to the more exact meaning of the word as understood by botanists; but I will attempt at present no definition of “a root,” but first examine several such structures as I have indicated, and see what parts they have in common; we may then be able to place limits as to what shall be “root” and what “stem,” &c.

Roots penetrate the earth, the water, the tissues of other plants, or they grow on the surfaces of damp substances without entering into their substance; at times hanging in the air, and often growing first in the air, eventually penetrating the ground, and branching profusely. These kinds of roots are commonly grouped under the heads of:—Terrestrial, in earth (and water, submerged), most commonly; parasitic, on other plants, as Dodder, Broomrape; epiphytic, as among Orchids; and aerial or adventitious, e.g., Orchids, Banyan, Mangrove.

THE SIMPLEST ROOTS.

We will concern ourselves chiefly with ordinary terrestrial roots, and will first examine the very simplest forms we can meet with.

There is a well known plant which grows in semi-aquatic water, called *Spirogyra* (also called *Conferia*), composed of green thread-like growths. If we could meet with this growing on the sides of a glass tank in any cool-house we should easily see little swellings at the base of the threads, which served to fix the plant to the glass. The swellings might be likened to small suckers, and of course we should not think of attaching any other function to them than that of keeping the plant in its place—anchors, in fact. Several seaweeds have similar though larger roots, and we may see at times washed up on the shore a stout stem with a swollen base somewhat in the shape of a hand with shortened fingers, the more able so to attach itself to stones, &c.

Leaving the *Spirogyra*, then, we look at a plant of that great pest in gardens—the Liverwort (*Marchantia*). I should place this next, as affording a good example of a very simple root, though widely differing from our last. Attached to the under surface of the plant, which resembles a narrow, ribbon-like leaf, are many delicate hairs. These hairs the microscope shows to be single cells. They may vary much in length, but whilst serving to attach the plant to the damp wall or place where it may be growing, we may well judge them able to perform other work—that is, to supply necessary fluid for the plant's food, the manner of which feeding process we shall consider later on.

We will look again among water plants for our next root—that of the Duckweed (*Lemna*). That it is not composed of one cell, but of many, we can see with a pocket lens. It is not branched, however, which is the case with many others growing about it, or as the *Pontederia*, a stove aquatic, which we shall refer to again as a good illustration of some points of root-structure.

Lemna, or, perhaps better, some branched aquatic, reminds us at once of the first roots of all seedlings, but we must remember that the root of an ordinary seedling is imperfect, and may develop very differently in growing.

As we notice at once a difference among seedling plants in regard to their leaves, so we find an accompanying difference among their roots. Plants which germinate with one seed-leaf as a rule, if not always indeed, produce several fibrous roots from points variously apart from one another. Plants which send up two seed leaves produce, at least at first, a single fibrous root,* from which sooner or later secondary roots branch off. Palms and grasses are examples of the first kind; *Asters*, *Calcceolarias*, &c., of the second.

In a *Clintonia* (of the first class, monocotyledons) which I examined lately there were four or five long

roots reaching down among the crows. New leaves were just forming, and another half-dozen or so fresh roots were beginning to lengthen out. I am not sure whether the first series of roots were decaying, but among all bulbs (also of this first class) one set of long unbranched roots only lasts one growing season,

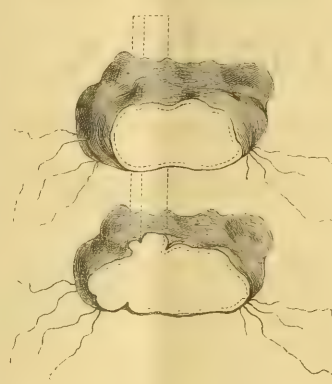


FIG. 17.—TUBERS OF BEGONIA.

being replaced by another series from about the same place the next year.

It is interesting here to note that many *Primulas*, and I suspect most other stemless or nearly stemless plants belonging to the second class (dicotyledons), lose their “first root,” and a number of fibrous roots (able to branch, however) are given off from the crown, i.e., where the first leaves are, or from some point in

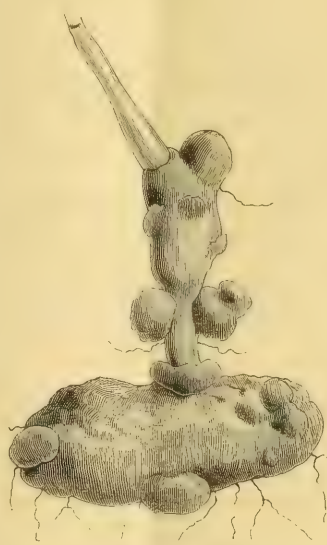


FIG. 38.—TUBERS OF GESNERIA.

the over-present longer or shorter “stem” which supports these leaves. This stem is the upward continuation of the first root—in bulbs and grasses found in the form of a flat plate from which the roots proceed.

I cannot remember in what species of *Primula* I first especially noticed this decay of the “first root,” and consequent rooting from the crown, but I was rather annoyed to find that seedlings of a rare Indian species, through having been sown too near together were “damping off at the roots,” or rather had lost

the straight “first root,” we are accustomed to meet with in seedlings; closer examination, however, showed me the newer root starting from higher up, and so I knew that my seedlings were at least likely to grow. I think perhaps this decay of the “first root” may be common amongst plants which are to form no stem or are of running habit.

We notice then this power of “first roots,” giving off branches among plants which germinate with two seed leaves (dicotyledons). It may be a longer and shorter time before this occurs. This will depend on the nature of the plant, or on the nature of the position in which the seed germinates.

I believe that plants which make a rapid growth as a rule send long first roots into the earth before giving off branches; among trees especially this is the case. Examples:—An acorn kept in a sealed bottle in a warm place sent out an unbranched root for I believe a couple of feet before it produced leaves. This was, however, under abnormal conditions.

Among eight or nine *Plane* tree seedlings which I experimented with in different soils, four grew with very little side branching indeed for several inches, when in moist easily penetrated soils, as loam, leaf-mould, sand. No. 5, grown in ashes, and perhaps broken at the tip, sent out four fairly strong root branches. No. 6, grown in water and broken at the tip, branched excessively, even producing a “third series.” No. 7, grown over water, half in, half out, where the tip could not develop itself, branched excessively, like No. 6, but the branches clung to the rounded inside surface of the pot the seedling was suspended in, thereby differing from the root-branches of No. 6, where the “branches” all turned away from the light as I judged and were straight and stiff.

It is further exceedingly interesting to note that in No. 7 root-fibres were abundantly developed on those portions of the root branches which, without being in the water, were clinging to the damp pot just above the surface.

It may make these details of the experiment easier to be understood if I explain that I piled several small pots one fitting into another as a support to a piece of cardboard placed over the surface of some water in an inverted bell-glass. The root of No. 6 was slipped through the cardboard which held the “neck” of the seedling. The root of No. 7 was also placed through the cardboard, but at the same time placed through the hole at the top of the inverted pile of small pots.

The greater part of annual plants give off branching roots—in gross feeders the branching is excessive—and nearly every part of the root is fibrous. Little spreading plants, as *Spergula*, too, will need to branch fairly well near to the soil so as to get the best supply of nutriment possible with the least growth of root.

While mentioning *Spergula* we should here note the very long hairs on its delicate roots. These hairs are present on every plant, from the largest tree to *Marchantia*, as we have seen, unless, indeed, the roots are submerged as in *Lemna* or *Pontederia* where there is no need for them. They vary considerably in length and thickness, but they have always thin walls able to admit water through their tissue.

Nepenthes root-hairs (or “fibrils”?) seem all connected with the surface cells, and under the microscope for the sake of clearness might be likened to the protruding ends of cords from a rope made up of innumerable such cords.

We must now leave these simpler forms of root—either fibrous, not much branched, or very much branched indeed—and notice other forms.

In *Imantophyllum* we have many long roots appearing to grow like those of monocotyledons (being nearly unbranched), but much swollen, therefore exposing much surface for the absorption of water, and between this and the roots of a first year's seedling, as in the *Clintonia* before referred to, we have all imaginable grades of thickness and length.

Again, we have thickenings of the “first roots” of dicotyledons, such as we meet with in *Dandelion*, *Papaver*, *Cheiranthus*, *Capella*, and a host of others. This thickening makes the root have a firmer hold of the soil; it enables it to send off root branches the more vigorously, and in such examples as alpine species of *Astragalus*, *Phyteuma*, *Silene*, and a host of well known alpine plants which grow among rocks or in crevices; the pressure exerted by the growth of the root wedging itself between two masses of rock is invaluable to the plant where, were the root not so firmly held, the weight of the leaves, stalks, flowers

* Called throughout this essay the “first root.”

would at times pull the plant quite away. We may remark that this kind of root is very general among plants which die down to the ground in winter, which plants send up leaves or stems each succeeding year.

Annual plants never have much more than fibrous roots; in some cases the first root is considerably thickened where the habit of the plant is such as to require considerable support.

All roots which last for a number of years will thicken or harden, some thickening very gradually, some evenly throughout a considerable length, others very abruptly. We have examples of all these varied forms of root thickening in Cabbages, Stalices, Carrots, Radishes, Turnips, Cyclamen—in the last named being swollen in breadth and of no great length, giving it the characteristic flattened appearance so well known.

It is not our purpose to notice whether in some of these, as Turnips and Carrots, it is the "first root" or the stem which supported the seed leaves which has become swollen. Those forms of thickening are to be met with among roots in all variety.

We may assume that all roots which will not die away either the first or second year will thicken considerably. Biennial roots often thicken by a storage of food for next year taking place within them. Roots, such as are to be met with in nearly all kinds of trees, increase year by year, wood being formed within the bark as it is in the stems of such.

From all these much hardened or lengthened roots, however, root branches are given off, which in turn may branch until delicate roots such as were first seen in the seedling are given off, these finest ones being covered with the more or less delicate root-hairs (fibrils) which we noticed earlier.

Instead of one more or less gradual thickening of the first root or its root branches there may occur three or four thickened parts of the root, somewhat as if several large oval beads were irregularly connected by one string. This is met with in Dropwort *Spiraea filipendula*, and I have also seen a somewhat similar formation in Antigonon.

Small, globular, pea-like swellings are constantly present on many plants of the Vetch family (*Ulex*, *Genista*, *Lathyrus*). Allied forms of swellings are seen on *Encephalartos* and even on *Ixora*. Those on *Encephalartos* grow several together, and look not unlike a piece of discoloured sponge or soft coral. In both these latter cases it is probable that there is some storage of food in the cells of the swelling. [These swellings are sometimes associated with the growth of a *Myxomycetous* fungus. Ed.] I have noticed starch in those of *Ixora*, but not very plentifully. Little bladders occur on the roots of *Utricularia* and *Pulsatilla* globulifera. These serve to float the root, both plants growing in water.

TUBEROUS ROOTS.

The Dahlia is an example of a plant having several thickened roots depending from the stem, from which small fibrous roots are given off, especially at the lowest point, where the change in its thickness is very abrupt. The Dahlia is a root for storing material in; it grows in a different position from the Potato, to which one would at first be inclined to liken it. There is considerably more fibre in the Dahlia and much less starchy matter. The Potato "tubers" branch off from stems (as shown in *Gardeners' Chronicle* some years ago; or, from underground stems, which latter, I fancy, are much like roots in structure and outward appearance.

Tubers, however, of *Begonia* seem exactly similar to a swollen root, such as we have in *Cyclamen*, except for the fact that in many points on its surface are swellings afterwards to develop into leaves and stems (fig. 37, p. 198). *Gesnera*, also, as shown in an accompanying sketch, has similar swellings given off from the tuber, also from the stem immediately above (fig. 38, p. 198). *Oxalis hirta* (fig. 40, p. 201) has a swollen bulb-like root, while smaller undeveloped bulb-like growths appear at regular intervals on the stem above (fig. 40, a, a, a), growing much as leaves and scales would. Fibrous roots also are given off from this upper stem. The *Oxalis* family is a good instance of very varied roots among the same class of plants. An illustration is appended of the fleshy, swollen root of *Oxalis purpurea* (fig. 39, p. 201).

Tydea further seems to have in the upper part of its root a collection of scales growing from a thread-like fibre; whilst *Cephalis ippacuanha* has a somewhat similar root, called annulated, it appearing to be "ringed" throughout a greater part of its length.

BULBOUS ROOTS.

There is a great class of underground growth, various forms of which we call roots, or bulbs, and corms, somewhat similar to the tubers of the Potato we just noticed.

Bulbs we may dismiss at once. They have roots growing from the "plate" or more solid part at their base, which root we have referred to when treating of monocotyledonous roots. The bulbs are seen to be leaves more or less closely growing together, as in *Lilium auratum* or in *Allium* (see fig. 41, p. 201).

CORMS AND TUBERS.

A "corm" is the name given to the fleshy expansion, much like bulbs, around the stem or central column, as met with in *Gladiolus* or *Crocus*. They also have fibrous roots given off from a ring at their base, which ring is the outermost part of the "plate," showing in its centre the sort of "callus" left by severing its connection with a previous year's corm.

Terrestrial Orchid roots I should have referred to earlier. They are of many shapes, either quite round, or shaped like the palm and fingers of a hand. Like the swollen growths so well known in *Ranunculus Ficaria*, they serve to store up nutriment. (The latter remarkably resemble Potatoes in this respect—that from any one of them fresh plants will grow; they are also borne in the axils of the leaves, as well as produced underground.)

The fibrous roots of Orchids, and the similar growths of *Ranunculus Ficaria*, are both accompanied by fibrous roots, which are the true feeding parts of the plant, the growth in *Ranunculus* not being considered as really roots.

RHIZOMES.

We have in addition to all the foregoing kinds of roots and similar structures, a large number of growths which partly resemble a root and partly resemble a stem, growing upon or under the ground. We will not treat of these in any detail; they so essentially differ in most cases, when somewhat closely examined, from any root as developed from the seed, or from parts of the stem, when also these branch off.

We have for example *Petasites*, *Lysimachia verticillata*, also many Ferns, as *Pteris* and *Polypodium*; but among Ferns bulbs only are given off from their extremities.

We might note as differences between these structures and roots—

A. They develop leaf-buds, or extremities eventually appear above ground.

B. If slit up with a knife most are filled with pith, which we never notice among ordinary roots.

C. Often these growths are jointed and ringed as the stems of the same plant, as, for example, *Equisetum* and *Mentha*.

They grow on various forms along the ground, as in Iris, when they are called rhizomes; as suckers from below the ground on Roses. The runners of *Strawberry* or of that very interesting little alpine, *Saxifraga flagellaris*, are more easily recognisable as stems, although, like roots, they turn towards moisture and the earth.

VARIOUS OTHER FORMS.

All of these develop fibrous or more thickly swollen roots from various places throughout their length.

We have many swollen roots or stems resembling roots of large size or twisted curious shape, as in *Ipomoea*, sp., from the Tropics, and *Testudinaria*. They evidently serve as store places for food, or may be useful to counteract effects of continued droughts.

Roots may differ greatly in shape according to the position in which they grow. Roots of *Chlorophyton Sternbergii*, instead of being green and little more than fibrous, become white and quite fleshy, like small white Radishes, when grown in the ground.

ROOTS OF PARASITES.

Roots of parasites we cannot well see without a microscope and careful dissection. They will enter the central tissue, and abstract nutriment from thence.

Of aerial (adventitious) roots we have many forms. They generally are so provided that they can abstract nutriment from the moisture in the atmosphere in which they grow. In *Monstera* I have noticed two sets of these roots; some smaller ones held the stems to a base up which it was climbing—larger ones, like rods, grew straight to the ground and branched there, the latter chiefly supplying nutriment.

(To be continued.)

New Garden Plants.

DENDROBIUM WILLIAMSIANUM, Rehb. f.

WHAT a pleasure it is to make at last a personal acquaintance with a friend. This species was discovered by Mr. Goldie on or near New Guinea as early as 1877. Plants and dried flowers and a sketch came then into the hands of our excellent veteran, Mr. B. S. Williams, who is well known to have an especial hobby for *Dendrobium*. When I published the description, in the *Gardeners' Chronicle*, 1878, May 25, p. 652, I said: "A certain kind of a sketch that I cannot fully admire." The lip was represented as depending [pendulous], which was an offence to my orchidic feeling.

Now, after so long a time, Mr. B. S. Williams has succeeded in getting the plants of 1878 to bloom—an excellent work indeed. A grand peduncle bears five flowers which are as large as those of *Dendrobium Dillenseianum*, but with the shape of those of the bigbloom tribe. I could not help thinking a moment of *Aganisia cyanea*, so comparable are both *turnure* and texture of the flowers. The chin is neatly angulate, with another angle standing in front. The oblong sepals and petals are light nankin, petals washed on the disc with light purple. The lip is upright, appressed to the column, blunt rhombic, channelled on the midline of the underside, purple, with two whitish, roundish areas, one on each side of the base. There run three low keels from the base to the anterior disc, where they rise in three much higher dark rhombic keels. The column is mottled and freckled in front with numerous purple spots under the fovea, and the lower dark purple region is interrupted by a light zone, angulate in mid. Anther purple, white at the base.

Decidedly it is a noble beauty. Mr. B. S. Williams must be congratulated on such great success, quite useful to inspire in us these days of energetic, sometimes too energetic, competition. H. G. Rehb. f.

DENDROBIUM POGONIATES, n. sp.*

This is a tiny botanical curiosity, nothing more. I was kindly sent me by Mr. James O'Brien, of Harrow-on-the-Hill, who informed me that it came from North Borneo. It has the habit of a miniature *Dendrobium fimbriatum*, 1 foot high. The flowers, on arrival, were light yellow with an orange tip. The differences from *Dendrobium sphegiodiosum*, Rehb. (*strigosum*, Lindl.), its nearest ally, are very marked. The mentum forms a much longer retuse cylinder. The lip has a long projecting mid-lobe with much longer fringes and hairs, and no hippocrepic callus at the top, being quite even. The column has not the long groove in front under the stigmatic hollow, but it is divided at the base into two shanks. I obtained subsequently a piece with two young shoots, which are almost fusiform, with linear-lanceolate leaves, unequally bilobed at apex. H. G. Rehb. f.

ZYGOPETALUM LEOPARDINUM, n. hybr. Angl., Hort. Veitch.

Quandoque bonus dormitat Homerus! Mr. Seden has raised this lovely gem at the Royal Exotic Nursery of Messrs. J. Veitch & Sons, but the *certificat d'origine* is not to be had, in spite of the careful Sedenian habits. It is a novel thing, that you see with pleasure. The sepals and petals are light greenish-yellow, with very numerous small cinnamon-coloured spots, some oblong, some hieroglyphic. On the outer surface they are pale, yet showing the spots in the same manner as in the leaves of a *Vriesia musica* or *Morreni*. The inside reminds one of an *Ansellia*. The lip consists of an epichile and a hypochile. The latter consists of the two angular side-lacinie, which are quite connate, with an apparently nearly flat, broad callus, bearing its thirteen teeth in front, and furrowed near the anterior margin. This callus is

* *Dendrobium (Stachydrum) pogoniates*, n. sp.—*AB* ac perisperm. *Dendrobium sphegiodiosum*, Rehb. f.; racemis capitulatis paucifloris; bracteis ovatis apiculatis ovaria pedicellata dimidio subaequantibus; sepalis triangularibus; lacinia mento cylindrico retuso ovarium pedicellatum dimidio subaequantibus; petalis cuneato-oblongis, acutis antice minute denticulatis; labellis cuneato-ovatis dilatato trifido; lacinia lateralibus oblongis ciliatis, lacinia antica mediana producta oblonga valde barbata et callosa; columna basi infima simpliciter, bicorni nec antro fixo munita. Flores albo-favilli. Labelium autenticum. Ex *Excoecia borealis* Ed. cl. James O'Brien. H. G. Rehb. f.

ochre coloured, with deep mauve ridges and teeth. It is by no means such an upright wall as in *Zygopetalum maxillare* and obtusum (till 1886 Sir Trevor's monopoly, but which has now appeared with Mr. F. Sander). It reminds one of some *Warszewiczella* and *Pescatorea*. The epichile is a transverse obtus-angular cordiform blade, of the warmest purple-mauve, exceedingly beautiful. The column is of a reddish-mauve, and has two small auricles, one on each side of the fovea. No doubt Mr. Harry Veitch is right when speaking of *Zygopetalum maxillare*, but which was the other parent?—perhaps *Zygopetalum Burkel*. If Mr. Seden would help us in these mules we might come to the point. The leaf is narrow. Bulbs were not sent. We do not wonder at that! *H. G. Rehb. f.*

A TRIP TO CHIRIQUEL.

(Continued from p. 167.)

We left the Mission early on the Friday morning and proceeded to make our way down the river. All the rapids were passed successfully, but not without considerable trouble, as the river, which, on our way up, was swollen with the tropical rains of several previous days, had now subsided to its ordinary level.

Specimens of a splendid scarlet *Passiflora* (*Passiflora vitifera*) were seen and collected at a bend of the river where it overhung one of the eddying pools so frequently met with. It is known to the natives as the "Caboona," but as this name is applied indiscriminately to several species, it could not alone be recognised by that appellation. I found several species of this class of plants in different localities, one among them being of special interest as it produced hue large edible fruit, similar in appearance to that of *Passiflora laurifolia*, L., the Pomme d'Or of the French West India Islands, but over twice the size. This together with one very much smaller was also known as the "Caboona."

On reaching that portion of our route where the surrounding district consisted of flat alluvial we noted several extensive Banana plantations. I was informed on reliable authority that from the time of planting to the production of fruit only some nine or ten months were required, and the plants from their thriving and luxuriant appearance would assist to bear out this statement. They were planted in straight rows some 10 to 12 feet apart, and were producing enormous bunches of splendid fruit at the time of our visit. So productive are these plantations becoming on this and other rivers in the locality that large steamers begin to come in regularly to load for the American market, and when it is considered that the depth of water in the lagoon is sufficient to allow them to come to within easy distance of an hour or a hour and a half's journey by canoe, it will easily be seen what a profitable business it is likely to become in the near future. The transit of the fruit from the plantations to the steamers is all performed by large Cedar canoes similar to the one in which we were travelling, or in larger ones dug out from the enormous Cotton trees.

Rice was growing wild on the river banks, and appeared to be of good quality.

Several large Cane fields were also seen, and Canes 15 to 20 feet high were common objects.

We landed about noon at Mr. Riley's house, and we were invited to take a walk along the adjacent property situated on the shores of the lagoon. Here again we found the "Soopa" was highly esteemed, and numerous specimens were under cultivation. Vanilla was also a common plant, as well as in the majority of places visited, and though but little fruit was seen, the vines bore traces of recent abundant crops. It is cured here by simply drying in the sun, the pods being gathered when full, and before they commence to turn yellow. We brought some home with us, which in aroma was far preferable to that usually purchased. The pods were not so long as those of the ordinary commercial kind, so that it is probably a different species, or possibly a variety only of the commercial article.

Several Ferns were noticed, and the herbage on the beach consisted principally of the salt loving sedges, interspersed with *Eleusine* and *Stenotaphrum*, both good pasture grasses.

Near the house was a large leguminous tree, which was here known as the "Guanga," but though it bore considerable resemblance to the tree known under that name in Jamaica, it was not the same. It is a tall umbrageous tree, with bijugate leaves and

brown hairy pods, somewhat falcate in outline, and 6–8 inches in length. These, when open, are found to contain a sweet mucilaginous pulp, which envelops the seeds, which when freed from their covering were of a chocolate colour. The pulp much resembles that covering the seeds of *Theobroma*, and has a pleasant sub-acid taste.

There were also plenty of Cocoa-nut trees, which found a congenial home in the sandy soil of the beach, but on tasting them as "water Cocoa-nuts" we found that they were much inferior in flavour to those grown on the islands in the lagoon, but the ripe nuts are equal in size and quality to those grown in other places.

The land near the house consisted principally of swampy alluvial and, probably in consequence of the recent rains, exhaled an odour anything but pleasant. On putting a question to Mr. Riley as to the healthiness of the locality, we were informed that during a residence of sixteen years he had suffered about two hours illness only.

After a stay of some two hours we bade adieu to Mr. Riley, and embarked for our homeward voyage. Through the passage the lagoon is studded with numerous small cays, consisting of mere coral rock covered with Mangrove trees. The mention of Mangrove trees here reminds me that I have somewhere seen it mentioned that these plants appear to be of little economic value. It was my fortune, however, to notice a use to which they were put by a creole settler, which, to say the least, was very suggestive of the benefit they can be made to produce by a proper application of their powers of existence.

On an island in the lagoon, on the side affected by the most prevalent winds, a settler had a number of Cocoa-nut trees; he found that they were planted too near the water, and that in consequence they were being undermined and washed away by the surf. This was at a point between two small cays covered with Mangrove, and situated about a stone's throw from the land. He appeared to have conceived the idea that if he could plant a line of Mangrove in the shallow water so as to connect the two cays he would prevent the wash affecting his Cocoa-nuts. He therefore planted several rows of the tree in calm weather, and when we saw them they were thriving vigorously, and promised soon to present an effectual barrier to the wash of the sea waves.

We reached our quarters at about 9 A.M., after spending some twenty-six hours in an open canoe on not the safest of waters.

The following day or two was devoted to the drying of the specimens already procured; but having fairly recovered from the effects of our journey, we were invited early one morning to "take a walk." This consists in taking a paddle in a canoe, probably for some miles. We accepted the invitation, and found that our guests intended to show us the provision grounds, &c., situated on "Nancy's Cay," in the chart "Solarte Cay." Here almost as soon as we landed we came upon thickets of *Bactris horrida*, the "Pork-and-dough-boy" or "Poke-under-boy" of the colonists. This name appears to extend for some considerable distance in Central America, but its origin is involved in no little doubt. From the use to which the plant is put, in the district we traversed, it would appear to be pretty certain that to that use it owes its derivation. The stems of the Palm are strong, hard, and some 12 to 15 feet in length, and about 1 inch to 1½ inch in diameter, and are the favourite rods used for propelling canoes when in shallow water, hence "Poke-under-boy"—the rods being used in a similar manner to the punt pole of English rivers.

We also met with another *Geonoma*, a small but handsome Palm, very similar to those we saw on the Wari-Biarra.

We also procured seeds of the "Samba Gum" tree. These were about the size of small Nutmegs, and, like them, were covered with a reddish arillus, or fleshy covering, much resembling the Mace of commerce. The "Samba Gum" when first produced from the tree, is a yellowish creamy-looking liquid, which after a time becomes hard and somewhat resinous, and when in that condition resembles the "Hog Gum" of Jamaica, the produce of *Symphonia globulifera*, if, indeed, it is not the produce of the same tree, for it has not yet been our fortune to obtain seeds and botanical specimens of the Jamaica plant.

There were several Tree Ferns and *Selaginella*s,

but the most curious was the singular climbing *Also-polia blechnoides*; this was present in large quantities, and in the single frond very much resembles *Oleandra nodosa*, Prl. of the Jamaica Fern flora, but the distinction is, however, very apparent upon closer examination. We also gathered *Ryania speciosa*, belonging to a genus closely allied to the *Passifloræ*, and a curious *Annonaceæ* plant, probably a *Xylopia*, which exhales a perfume very similar to the allied *Canaga odorata*, which gives the name to the celebrated "Canaga Water" sold by perfumers.

A day or two afterwards we bent our way, by canoe, of course, to the settlement of "Boques Mouth," formerly mentioned as the local name of what is known to navigators as Bocas del Drago, or Mouth of the Dragon. This settlement consisted of a few houses only, but its thriving condition will be indicated when it is mentioned that at the time of our visit a chapel was in course of erection capable of seating over 200 people, and that without any extraneous help. We noticed on the sea-beach an enormous tree of *Achras sapota*, the "Sapadilla," or "Zapatilla" locally, but the "Naseberry" of Jamaica. It was laden with fruit of very large size. Sea Grapes and Mangroves abounded in the more swampy districts immediately on the beach, but the inner lands were dry, and were producing vegetation of the ordinary tropical character.

Leaving Boques Mouth, we again came down the lagoon to the "haul over" near Bocas del Torá, on Columbus Island, and here we left our boatmen, and made our way on foot to the homestead of Pedro Lopez, one of the principal residents, to pay him a visit, and afterwards for a stroll through the bush.

We collected many specimens in the woods, the most interesting being a *Pteris*, a *Trichomanes* of very minute proportion, and an *Alchornea*. This latter was growing in a pasture at sea-level, and appeared to be the same species which is indigenous to the Jamaica hills, but is never found on the plains of this island. This instance has a parallel in the plants found by Mr. Morris growing on the sea-shore in British Honduras which in Jamaica are only to be found in the highest mountains. The fact has not been explained, but it is probable that were a careful search made into the microscopical structure of these plants, it would be found that their cells are constructed so as to render them more dependent upon a regular supply of moisture than upon a higher or lower degree of temperature. The humid character of the atmosphere is nearly constant in the localities in which these plants are found, and the rainfall in the two places is believed to be nearly equal in annual average.

The Banana plantations on this gentleman's property were examples of good cultivation. The ground selected for their growth consisted principally of a stiff yellow clay covered with black alluvial intermixed with innumerable sea-shells, through which the land-crabs are ever bringing up the subsoil to the surface, thus raising it gradually higher and higher above sea-level.

After a short trip through the woods, we again returned to the house. We soon got afloat, however, and two athletic Indians rapidly took us across the bay to Bocas del Torá. Here we were furnished with a canoe, and were soon speeding homewards towards Old Bank. Although the confidence of the boatmen tended to give us considerable nerve, we felt much safer on shore than we did in crossing the boiling cauldron of the Bull's Mouth, and we were very thankful to have succeeded in crossing it safely.

Next day we again went on a visit to "Solarte Cay," and discovered a very handsome dwarf Palm known locally as the "Kiss-kiss." It has a small stem 2–3 inches in diameter, and somewhat in appearance like a Sugar-cane. It has pinnate leaves finely cut at the base and abruptly terminated at the apex. It has a large spreading panicle, which before expanding is enclosed in a short, smooth, boat-shaped spathe. Here we found several *Adiantums*, a *Pteris*, and another *Trichomanes*, and procured seeds of the small Swallow-tail Palm seen on our last visit.

Next day we crossed to the town of Bocas del Torá, locally "Bocatora," with the intention of paying a visit to Señor Pardou, the "Political Judge," or person in authority for the district.

The remaining days of our visit were spent mostly indoors, on account of the very inclement weather

which prevailed at the time; but even during this time I was fully occupied in drying and properly preserving the specimens I had already secured. One of the specimens thus brought to us was the fruit of a *Passiflora*, called the "Wild Granadilla" locally. It was a ripe fruit 1 inch in diameter, bright scarlet in colour, having a very thin papery pericarp with light coloured transverse and longitudinal markings. It contained a very pleasant sweet pulp, and, being fully ripe, seeds were duly secured, and I am glad to say safely transported to this island, where they are now growing freely. It is a pretty species, and was found on a small island called Careening Cay, forming the tongue of the Bull's Mouth. Another plant of interest of which seed was brought to us was *Elaeis guineensis*, or the African Oil Palm, which has probably been introduced in a similar manner as it was

bags, &c., are manufactured. It has leaves sometimes over 10 feet in length, in appearance not unlike those of the "Penguin" of Jamaica, but the fruit of the plant is much more like the Pine-apple, as it rises on a stem 3 or 4 feet long from the crown of the plant, and the pips are aggregated together in a similar manner to that fruit. The bracts are much more distinct, bright scarlet, and close together, and the pips are much smaller than those of the Pine-apple, and not of such succulent nature. It is very handsome, and were it not for the somewhat unwieldy proportions of the plant producing it would be of some interest as an ornamental fruit.

The Bread-fruit was a tree we found abundant in all the islands, and was tended in every place with much care, as it is one of the favourite plants selected by the "We-We" ant for the display of its depredatory powers. It nevertheless thrives well, and produces fruit in abundance. "Cassava," as a rule, is not so prolific as in some of the drier districts in Jamaica, but it is generally cultivated by both Creoles and Indians. Tobacco is grown, but is of very inferior quality. Limes are plentiful, but Oranges are scarce, rendered so by the constant attacks of the "We-We" upon the leaves of the tree.

The Star-apple was fairly common, and several trees of *Blighia sapida*, the "Ackee," were in cultivation near the settlements.

were leaving we were presented with two enormous fruits of a superior variety. I immediately recognised this as being the true Smooth Cayenne, a variety which I have not as yet seen in Jamaica.

Inquiring into the history of its introduction into the islands, we were told that the plants were introduced from Jamaica. It is one of the best varieties that can be grown, and is highly esteemed, even when produced under artificial cultivation in English hothouses.

I cannot take leave of this district without mentioning the immense tract of land on the interior mountains, which without a doubt possess a climate somewhat similar to the Jamaica hills.

Hence it follows that there is plenty of room for the cultivation of such products as Cinchona, Coffee, Tea, &c., while the coast districts are suitable for the



FIG. 39.—TUBER OF *OXALIS PURPUREA*. (SEE P. 109.)

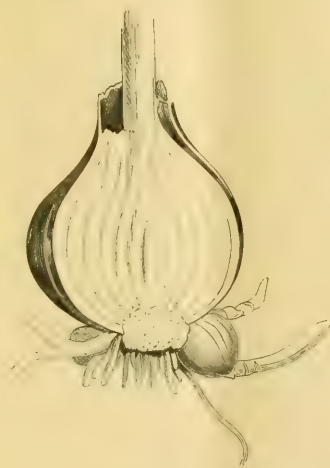


FIG. 41.—SECTION OF BULB. (SEE P. 109.)



FIG. 40.—TUBER OF *OXALIS HIRTA*. (SEE P. 109.)

into Jamaica from the coast of Western Africa. We also had a fruit of the true *Passiflora quadrangularis* brought to us under the name of "Granadilla." I had not seen the fruit of this plant for some twenty years, but it has often occurred to me that the name "Granadilla" was probably applied indiscriminately to the two kinds, *i.e.*, *Passiflora macrocarpa* and *P. quadrangularis*, the former of which is known and grown in Jamaica as the "Granadilla." The difference between the two varieties is not so much in the size and shape of the leaves, which are very similar, but in the different form, size, and flavour of the fruit [and specially in the construction of the flower. Ed.]. The fruit of *P. quadrangularis* is in size about one-third less than that of *P. macrocarpa*, more oval in shape, and of a darker green colour. It is much superior to the ordinary fruit known as the "Granadilla."

The fruit of *Bromelia pita* was also brought to us. This is the "Silk Grass" of the district, and is the plant from which all the Indian hammocks,

There is one variety of Cocoa-nut which is deserving of special mention. It is called the "green-skinned," and though to all outward appearance it is smaller than the ordinary kind, it is found that when denuded of its husk the nut is very much superior in size. It is apparently quite as prolific, the trees are as quick in growth and quite as hardy as the ordinary variety. The nut when ripe is about one-third larger, and is much handsomer than the common one. As water Cocoa-nuts they contain a very large quantity of liquid; one we had given us produced sufficient to fill a soda-water tumbler once and a half, and we were informed it was not selected for its extra size. It would be well for those who intend cultivating the Cocoa-nut in Jamaica if they were to seek a supply of this special kind, as without any doubt it is very much more valuable than the common variety, and would command a much higher price in any market.

A destructive animal in the provision grounds is the sloth, which is fairly numerous. It is a disgusting looking creature, and specially adapted in form for living in the branches of trees, &c. It is to be seen occasionally at mid-day perched upon the top of a bunch of Bananas or Plantains, leisurely eating them without any apparent regard to external objects, never leaving the bunch until it is entirely consumed.

Fine-apples of the several commoner kinds are in cultivation on the provision grounds; but just as we

growth of nearly all tropical products, &c. Cacao is at home in the tracts near the coast, and produces much finer beans naturally than can be exhibited by many other countries which expend a large amount of capital and labour in its production.

We landed in Colon in a pelting shower, and had the misfortune for the first two or three days to meet a continuance of the same weather.

I had heard much of Colon, but I never expected to see anything so bad as the state of affairs we found existing. It was not possible to cross the streets without the help of the numerous old packing-cases, planks, &c., that were lying in every direction. The streets are the receptacle for every description of rubbish, and the rain had reduced them into rivers of liquid mud, into which the drivers of drays, &c., were compelled to plunge to enable them to pass along, as the railway track in the centre of the street did not permit of their crossing except at certain points. In many places the streets were, for often as much as a hundred yards in length, from 2 to 3 feet deep in

mud, and I saw mules frequently in drays sunk up to their shoulders in this abominable filth.

It rained frequently during the nights, and immediately after a downpour the small arising from the disturbed surface of the saturated ground, and the numerous mud-pools, was very hard to put up with, but nevertheless it had to be borne, as we had to wait for six days to get a ship to Jamaica. *J. Hart, Jamaica.*

THE AMARYLLIS.

At p. 619 of the last volume, some remarks were made about the plants being grown on vigorously to make up for the loss sustained by the production of flowerscapes and seed-pods. They have now quite recovered; the seeds have been ripened, sown, and produced nice thrifty plants, 3 and 4 inches high. These, when three weeks old, are carefully lifted from the seed pots or pans, and are pricked out, twelve large plants in a 6 inch pot, and the same number of smaller sized in 5-inch. As soon as they are potted in a rather open and rich compost, let the pots be plunged to the rim in a bottom-heat of about 85° in a hothouse temperature. These small seedling plants require to be kept in a free growing state, very much later than the large bulbs; nor do they become dormant during the winter. No leaves are lost, and they require but little water at that time, merely enough to keep the soil from becoming stiff dry. The old plants do not require very much water now, and they need more sunlight as the nights lengthen. We admit air freely now, and the plants are kept free from red-spider and thrips by being thoroughly syringed occasionally, not daily, as constant syringing would cause some of the bulbs to rot, even when they are growing freely; they would be the more liable at this season when growth is completed. *J. Douglas.*

THE COLONIAL EXHIBITION. NO. VIII.

INDIA.—On entering the Exhibition buildings, whether from the Exhibition Road or from the subway, one cannot but be impressed with the magnitude of the display made by the Indian empire. Though by far the largest space is occupied by art objects, the space devoted to raw products is still considerable, and it is in this—the economic section—that vegetable products abound, not alone raw products but many manufactured articles also. Though the Indian courts throughout lack that appearance of comfort and finish to be found in the West Indian and Australian courts, there is an immense amount of novelty and interest to the stay-at-home Englishman, calculated to give him an insight into Indian life and habits, and to show up the nature and variety of productions of Indian soil. To say the least, the Indian courts are bewildering from beginning to end, so numerous are the exhibits that it is a surprise how they could have been got together and displayed as they are in the time.

Amongst the most attractive exhibits in the Economic court, the Indian shops certainly claim the first notice. To the casual visitor the methods of displaying the seeds, fruits and vegetables in the circular Bamboo trays will have a certain interest, exhibiting, as they do, such a different mode of trading to that with which we are accustomed; but to one who has an interest in foreign vegetable products the contents of each tray will be more carefully scrutinised. In the first shop, namely, that of the "grain merchant," we find the merchant himself engaged in weighing a seed not unknown in this country as an article of food, namely, the Lentil (*Lens esculenta*), an annual of which, though it was cultivated by the Hebrews, and in Europe since the days of the Roman empire, the native country is not known. At the present time the Lentil is largely cultivated throughout the East, as well as in many parts of Europe, North Africa, West Asia, and North-west India. The Lentil is known under numerous varieties, indicated by the size, shape, or colour of its seeds—the small pinkish-coloured seed being the one which the grain merchant is engaged in weighing. Like Peas, Lentils are seen in trade either whole, split, or ground into a kind of flour; in this last form they enter largely into the composition of the food so much advertised as "Ervanta" or "Revalenta," and sold as an invalid's food. Seeds also are here shown of *Phaseolus mungo*, known in India as Green Gram,

a plant largely cultivated under a number of varieties for food. The seeds are very small, round, and in some varieties of a bright green colour. Numerous other seeds and grains of an equally interesting character are also shown.

The stock of the "vegetable seller" consists of, amongst others, Papaw fruits (*Carica Papaya*), a tree supposed to be originally a native of the warm part of the American continent, but now widely diffused through the tropics of both hemispheres. The tree is well known for the peculiar property it possesses of causing newly killed meat to become tender in a few hours by wrapping it in the leaves or rubbing it with the juice, by causing a separation of the muscular fibres. The fruits when ripe are of a yellowish colour, of an oblong or somewhat pear-shape, firm, generally about 8 or 10 inches long, with a thick fleshy rind, and numerous small black seeds. These fruits are eaten when cooked as a vegetable, or preserved in sugar. The active principle of the Papaw is known as Papaine, and has attracted much attention of late as a remedy in diphtheria, indigestion, &c.

Scattered about with other fruits, some real and some models, are the Carambola (*Averrhoa Carambola*), a tree belonging to the Geraniaceae, and closely allied to the Oxalis, or Wood Sorrel; another species, the Blimbing (*Averrhoa Bilimbi*), being perhaps better known than the Carambola. Both have an acid taste, and the latter is often used as a pickle. The peculiar elongated waned fruits of *Momordica Charantia* are also shown. They are of a reddish or orange-red colour, and the plant, which is a climber, is distributed in India, Malay Islands, China, and Tropical Africa. The Banana (*Musa sapientum*), Bread-fruit (*Artocarpus incisa*) and Cashew Nut (*Anacardium occidentale*) will be more readily recognised, and still more so the Brinjol or Aubergine (*Solanum Melongena*) as the plant is largely cultivated not only in India but in nearly all warm countries for the sake of its egg-shaped fruits. In France, indeed, they are much esteemed and are not by any means uncommon in our own markets. The varieties however, are perhaps more numerous in India than in France, for the fruits not only vary considerably in size but also in colour, some being white, while others are yellow, violet, or even nearly black; several varieties are shown by the "vegetable seller."

The stock-in-trade of the "fruit seller" comprises many that are well known in the English trade, such for instance, as Raisins, Currants, Dates, Figs, Almonds, &c. Apricots, the fruits of *Prunus armeniaca*, are also shown, but in a dried state. These were shown and commented upon by Mr Morris, in his recent lecture on tropical fruits, and there seems no reason why they should not become an article of trade in this country, for as a dried fruit they are by means to be despised. In India the Apricot is largely used for food both in the dried and fresh states, while from the kernels an oil is expressed which is used for burning in lamps, for culinary purposes, and for the hair. In Damascus, the stones are removed from the fruits and the pulp rolled out into thin sheets, in which form it is sold in the bazaars.

Passing on to the "druggist," who occupies the last establishment of this group, we find, besides many well-known articles which are not only used as drugs but also as condiments or spices, or for other culinary purposes with us, such as Ginger, Capsicum, &c., many that will be quite unknown except to the student of Indian pharmacy. Here, for instance, are the flowers of *Woodfordia floribunda*, better known perhaps as *Gislisla tomentosa*, a large shrub, belonging to the order Lytharieae, and closely allied to the Henna, common throughout India, ascending to an elevation of 5000 feet in the Himalayas, and found also in China, Tropical Africa, and Madagascar. The flowers are mostly used in India as a red dye for silks. Near these are some thin circular slices of a bright red colour, which will be soon recognised as having been cut from the more or less globular fruit of the Baël (*Egle marmelos*), the pulp of which, especially in an unripe state, is astringent, and is used in diarrhoea and dysentery, as well as for making a conserve, and in the preparation of a sherbet. The Baël is a tree found in the sub-Himalayan forests, from the Jhelam eastwards, and Central and South India and Burma. The long black cylindrical pods of the Purging Cassia, or Indian Liburnum (*Cassia fistula*), attract some attention on account of their stick-like form. The tree producing these pods grows to a height of from 30 to 50 feet, and is a native of India, Ceylon, Java,

the Philippines, Tropical and Subtropical Africa, and has become very largely planted in consequence of its ornamental character (bearing numerous racemes of bright yellow flowers) in the West Indies, Brazil, and Central America. It is, moreover, much valued as an economic tree for the sake of the pulp contained in the cylindrical pods, which are pendulous from the trees, and often grow to a length of 2 feet. The pulp has a sweetish taste, is of a blackish-brown colour, and is used as a mild laxative. It is imported from the East and West Indies, the finest quality, however, comes from the latter country, some remarkably fine pods being shown amongst the West Indian exhibits. *John R. Jackson, Curator, Museums, Royal Gardens, Kew.*

POTATO CULTURE.

SELECTION OF GROUND.—Success in Potato culture is attainable not only in different climes, but also in a very great variety of soils. Under otherwise favourable conditions, the tuber will grow as well in clear sand as in stiff clay. The happy medium is generally the best.

A thin layer of fertile surface-soil, resting upon clay subsoil, which is impervious to water, should never be used for Potatoes, not even if thoroughly underdrained. The tubers are more apt to rot in heavy, sticky soils, particularly in a wet season, than on light sandy or gravelly ones.

It is a very common practice with farmers to plant Potatoes on Clover sod, ploughed in the spring. This selection is a good one; provided, however, that, as in the case of young and rank-growing Clover, the sod is such as to admit of thorough pulverisation, or that the field can be ploughed early enough during the summer or fall previous, to give ample time for the sward to rot, and thus make cross-ploughing practicable. Otherwise, when the Clover field is old, and the roots of grasses and weeds are woven into a tough, thick sward, which cannot be easily broken and pulverised, it would be advisable to have a crop of Wheat, Rye, Oats, or corn precede the Potato crop.

An admirable selection.—For early sorts, clay loam, very rich; for late sorts, sand or gravelly loam, of medium fertility. Naturally drained, loose and mellow Clover sod, or stubble after stiff sod is the best imaginable condition or state of cultivation in either case.

MANURE AND ITS APPLICATION.—FEED THE LAND AND THE LAND WILL FEED YOU.

Coarse, unfermented stable dung is nearly worthless for the Potato crop, unless as a mulch on very porous and dry soils. Thoroughly rotted compost in moderate quantities is a good fertiliser for tall-growing varieties, while low-growing early sorts are generally benefited by more liberal applications.

The Clover on the pasture lot or meadow selected for a Potato field should not be grazed or cut very late in the fall. We could hardly wish for a better fertiliser than a good growth of Clover, covered during the fall with a coat of fine old manure or barnyard scrapings, lighter or heavier, according to variety to be planted, and, if possible, applied with a Kemp manure-spreader, or, at least, evenly and finely distributed by means of harrow or otherwise.

For stubble ground fall manuring can be recommended only on condition that the manure is harrowed and cultivated into the soil and thus left until spring.

On land manured the year previous Potatoes will do well without additional fertilising, still the application of wood ashes or lime often increase the yield. Newly applied stable manure seems to attract the wireworms, and therefore has the tendency to produce scab in the tubers. Coarse manure is a frequent cause of prongs, protuberances, "fingers and toes."

Commercial fertilisers meet with no objections of this kind. The fairest, smoothest, and best shaped tubers are generally grown on well-pulverised soils which were fertilised with chemical manures, or not at all the same season. In recommending such fertilisers, we enter debatable ground. While we have never failed to see good results from the application of phosphates, &c., whenever we tried them on Potatoes or other crops, there are many cases on record, as reported by different farmers, where even complete fertilisers—those containing ammonia, phosphoric acid, and potash—utterly refused to respond. Still we believe that the fault is with the man often rather than with the material. Commercial manures and

chemicals give us one great advantage. Of the three most important elements, ammonia, phosphoric acid, and potash, the soil may contain a sufficiency of one or two. If we know, from previous experiments, which these elements are, it will be only necessary to supply the one that is lacking. Thus, our own soils were always deficient in phosphoric acid, and therefore greatly benefited by its application, next by that of potash, but not noticeably by ammonia. On other soils ashes or some other forms of potash, either alone or in combination with phosphoric acid, or ammonia, will greatly increase the yield.

If previous experiments have not been made to determine the relative proportion of these elements in the soil, complete manures like Mapes' or Stockbridge (Bowker) special Potato fertiliser, Powell's Potato producer, &c., which contain the three ingredients in about the right proportion for the crop, can be relied on with safety. From 600 lb. to 800 lb. to an acre should be applied broadcast, just before planting, and ideeply harrowed into the soil; or in drills, about an inch or two above the seed, and covered by a few inches of soil. The well-known experimenter, Sir J. B. Lawes, of Rothamsted, used 300 lb. of sulphate of potash (130 lb. actual potash), 350 lb. superphosphate of lime, 550 lb. of nitrate of soda, to produce a crop of 400 bushels. This means almost a mere manufacturing of the crop out of chemicals, without calling on the soil for assistance (as to the supply of raw material); and such manufacture might be carried on year after year on the same land. The cost of raw material would be about as follows:—

300 lb. of sulphate of potash, at 2½ cents ..	7-50 dol.
350 lb. of superphosphate, at 3½ cents ..	12-25 "
550 lb. of nitrate of soda, at 3 cents ..	16-20 "
Total ..	35-95 "

Expensive as this manuring appears to be, we could well afford it if thereby we make sure of a crop of 400 bushels.

Where unleached wood ashes are obtainable at little cost, they may take place of sulphate of potash, and perhaps show better results at less expense. The cheapest source of phosphoric acid for Potatoes, probably, is dissolved South Carolina rock, containing about 27 to 30 per cent. of bone phosphate, and costing 16 dol. per ton.

Nitrate of soda is an awkward thing to handle, on account of its great solubility, and dear also. However, it has this one great advantage—that there is no need of applying it sooner than the growing vines show the lack of it. Never apply it in the fall.

A rank growth of Clover or of Clover roots turned under supplies all the ammonia needed, and is generally the cheapest form in which ammonia can be obtained. This manurial substance plays a very important part in giving thrift and luxuriance to the foliage, and while large tops in themselves are not our object, we can hardly hope to reap a large crop of tubers without their assistance.

The supply of ammonia, especially if scarce, should be supplemented—reinforced, as it were, by the application of Potato pulp represented in a sufficiency of seed. *Southern Planter*.

BEGONIAS AT MESSRS. SUTTON'S.

It is not without regret that one sees the race of fibrous-rooted Begonias making room generally for the more showy tuberous-rooted species. We have certainly lost in grace and perfume, if we have gained in brighter colouring and greater usefulness. Our old friends seldom seemed happy except in the height of summer away from the plant-stove; and that is just the place where visitors linger for the shortest time. The newer tuberous varieties are more hardy, due to the infusion of the Begonia *Sedini* blood, and can be as appropriately used in the greenhouse as out-of-doors.

The more ordinary type of these at Reading are robust, dwarf, with much shorter nodes with more of them, and with, consequently, greater floriferousness, for the tuberous Begonia blooms spring from these, and when they are far apart there are fewer flowers.

The chief aim has been hitherto to procure round, saucer-shaped flowers, with short, stout footstalks, that need no artificial support. The colours of these run through scarlet, crimson, pink, and white. In contradistinction to the above are those that own B. Davis or B. Pearcei, as one parent, in which the flowers spring

direct from the tuber, and the whole habit of the plant is dwarf, the flowers small, but making amends for that by great quantities of brilliant blooms. Some of the hybrids from B. Davis are of varied shades of scarlet and are more free than the parent.

In a group in one of the houses was observed some hybrids, B. phosphorens × B. Pearcei, that possessed the handsome, velvety, marbled foliage of the latter, with flowers ranging from light primrose to deep copper colour. These were in great variety, and the handsomely marked leaves greatly set off the plentiful crop of flowers. The habit of the plant was in all cases dwarf.

These ought to be acquisitions in the flower garden in suitable localities, and might be made to supply a known want, that of a good bronze or yellow bedder or vase plant, apart from the Calceolarias. B. Meteor is one of the more lustrous yellow flowers which has been honoured with a name. E. Frébelli in quantity was noticed in a house by itself; it is later than most others in coming into bloom, and some curious shades of cherry-red were observed.

Of the better known bedding Begonia semperflorens, there is a selection from it with pure large white flowers; it is named Reading Snowflake. It has the desirable habit of flowering from midsummer till Christmas. *M.*

Floists' Flowers.

GREENHOUSE CALCEOLARIAS.

Any old plants intended to be grown again should be in a cool place, such as a frame behind a north wall. They ought to be repotted, and the stems ought to be covered over with fine soil, to promote the emission of roots from the stems and the base of the growths. When they have formed roots they may be divided into separate plants. If seeds are not already sown, they ought to be seen to at once. A packet of the best seed is a very minute object, and a careless operator might sow the whole of them in one spot. Let the pot, or pan, in which the seeds are to be sown be prepared first. Fill it to an inch of the rim with ordinary potting mould. Some finely sifted sandy soil ought to be placed over this, and be made quite smooth by gentle pressure. Now open the packet of seeds carefully, and sow them evenly over the surface, and just cover them with clean sand. The seeds will vegetate best in the frame behind the north wall. A square of glass ought to be laid over the top to keep an equable state of moisture. After sowing, the mould ought to be kept at an even state of moisture. If it should become over-dry while the seeds are vegetating, the whole of the incipient plants would perish, and the seedsmen would be unjustly blamed. Young plants ought to be pricked out as soon as possible as they are very liable to damp off in the seed-pans.

CINERARIAS.

The young seedlings ought to be pricked out this month, and those that were pricked out last month should now be placed singly into small 60's. The old plants were divided last month, the portions being potted into small pots. The seedlings and old plants are now together in frames facing the north. The lights are also shaded during the hottest part of the day. The plants have to be kept quite free from insect pests (thrips and green-fly); these and the Calceolarias are both very liable to be attacked by them.

FUCHSIAS.

We have more than one set of these plants for keeping up a display during the summer and autumn months. When the plants are potted in rich soil, and are not allowed to suffer for want of water at the roots, they continue in flower a long time; the shoots grow out and continue to produce clusters of flowers at their extremities until they become rather unsightly, when they are removed and their places supplied with young plants coming into flower, which have been in preparation in reserve pits. These young plants were propagated from cuttings in the spring; they will continue to produce flowers late in the autumn. Fuchsias, Liliiums, zonal Pelargoniums, and Carnations are now the principal feature in the greenhouse and conservatory.

PELARGONIUMS.

The large-flowered and small-flowered or fancy

section again require attention for next year's bloom. The earliest flowered plants were cut down a month ago, and have now started sufficiently to be shaken out and be repotted in smaller pots than those they flowered in. This shaking out and repotting must not be delayed too long; it ought to be done as soon as all the buds have started. Some growers advise placing the plants in close frames or in a gentle bottom-heat. This is not necessary; if the operation is done in time not a leaf will flag, even if the pots are placed in an airy greenhouse. The best time to take cuttings is in May, and if this was done the plants produced from them should now be stopped if that was not done last month to ensure about four eyes starting, or perhaps five, with a clear stem underneath. If these plants are now in large 60's they may be potted into 5-inch or large 48's, using good potting soil; the four or five stems produced ought to be tied out to form the foundation for the future specimen. Such plants will form nice flowering specimens for next year. The late flowering plants have just been cut down, and they will be allowed to start out-of-doors; but will be placed under glass as soon as they are shaken out and repotted. Seeds saved now may be sown at once.

CHRYSANTHEMUMS.

The growers for exhibition are now daily amongst their plants, because it is now the time for "setting the blooms." The flower-buds are being formed, and almost as soon as quick eyes can discern them lateral growths push out from the stems immediately beneath the buds, and as soon as these are perceived they are broken off with the fingers; if this is not done the growths would push rapidly past the buds, absorb all the nourishment from them, and they would not develop into flowers, although a flower would be produced on each of the growths, but the food that should have gone to the production of one flower will be diffused amongst three or four, which will be but indifferent specimens, compared with what the one would have been that they destroyed. Greenfly will also be found sometimes, clustering round the points of the young shoots; frequent applications of tobacco powder applied with a pepper-box will destroy them; the operation is quickly performed. Clasp the growth lightly in the left hand, and with the right with one or two shakes cover the points with powder. Some persons wet the leaves first, but I apply the powder in a dry state. When the buds are all set mature-water may be applied to the roots, but not earlier. The specimen plants should be gradually trained into form. Sometimes the growths are left until the flowers are nearly open, with the result that they are tied down to make what is supposed to be a dwarf specimen, but a plant is produced which a tasteful gardener would not tolerate on the premises. The large-flowered Chrysanthemum does not naturally grow into the form of a Mushroom, why, then, should it be forced through a variety of contortions to assume that form? Let each growth be trained out without crowding them, or having them too far apart. Good culture will consist in keeping the leaves free from mildew, and in a healthy condition to the base of the stems. *J. Douglas*.

FRUIT PROFITS.

It is pleasant to go through market-orchard districts in the spring months, and mark the wondrous colouring and beauty found in masses of bloom on the trees. The Plums and Pears white as snow; Cherries, as if literally hang with pendants of snow; Apples, covered with pink flowers, all so lovely, and all so full of promise. Earlier the Currants and Gooseberries have bloomed, but in an unostentatious fashion, and yet indicating a wealth of produce later. Strawberries in vast beds give a sheet of flower, and there is every indication that the year will be one of exceeding fruitfulness. Later, perchance, frosts, besides cutting east winds, blight, or other causes, have so far discounted the probable fruit crop, that now not more than one-half the expectations earlier formed will be fulfilled. Sometimes matters are better, but on the whole, if what is pretty well understood to be an average crop all round is finally obtained, some solace is found in the anticipation that a glutted market will be avoided, and fairly good returns result. The Strawberry crop is gathered, and it proved generally disappointing. Some were fortunate, but the great bulk of growers were less fortunate, and they are destroying their breadths

to sow or plant something probably more profitable. Perhaps next year may give good crops generally, for in Strawberries rarely do two bad seasons follow each other. Still the grower of some 10, 20, or 30 acres of those fruits feels that he runs considerable risk should a second bad season follow; hence he is naturally reducing his Strawberry area. Bush fruits very often prove the market fruit-grower's backbone, for these rarely miss a crop, and this season they have generally well maintained their reputation; we have seen Gooseberries and Currants of kinds literally laden with produce up to the very utmost of bush power to carry it, and very fine clean and good Raspberries, too, have been fairly abundant, but canes were smaller than usual, owing to the exceeding drought of last year. However there has been little to complain of in the matter of quantity or quality, so that as far as produce was concerned, it might be said for the market grower that his prospects were rosy.

Alas! fruit, however plentiful and good, will neither pay wages, rent, rates, or the thousand and one other pecuniary obligations which encumber the path of the fruit-grower. He must convert his crops into cash in the markets, and with that pay his way; well, he has to get this product to market, and if he resides within moderate reach of the metropolis, the market of the world, or of some other big town, no arrangement is better than loading his own vans overnight, sending them to market, and returning them laden with manure. If he attends market himself, whilst subject to all the labour and discomfort as well as expense which such duty involves, at least he knows that he gets all the cash he takes, whether prices be good or bad, and has also the advantage of gauging the tone of the market—knowledge often helpful in preparing his next consignment. Perhaps he puts down the bulk of his goods at shops, a capital arrangement, because the middle-man is dealt with at his own home, and the goods neither pass over nor require farther transit. That sort of trade is, however, chiefly done by the smaller growers, most of whom have regular customers. Still this trade is regulated by current market prices, and the shopkeeper will pay no more at his door than he would have to pay in the market. The most awkwardly placed grower is the one who lives remote, perhaps 40, 50, or more miles, from London, as for instance, many of the Kentish growers do, and who not only have to consign their fruit to London per rail and sell through a salesman, but also must get their manure back per rail.

It need hardly be said that if we take bush fruits, for instance, it is obvious that the cost of marketing is very considerable, especially where transit is over so long a distance. Possibly the grower pays from 4d. to 6d. per half bushel for gathering into his own baskets, previously purchased. Each basket must be carefully papered and, perhaps, strawed or grassed over, or, to use the ordinary phraseology, "packed," then loaded in a van, sent possibly some 3 or 4 miles to the railway station, loaded into trucks, carried to London, reloaded into vans, and taken into market, put down at salesmen's stands, and then sold for what the fruit will fetch. Fancy, therefore, the dismay of the grower when he finds that a good sample of Gooseberries, for instance, goes for 1s. 3d. per half-bushel, of which sum the salesman secures 3d. for commission, and the unfortunate grower gets back the remaining shilling to cover all expenses enumerated, as well as rent, labour, rates, tithes, and other costs; and this is a true picture of what has been going on of late. Even near home the grower, putting his fruit down at the shopkeeper's door, has obtained in return but 1s. 6d. per half-bushel for Gooseberries, and about 2s. per half-bushel for Currants. Raspberries gathered into punnets, all of which, of course, have to be paid for, have sold at 3d. per pound, out of which, besides the cost of punnets, something has to be paid for gathering and the getting to market. Cherries sold very well, but these were but a partial crop, and sweet kinds (one of the most uncertain crops) will do well only in certain localities. Morellos are far better average croppers, but are not so widely grown as they merit; as it is, they do but obtain a fairly remunerative price.

Apples will certainly sell well, and happily may be held a week or two to suit the market. Pears are ready. Generally there are good crops of these, but they are needing moisture to promote swelling. Still it is expected that they will be presently literally dirt-cheap, because of the bulk; and as for Plums, if the jam-

makers do not purchase largely, they will be a drug, for they must or rot on the trees. All these dire results, as far as indifferent prices are concerned, are largely irrespective of foreign competition. We have planted so largely of hardy fruits that when a good crop follows it is impossible to find for it a really profitable market. A half crop, it may be, gives the best prices, but after all half crops satisfy no one. Still further, when we get full crops we have no option but to accept them with all risks. There are still those who think that the home demand for fruit is almost unlimited—that is an obvious error. It may be a matter for surprise, having regard to the immense numbers of our population who are cut off from garden pleasures and pursuits, that it would be impossible to satisfy their cravings for fruit; but such seasons as the present show that even with the enormous demand created by the preservers yet fruit of home growth is a drug, and it is not probable that foreign fruit can be otherwise. How to make average fruit farming profitable is a great problem, which invites solution. A. D.

XANTHOCERAS SORBIFOLIA.

We have, as usual, this year some fruits of *Xanthoceras sorbifolia*, but the fruits are perhaps a little finer. It is a fine plant, which is covered with flowers in spring. The trees, left to themselves, have taken a roundish and elegant form. The fruits are few; they are a little too heavy for the branches. The seedlings grow very well. This spring we had ten seedlings, which flowered the second year when only 40 to 50 centimetres high. *Maxime Cornu, Jardin des Plantes, Paris*. [Our illustration (fig. 42) shows the fruit as we received it from Professor Cornu. It is very like in its leathery texture that of the Horse Chestnut (*Æsculus*), and as it dries it splits into three valves in the same manner. Ed.]

—This is a white-flowered shrub of great beauty. The flowers, which appear in pendulous racemes, are of the size and shape of those of the well known Forsythia; the colour is pure white; foliage pinnate, light green, very fine. For the first time I saw this beautiful shrub in 1880, in the Jardin du Luxembourg, in Paris, and was quite surprised by its beauty. The propagation is said, to be rather different, and this may be the reason that the shrub is not planted so often as it ought to be. I tried root-cuttings this year, putting them in February in a pot, and plunging the pot in a cold frame and was successful in obtaining a good number of young plants. This shrub is not quite hardy here, but is so in England. C. W., Cassel.

The Rosery.

ROSES IN POTS.

OURS have been reported for some time, and have been placed in a good open position out-of-doors. All that they require is to be kept right as regards water at the roots, and the leaves free from red-spider and aphids. Mildew is also very troublesome; it seldom fails to appear at this time, but it may easily be destroyed by attacking it at its first appearance with flowers of sulphur. The Tea Roses in pots will soon be making their second bloom, which will promptly succeed the first bloom out-of-doors; indeed, our Tea Roses are yet in great beauty on a raised bed out-of-doors. If we had room under glass I would keep the Tea Roses in a light airy greenhouse all the year round; and if it was heated during the winter, Roses would be plentiful "from November to October." When the plants are under glass, there is no difficulty whatever in keeping them perfectly clean. The leaves should be glossy and bright, like a glint of sunshine. Now is a good time to repot any plants requiring it, and as good potting is the foundation of successful culture may I urge the importance of every rosarian giving minute personal attention to this? Let the pots be quite clean, the drainage clean and carefully placed (not thrown in anyhow). Some tough fibre should be placed over the drainage to prevent the loose compost from mixing with it. For Tea Roses use loam three parts, turfy peat one part, decayed manure one part, with a little bone-dust, coarse sand and pounded charcoal. For other Roses use leaf-mould instead of peat; the same compost will do for the Teas if peat cannot be obtained. Jas. Douglas.

THE ARNOLD ARBORETUM.

AFTER a delightful drive through the pleasant avenues of Jamaica Plain we found ourselves at the Arboretum of Harvard College, which contains 165 acres of land quite varied in character. This is a portion of the well known Bussey Farm, in that part of Boston formerly known as West Roxbury, and is within a few minutes' walk of the Forest Hills station, on the Boston and Providence Railroad, making it of easy access to visitors. The location is such that the experiments here made will be of great value to New England, and of general interest to a large portion of the whole country. The Arboretum is yet in its infancy, having been commenced only in 1874, when the seeds of the first trees were planted, so that, excepting the older trees previously on the place, of which there are many, a great portion are only nursery plants, which, on account of certain arrangements made with the city of Boston, could not be planted in permanent positions until the laying out of some of the roadways had been completed. This being accomplished in part, the coming spring will see many of the botanical orders planted where they are to remain permanently, the planting being as far as possible in botanical sequence. Along the roadways will be planted both native species and those of foreign introduction, including all the varieties, so that even one not possessing special botanical knowledge can at a glance comprehend the arrangement and see by comparison the plants which best endure our climate. The Arboretum will thus be a living museum, where the nurseryman, gardener, and private landowner may come for trustworthy information regarding all trees or shrubs, which will save them the cost of personal experiments and of delays caused by unfortunate selection.

The collection of living plants at the Arboretum is richer in species than any other in the United States, numbering at the present time over 2000 species and varieties of woody plants. Many of these may prove failures, but it is the work of the Arboretum to show by living illustrations what to select and what to avoid. The collection is being continually increased by a system of exchanges with botanic gardens and similar institutions, both public and private, in every part of the world within the temperate zone. Experiments are also being made with seeds of plants taken from widely different localities, with the hope that additions may be made to our lists of hardy trees. This has already been done in several instances, such as *Abies concolor*, *Pseudo-Tsuga Douglasii*, and several others, the seeds of those plants brought from the warmer parts of the Pacific coast having proved of little use to us in our changeable climate, while seeds from plants of the same species growing in Colorado, under conditions similar to those in New England, have produced plants which, so far, stand our climate as well as our native trees.

Besides planting the living specimens there has been established a herbarium, containing an abundance of specimens of woody plants, collected from various parts of the world, and plants of the same species from different localities, to aid students and others in determining the names of species and the effect of climate and location. There will also be a large collection of all kinds of woods, barks, cones, and other tree productions that may be of use in the arts or sciences. These collections are already very rich in American species, and require a great number of botanical cases to preserve them. They are at present stored in a house owned by Professor Sargent, kindly loaned by him for this purpose until such time as a proper building shall be erected on the Arboretum grounds.

The sources whence seeds are received from time to time are recorded in a set of books kept for the purpose. They are numbered in regular order, and by a systematic arrangement notes are made as to their hardness, adaptability, usefulness, &c., which in future will be of great benefit in determining the history of these plants, and will form likewise a history of the Arboretum.

The past season a shrub garden has been made, comprising about 2½ acres, laid out in beds 10 feet wide by 275 feet long, sufficient in extent for 1157 species and 357 varieties. The shrubs are systematically arranged, beginning with the order Ranunculaceæ and ending with Similacæ, and not only botanically, but, as far as possible, geographically, American plants coming first. Here any one with even a limited knowledge of plants can take notes of these

growing specimens, which will enable him to gain more knowledge than months or even years of study from books or catalogues could give, and will help him to make such selections as he would like to plant. All this is done at the expense of the Arboretum, thus giving all who wish to avail themselves of its privileges and advantages a real school of instruction free of all cost, and this will go on from generation to generation. No other such place is known where such valuable information can be similarly obtained, while Mr. Dawson, the skilful gardener, is always ready to impart any knowledge in his possession.

There are spaces left open for undetermined varieties, but the garden now contains 690 species and 250 varieties, with the possibility that from 400 to 600 new species or varieties will be added the coming year. This location was mowing land, and was broken up only a year ago, and it is really astonishing to note what has been accomplished in so short a time; we can look upon this branch of the Arboretum work as one of the noblest educational agencies existing in any country.

freely opening its collections to the public, and by securing for it additional and greatly needed land, suitable and dignified approaches, and carriage drives.

The objects of the Arboretum may be definitely stated in a few brief words that all can understand. First, a school of arboriculture for the study of trees and shrubs and their uses for timber for ornament and otherwise. Second, a museum of living specimens of all ligenous plants that will stand the climate at West Roxbury, planted and arranged in botanical order. Third, a museum for reference, containing a dried collection of all ligenous plants, properly labelled with the time of flowering, native location, and, if foreign, the country where they are indigenous; also a full collection of specimen wood, bark, fruit, seeds, &c. Fourth, a library containing all the best works on dendrology, for the use of students or others interested in the science of tree culture.

In closing this somewhat lengthy yet inadequate account of our visit to the Arboretum we must not omit to say that its success is due to the untiring and indefatigable labours of the director, Professor Charles S. Sargent, whose large correspondence and thorough

almost uniformly of a warm rosy-purple, with a faint tinge of violet, and marked transversely near the base of the sepals and petals with bands of a lighter colour. In the form flowering in the pits at present these colours are intensified, especially on the contiguous sides of the sepals and the labellum. The colours are deepest immediately after expansion, contrary to that of some others which gain in colour after being exposed for some time to the light. This richness in colour adds greatly to the value of an already popular species whose strong but agreeable odour pervades the atmosphere of the house in which it is grown. The odour may be described as that of some preparation from Apples, is strong enough to be appreciable at some distance, and is not disagreeable when intensified by proximity, like that of many other Orchids whose fragrance is sweetest and most enjoyable at a short distance. *J. F.*

DENDROBIUM PARISHII VAR. DIVES.

This is a very interesting, surprising and lovely novelty. The stem at hand is nearly 2 feet long, with thirty-two flowers open at once, so that it is nearly covered by them. They are smaller, and the lip is more transverse, and yet more acute, and with larger eye-blotches than are found in the well-known type. It has the usual smell of Rhubarb. It was kindly sent me by Mr. W. Bull. *H. G. Rehb. f.*

MILTONTIA SPECTABILIS, VAR. MORELIANA.

Generally regarded as a true species this handsome *Miltontia* is inseparable in structural points from *M. spectabilis*, of which, however, it is a very distinct form, and superior in every respect to the type. Like most of its congeners, however, its scanty foliage generally presents a sallow aspect, the tone of which is greatly augmented by the deeper yellow shining pseudobulbs. This fault is more than compensated for by the large, conspicuous, and generally showy flowers, in this case solitary. In the type the sepals and petals are white, while, singularly enough, these parts in the variety under notice are the darkest, being a deep violet-purple, somewhat paler or whitish at the base. The flat spreading labellum is broadly obovate, tapering to a short wedge-shaped base, and is pale purple upwards, deeper coloured on the lower half, and somewhat variegated about the small three-toothed crest. There is a figure of this form in the *Botanical Magazine* under the name of *M. spectabilis* var. *purpureo-vioacea*, and another in *Jennings' Orchids*, 37. A flowering specimen may be seen in the cool division of the Orchid-house at Kew, where it is conspicuous amongst other things by its size and depth of colouring. The Cattleya-house would be the most appropriate for it when flowering, and also when at rest, but when making its growth it should be placed in a temperature resembling that of the East Indian house. This species may be grown on a raft well mossed over with sphagnum, or in a basket amongst good fibrous peat and chopped sphagnum, kept porous by lumps of charcoal, with good drainage and plenty of water, especially during the growing season. *J. F.*

EPIDENDRUM PAYTENSE.

From Sir Charles Strickland we have received a seed-plant of this species. It is when ripe about three-quarters of an inch long, globular in form, the three valves being united below and at the top, but separate elsewhere, and surmounted by the remains of the column, which forms a beak nearly as long as the fruit itself.

RIPENING AND PRESERVING FRUIT.

THE following are the principal passages of a lecture delivered by Hon. Marshall P. Wilder, at a recent meeting of the Massachusetts Horticultural Society, Boston, U.S.A.:—

The principles upon which success must ever depend are now so well established that it is only necessary to bring them to mind for our government. The preservation of Apples through the winter months is now pretty well understood, but with the Pear, Grape, and other delicate fruits more care is requisite.

The ripening of fruit depends on saccharine fermentation; this is followed by the vinous and acetous fermentations. To prevent these, and preserve fruit in all its beauty, freshness, and flavour, the tempera-

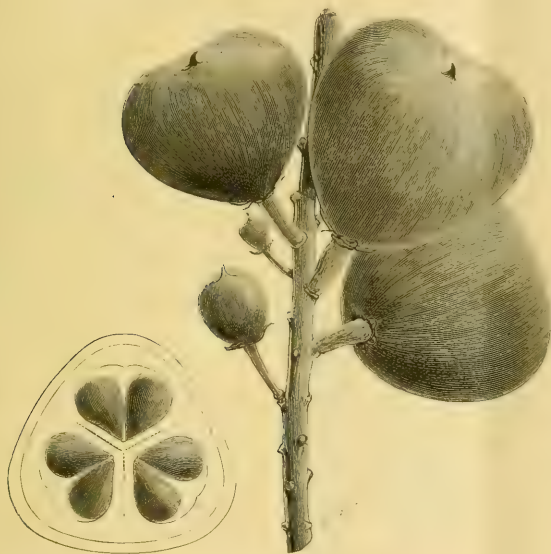


FIG. 42.—FRUIT OF XANTHOCERAS SORBIFOLIA. (SEE P. 204.)

There is a small span-roofed greenhouse devoted mainly to propagating trees and shrubs in winter, by grafting, cuttings, and seeds—from 10,000 to 15,000 are produced annually. In spring they are placed thickly in boxes, and as soon as established are allowed to harden off in the frame ground. In this ground are several deep pits where the plants are stored for the first winter—every available place is used, and a look into one of the pits a few days ago revealed a surprising quantity of young plants which will take their places in the nursery rows another season.

In 1875 there were 128 species raised. In 1877 Mr. Sargent wrote that, judging from the immense number of letters which were annually sent him, there was a steadily increasing interest felt in the Arboretum. It was then but five years since its establishment, but its usefulness and influence were already evident, and to its influence could be traced the planting during that year of nearly half a million trees in the New England States.

In December, 1882, an arrangement was made with the Park Commissioners of the city of Boston, which, without interfering with the scientific aims of the Arboretum, will increase its local influence by

knowledge of all that pertains to the duties of his offices have already given to the horticultural world one of the grandest educational institutions this generation has been blessed with. *Boston Paper.*

Orchid Notes and Gleanings.

PHALÆNOPSIS VIOLACEA.

ALL the forms of this species which have flowered at Kew for some years back are vastly superior to the type as figured in the *Orchid Album*, 182, or the *Floral Magazine*, n.s., 342, where the flowers are of a pale yellow, almost primrose, tinged with green, except the contiguous sides of the lateral sepals and the terminal lobe of the labellum, which are rich rosy-purple. A figure is also given in the *Gardeners' Chronicle*, 1881, xvi., 145, f. 32, where the sepals and petals are described as rich rosy-purple and pale green upwards. Those that have flowered for some years previously at Kew exhibit flowers that are

ture must be uniform, and kept below the degree at which the fermentation or ripening process commences. Mr. Robert Manning, in a prize essay, said:—"The ripening of fruit is the completion of the chemical process by which starch is transformed into sugar, and is the first step toward fermentation or decay; therefore, whatever promotes fermentation will hasten the ripening; whatever retards fermentation will tend to its preservation."

Late fruits may remain on the trees until severe frosts are feared, but should be gathered with great care. Summer Pears should be picked some days before the ripening process commences. A summer Pear ripened upon the tree is generally inferior. In respect to the latter, Mr. Patrick Barry has so aptly expressed my own opinion that I use his language:—"The process of ripening on the tree, which is the natural one, seems to act upon the fruit for the benefit of the seed, as it tends to the formation of woody fibre and farina. When the fruit is removed from the tree at the commencement of ripening, and placed in a still atmosphere, the natural process seems to be counteracted, and sugar and juice are elaborated instead of fibre and farina." Thus, Pears which become mealy, and rot at the core, if left on the tree to ripen, are juicy, melting, and delicious when ripened in the house.

With the increase of fruits their preservation in the most perfect condition has become a matter of great importance; various methods have been adopted, both in this and other countries, for this purpose, many of which have been failures. Nearly half a century ago the first houses of which I have any knowledge were built for the preservation of fruits by the retardation of their ripening. Most of these have been controlled by ice; others by the use of chemicals and apparatus with revolving fans to diffuse the cool air through the various rooms.

About twenty years ago several patents were secured for the preservation and long keeping of fruits and other commodities by Messrs. Shaler, Nyce and Smith. Professor Nyce, of Ohio, had one of his houses built in Boston, to be controlled by ice, and many constructed upon his plan are still in use in our large cities and large towns for the preservation of meats as well as fruits.

Mr. Hellings, of Pennsylvania, also, in 1868, informs us of the method he pursued in building a house for the preservation of fruit, which proved very successful. This was regulated by ice; he used no chemicals or machinery—the temperature of which house he was enabled to keep at from 34° to 36°—the atmosphere so cool and dry that no moisture was deposited on the walls, and there was no dripping from the ceiling. The most constant care was also given to ventilation, and the light was entirely excluded to prevent ripening and shrivelling. With these arrangements so perfect no gases or mixture of gases with atmospheric air were ever generated. Its fruit, when brought out in its freshness, retained its primitive appearance for a longer time than that we usually have from modern storehouses, and in these houses he kept Apples two or three years in perfect condition. His houses are still in successful operation at Bristol, Pa.

But the most common method for small establishments and private use is the construction of houses with walls of non-conducting materials and with well drained and thoroughly cemented cellars. Such was the one built by M. Victor Paquet, of Paris, about forty years ago—without the use of ice or chemicals—an account of which was given in the illustrated *Transactions* of this society in 1847. The house was built with outer and inner walls, with a space of 3 feet between; in fact, a house within a house, and so arranged that he could control the temperature at will, and which he kept at a little below 40° Fahrenheit. Our climate differs so much from that of Paris that we cannot follow all of M. Paquet's plans. Suffice it to say that by this process, without the use of ice, he kept his fruits in perfect condition until June.

On this plan fruit-houses may be constructed at a very moderate expense, in which fruits may be kept in all their beauty, freshness and flavour through the entire season. The Anjou Pear has been exhibited in our society as late as the month of May, by the late Gardiner Brewer, from his retarding-house.

Mr. Charles F. Curtis, one of the fruit merchants of this city, informs me that there is no perceptible difference between a cold storage-house controlled by chemicals and one where ice is used. Each has its advocate.

One great secret of success begins in the state in which the fruit goes to the cooler. It should be before any sound specimen begins to show ripeness, and no single fruit should be stored that has fallen to the ground; for, however perfect it may seem, sooner or later that dropped fruit will tell its own story, and often cause the decay of the whole package when not noticed in time, which rarely happens when hundreds of bushels are piled one above another for a month or two. The fruits intended for cold storage houses should go directly from the orchard.

The cause of so many failures in storing Pears, for instance, is that the fruit is often bought of different parties, much of it so imperfectly packed that it is never fit to go to the cooler—perhaps it has been gathered weeks previous, or carried long distances, and become more or less bruised, and rendered every way unfit for keeping in this way. The past fall hundreds of bushels of Bartlett's (Williams' Bon Chrétien) Pears that were nearly ripe were stored by small fruit vendors who knew nothing about the subject.

The fruit-house of Ellwanger & Barry, at Rochester, N.Y., is a building where walls and floor are lined with straw and boards, with cellars underneath for storing fruit. When the mercury goes 10° or 12° below zero, a few, 3' or 4', of frost gets in, but the boxes and barrels are all covered with straw mats and are never reached by the frost.

When the late fall and winter Pears are gathered, they are put in bushel or half-bushel boxes and placed on the north side of a building outside of the fruit house and protected. They are kept there as long as the weather will permit—by that time the room has got thoroughly cooled and ready to receive the fruit. They have both Pears and Apples there now in perfection.

In the report of the Michigan Horticultural Society for 1882 is an account, by Mr. S. W. Door, of a fruit-house constructed by him, on the cold air system, without the use of ice. He lays down the principle, that in order to keep fruit for any great length of time, the storeroom must be frost-proof and kept at a low, even temperature—3° or 4° above freezing, with sufficient ventilation to carry off all moisture and impurities. He was able to keep his house within 3° of freezing for five months, and when the temperature outside changed 60° in twenty-four hours, the change in the fruit room was imperceptible. Again, when the thermometer fell to from 6° to 20° below zero, for five days in succession, the temperature scarcely changed 1° in the fruit-house. This result was effected by building a house with triple walls, 15 inches in thickness, to inches of which was filled with sawdust.

The conditions of success may be briefly stated as follows: The perfect control of temperature, light and moisture. All experience shows that these conditions must be complied with or success cannot be attained; hence these apartments must be cool, and constructed so as to exclude at pleasure the external atmosphere, which starts fermentation. After many years of experience, both with and without ice, I have adopted a house built in a cool, shady aspect, with the door on the north, and with a thoroughly drained and cemented cellar, with small, double windows, which may be opened or closed at pleasure. In this way I am enabled to keep my late fall and winter Pears until February or March in good condition. Apples may be kept at a lower temperature than Pears—say 34° to 40°.

In a fruit-room of this kind, Mr. John J. Thomas writes me, that by admitting air on cold nights, and closing the entrances when the air is warm, he has had sound Lawrence Pears in March, and Josephine de Malines in April, and Baldwin Apples in June.

My late fall and winter fruits, intended for long keeping, are allowed to remain on the trees until frost is apprehended. They are then gathered with great care, into bushel boxes, and placed on the north side of my fruit-house in tiers of boxes six or seven feet high, and covered with boards, where they are kept until the ground begins to freeze. They are then removed to the cellar, piled up in the same manner, with thin strips of boards or shingles between the boxes, until wanted for use, when the boxes are looked over and the most mature are from time to time taken out. In this way I keep Pears until March or April in perfect condition.

In regard to the use of ice, I would say that where fruits are kept for some months under its influence at a low temperature they seem to lose much of their flavour; the cellular tissue also seems to have become dry, and to have lost its vitality or power to resume

the ripening process. Experience proves that, for the common varieties of the Pear, about 40° of Fahrenheit is the temperature best suited to hold this process in equilibrium. The proper maturing of fruit thus preserved demands skill and science. Different varieties require different degrees of moisture and heat, according to the firmness of the skin and the texture of the flesh. Thus some varieties of the Pear will ripen at a low temperature and in a comparatively dry atmosphere, while others are improved by a warm and humid air. Some varieties of the Pear ripening with difficulty, and formerly esteemed only second-rate, are now pronounced of excellent quality because the art of maturing them is better understood. Great improvement has been made in the handling, packing, and preservation of fruits, so that they are delivered in perfect condition from distant places, every class of fruit having its suitable style of package. So well is the art of keeping Grapes now understood that we have them in our markets in such fine order as to command from 15 to 20 cents per pound until the month of May.

The Flower Garden.

GENERAL WORK.

THE flower garden may now be said to be at its best for the present season. The rapid shortening of the days and the heavy dew will very speedily show themselves on such subjects as Pelargoniums, Verbenas, Lobelias, Ageratums, &c. Should frosts keep off, carpet-beds will maintain their features for a considerable time. The past dry season has been favourable to the colouring of Alternantheras, but on the whole it has been very disappointing. Frequent picking off of all decayed flowers and leaves as soon as possible will be necessary to maintain a tidy appearance. The mowing-machine, the roller, the edging-shears and broom must be kept in constant employment. In many localities falling leaves add greatly to the labour, and ought to be swept up daily, else they give the place a littery appearance.

PROPAGATION.

The propagation of the various plants used in the flower garden should be pushed forward as rapidly as possible, in order that they may be well established before the autumn rains arrive. Cuttings of Phloxes and Pentstemons may now be put into a cold frame or turf-pit. Pink and Carnation cuttings may still be put in, but the sooner this is done now, the better. The sowing of hardy annuals, to stand the winter for spring flowering, may now be done. These are best sown thinly on rather poor soil in some sheltered but not shaded corner. They can be protected with a few boughs during severe frosts, and transplanted in early spring. Such subjects as Saponaria, Collinsia, Silene, Candytufts, Nemophila, Erysimum, Lupinus, &c., will succeed under this treatment.

BEDS AND BORDERS.

Dahlias and Hollyhocks should have the old blooms picked off immediately the flowers begin to fade. Beds of seedling Hollyhocks should be gone over, and all worthless varieties should be noted to be discarded. See that Dahlias, Hollyhocks, standard Roses, and all tall growers are kept securely fastened to their stakes. Auriculas may have their offsets taken off now if this be not already done. The better sorts may be potted into 60-pots, and wintered in a cold frame; they can be planted out in spring, or grown on in larger pots. The more common varieties may be planted in some shady border. These will require attention with water until they have established themselves, then they can be transferred to the herbaceous border or rockery at any time.

TRANSPLANTATION.

Should showery weather intervene advantage may be taken of it to transplant evergreen trees and shrubs. Such as were prepared as recommended in a previous Calendar will now be in proper condition. They will be furnished with a host of small fibrous roots in the light compost, and will scarcely feel any check from removal. Make the pits 18 inches or 2 feet larger than the ball all round, pick up the bottom a foot or

more to secure sufficient drainage, and should the soil be poor a few barrowloads of prepared compost should be placed in contact with the roots. Newly planted subjects are better without water at the roots. If the soil is sufficiently moist at the time of planting, and the atmosphere at the point of saturation, a good dousing with the syringe or garden engine once or twice a day will be sufficient, as a medium state of moisture at the root is more conducive to root action. *W. M. Baillie, Luton Hoag Gardens.*

PLANTS AND THEIR CULTURE.

INDIAN AZALEAS.

THESE plants should now be looked over, selecting the earliest flowering varieties, and those that are the best set with flower-buds, for early forcing, placing in an unheated pit, giving abundance of air, so as to get them into a state of rest before starting them again.

All plants that were late in blooming and were reported must have constant attention as regards syringing, watering, &c., to stimulate their growth as much as possible; fumigate if thrips should show themselves; turn the plants round at least once a week to get the growth and foliage evenly balanced. Discontinue shading altogether if the young growths are well matured.

THE WARM FERNERY.

The chief work in this will be to keep them well supplied with water at the roots and maintaining a humid atmosphere, for if this be neglected it will tend to give a footing to spider and thrips. Look to the regulating of fronds near the glass or where plants are at all crowded; still make up fresh pots and pans of the green and close varieties of *Selaginella*, such as *S. densa*, *S. denticulata*, *S. Martiana*, &c.; peg down the rhizomes of creeping kinds; and all the young plants of *Gleichenias* that are wanted to make specimens as soon as possible may be shifted on and kept in full growth till late in the autumn. Filmy Ferns that are maturing their fronds may be less shaded, at the same time giving plenty of water at the roots, as well as on all the surroundings. *A. Evans, Lythe Hill, Haslemere.*

FRUITS UNDER GLASS.

YOUNG VINES.

THESE, if planted and subsequently treated as recommended at p. 12 of the present volume, should have made satisfactory progress during the interval, and in order to maintain a rapid and at the same time sturdy growth to the end of the growing season, a genial atmospheric temperature of from 65° to 60° at night, and 5° higher by day with fire-heat, should be aimed at, and from 85° to 80° with sun-heat and a free ventilation, allowing the temperature to rise to 90° at closing time.

WATERING AND VENTILATION.

Give copious supplies of clear water to the roots every eight or ten days, following with a few tubful of liquid manure to the border. Syringe the Vines and house morning and afternoon, and damp the pathways, &c., as may be requisite in bright sunny weather. Ventilate freely between the hours of admitting fresh air in the morning (after that which should be put on late in the evening had been taken off for an hour when damping the Vines, &c., at 6 A.M.), and taking it off in the afternoon, so as to secure a short-jointed and consolidated growth, without which the best results cannot be expected from Vines, or any other kind of fruit tree, whether it be grown under glass or in the open.

PEACHES.

Trees from which the crop is gathered must have plenty of air admitted to them day and night during favourable weather, so as to get the wood well ripened, and they should be well syringed with clear water morning and afternoon during bright sunny weather, so as to clear the leaves of any red-spider present, otherwise the trees will shed their leaves prematurely and before they have performed their

proper functions, thereby being injurious to the next year's crop. Bearing this in mind, give liberal supplies of clear water at the roots, but these need not be given so frequently as when the trees were swelling their crops.

LATE HOUSES.

I find it is a good plan in applying fertilisers in a liquid state to the roots of trees swelling their fruit to change it occasionally from ordinary liquid manure to guano-water. We ourselves use Beeson's manure at the rate of 9 lb. to 36 gallons of water, and sometimes we simply draw back the surface-dressing of short dung, strew a little of the patent manure over the surface, keeping it a few inches from the stems of the trees, and then replace the mulch before giving water at the roots. By this latter method of application I consider the surface roots, which are the chief feeders of the trees, derive more benefit than they do when the nourishment is given in a liquid state. These alternate waterings of liquid manure (the drainage from manure heaps and guano-water as indicated above produce, I think, beneficial effects on the trees, and they consequently bear heavy crops that are very highly coloured. *H. W. Ward, Longford Castle.*

HARDY FRUIT GARDEN.

FIG TREES.

IF the fruit is to ripen satisfactorily, crowding the shoots must be avoided. Where there exists a crop of fruit to repay the trouble the trees should receive a good syringing as soon as the sun shines on them in the morning. It is not advisable to water the roots of outdoor Fig trees much, but on dry borders, with good drainage under them, a good watering may be applied with very beneficial results just when the fruits commence making the final swelling. In this garden the crops are looking well, and the trees promise to yield fine fruit.

EARLY APPLES AND PEARS.

Early varieties of dessert Apples, such as Irish Peach, Red Astrachan, and Early Red Margaret, are best when gathered and eaten direct from the trees as long as that is possible, as they are not adapted for keeping many days in the fruit-room. Devonshire Quarrenden should not be left to get over ripe before it is gathered and placed on the fruit-room shelves, where it will keep sound and good for some time. Williams' Bon Chrétien Pear, in well arranged fruit gardens, will be found growing in several aspects, and by commencing to gather from the earliest a supply for the dessert of this excellent Pear may be assured for a long time by placing a few dozens in the fruit-room every week, and not making the final gathering until the last moment. When picking early culinary Apples a few should be gathered from every part of the trees, in order to allow the remainder of the crop to grow to their full size. In this part of Hampshire Lord Suffield, Cellini, and Stirling Castle are the best croppers, and often crop well when other varieties fail. Cellini is an Apple which requires using from the trees, as it soon decays after being stored in ordinary fruit-rooms.

GENERAL WORK.

To lengthen the supply of Apricots, if the trees are all on one aspect, a few dozens may be exposed to the sun, others kept well shaded by the foliage. Should woodlice attack the fruit—a somewhat common occurrence—the branches bearing the fruit should be pegged out from the wall a little, by the aid of forked sticks. The fruit should be kept in the fruit-room after gathering for several days, in order to allow the base of the fruits to ripen up well before sending them in for dessert. During hot weather the exposed part often becomes over-ripe before the base is ripe enough; for this reason it is best to let them finish in the fruit-room. The fruit of Morello Cherries to be used for bottling purposes should not be allowed to hang too long on the trees. Just as the fruit is changing from the light to the dark colour, and before they have reached the darkest shade of colouring, is the proper time for bottling them, using the earliest fruit first for this purpose, and keeping the late ones hanging as long as possible for tarts. Outdoor Peach and Nectarine trees bearing fruit, now rapidly making their final swelling, should receive a last watering for the season, adding extra mulching if

necessary. Planters of Plum trees for the coming season will do well to choose a tree or two (standards or bush-shaped) of Rivers' Early Prolific. The fruit of this variety on bush-shaped trees here is now ripe (August 9), and it well deserves the name of a prolific variety. *G. H. Richards, Somerley, Ringwood.*

The Kitchen Garden.

SEEDS TO SOW.

Cabbage.—The principal and main sowing should now be made to follow the earlier and smaller one made last month. Plants from this sowing will furnish the supply of Cabbage for next spring and summer use, and the sorts should include not only good early ones, such as Ellman's Early, Wheeler's Imperial, but also good successional varieties, as Enfield Market, Early and Large York, &c., and Red Dutch. Sown broadcast on raised beds 4 feet wide they are easily hooped over and netted. To ensure a good seed-bed the ground, after being forked over and made fine, should be formed into beds with alleys between, and if dry should be well watered before sowing the seed, and afterwards kept moist until they germinate. Too thickly placed and weakly plants should be drawn out and discarded, and the largest and most forward when ready pricked out into beds and prepared for final planting out.

Cauliflower.—Sow Early London, Walcheren, and Veitch's Autumn Giant, from the 20th to the 30th of the month on raised beds in the same manner and under the same conditions as advised for Cabbage. The most forward plants of Early London from these sowings will be available for pricking out into hand-glasses and frames to furnish the first early Cauliflower next spring.

Onions.—The main sowing of Giant Rocca and other varieties sown in autumn to stand through the winter should now be made in drills 15 inches apart. Good rich firm ground that has been well manured for a previous crop will be best. A good top-dressing of soot should be applied to the surface before making it down and drawing the drills.

Lettuces.—Make liberal sowings of the Cabbage varieties broadcast on raised beds to stand the winter. These, if afforded slight protection in very severe weather, will come into use in a young state for salads long before spring-sown ones. The young plants should be thinned sufficiently to clear one another, and to become hardy and robust before winter.

French Beans.—In view of prolonging the supply of these as long as possible throughout the season, when they are most appreciated, namely, whilst venison is in season, seeds should be sown in 7 and 8-inch pots—allowing for five to six plants in a pot, and also for earthing-up, and afterwards stood out-of-doors, to germinate and make their growth and become established, removing them into frames or heated pits, according to the state of the weather, and other conditions.

GENERAL WORK.

Continue to earth-up Celery, removing previously all small decayed leaves, and suckers, and be careful to ascertain that the plants and the soil at the roots are in a thoroughly moist condition before more is added. Earthing-up should be proceeded with at regular intervals, and according to the progress of the plants, and not much soil be added at any one time. The foliage and soil should also be in a dry condition at the time, and the latter prevented from entering the centres of the plants. Lift and store Potatoes as they become fit, and make the last sowings of Turnips on the vacated soil. Thin out advancing crops and keep the ground between them well stirred with the hoe—also between all kinds of Kale, &c., before earthing-up. Make good provision for salads by planting out on warm borders good breadths of Batavian curled Endive, Lettuces, and a liberal sowing of Radishes to pull from during the autumn months. *John Austen, Witley Court.*

THUJA GIGANTEA.—In one of the Canadian courts at the Colonial Exhibition may be seen a portion of the bole of this Arbor-vitæ (often called Thuja Lobbi), and taken from a tree girthing 21 feet, and having a height of 250 feet. The specimen is from British Columbia. Jerry builders who plant this tree in suburban forecourts should take note!

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Aug. 16	First Special Trade Sale of Dutch Bulbs, at Frotheroe & Morris's Rooms.
TUESDAY, Aug. 17	Caine Horticultural Society's Show. (Shropshire Horticultural Society's Summer Show (two days).)
WEDNESDAY, Aug. 18	Sale of Bulbs in great variety, from Holland, at Stevens's Rooms.
THURSDAY, Aug. 19	Basingstoke Horticultural Show. Maidenhead Horticultural Show. Sale of Imported and Established Orchids, at Stevens's Rooms.
FRIDAY, Aug. 20	Special Trade Sale of Dutch Dulba, at Frotheroe & Morris's Rooms. Show of Table Decorations, &c., at the Royal Aquarium, Westminster (two days).
SATURDAY, Aug. 21	Chelsea Floral Society's Show (two days). Sale of Imported Orchids, at Frotheroe & Morris's Rooms. Sale of Imported and Established Orchids, at Stevens's Rooms.

THE verdict of the foreigner is sometimes, and with some truth, looked on as forecasting the judgment of posterity. The inference is not altogether to be depended on, because posterity at least is likely to be absolutely disinterested, while the opinion of the foreigner is likely to be tinged with a friendly bias, or it may be with a spirit of animosity, according to circumstances. Still, under any circumstances, it is well to know what other people think of us, good or evil, so long as we can place reliance alike on their judgment and their honesty. Our Belgian friends may be relied on in both particulars. We have had far too many proofs to doubt them, either in the one or in the other quality, and, therefore we think that some interest may be felt in the judgment of a highly competent and thoroughly honest observer in the case of the late LIVERPOOL EXHIBITION. We all of us know that that effort was not so successful as it ought to have been, and we may, as we believe, with the utmost complacency say, that the fault—if fault there be—does not lie at the door of the horticulturists. They, with singular unanimity, advocated the holding of a provincial show, at Liverpool, and they did their best to make it the success that it was in some particulars, but which it was not in others. That it was not the fault of the exhibitors was obvious to every specialist, but as home specialists may not be thought to be independent witnesses in their own cause, we think it may be without interest to cite the opinion of M. PYNAERT as given in the *Revue de l'Horticulture Belge*. The genial Professor in the Ghent School of Horticulture devotes a long article to the Liverpool show, from which we may extract some remarks which have the more value, as the writer is not only a practical man, familiar by personal experience with the working of the minor shows in Belgium, which are so numerous and so good, but also with those magnificent "quinquennials" which at their stated intervals attract the horticultural public from all corners of Europe. When he describes the Liverpool exhibition as a "*magnifique succès*," we may be sure that we ourselves have some reason to be satisfied with our endeavours, even though circumstances were against us. If, says the writer, relatively few large Palms, Cycads, and Tree Ferns were shown, there was an abundance of Ferns, Crotons such as cannot be seen elsewhere, pot Roses covered with flowers, and a veritable "orgue" of brilliant flowers of Dipladenia, Ixora, Pelargonium, Finks, herbaceous plants, &c. Such Roses, he continues, he had thought it impossible to be procured outside the land of Roses. The Orchids, too, surpassed his expectations, but he returns to the Crotons of Messrs. KER as specimens of irreproachable cultivation and admirably arranged. The Caladiums of Messrs. LAING & CO. divide in his opinion with the Crotons the honours of the show, but he has still a word, too, for a class of plants which we had thought to have declined of late years in our exhibitions—we allude to the specimen stove and greenhouse plants. These, our colleague speaks of particularly as *plantes de culture*, which may be freely translated as speci-

men plants, and he points out that they confer on our summer exhibitions a splendour rivaling the magnificence of the Azaleas at the spring exhibitions in Ghent. Specimen plants of this character have a little gone out of fashion in this country through their sameness. The specimens now exhibited will not quite equal what were shown twenty or even ten years ago, and the reason is not far to seek. The plants of course afford evidence of superior skill and constant watchfulness, but they palled by their monotony, and the formality with which they were trained. They were grand adjuncts to a horticultural exhibition, they were objects of intense interest to the gardener in whose charge they were, and they excited the emulation of other gardeners, but to the proprietor they were of relatively little interest unless he himself were bitten with the exhibition fever. They occupied much room. The ladies of his family could not cut and come again at them. They were ill-suited for the boudoir or the dinner-table—they furnished neither bouquets nor button-holes. The botanist and real plant lover, on his side, after he had become accustomed to the evidence of superior cultural skill, of which they afforded such remarkable illustration, became, like the rest of the world, wearied with their monotony—a monotony such that newspaper reporters could count on the re-appearance of the "elephants" at show after show, not only in successive years, but at successive shows in the same year, so that the possibility of writing a fairly accurate report of a particular show without having gone near it was by no means a hypothetical vision. But if this were the case, what shall we say of the existing dearth of new plants? Our colleague has noted the fact which has been obvious to us for some time past. If we except new varieties of Orchids, differing from the old in a spot or two more or less, in a depth or a dilution of colour, and to which there seems no end, we have had very little else to record in the form of new plants for the last year or two. How few have been exhibited at the fortnightly meetings of the Royal Horticultural Society, how few have fallen to our lot to describe and figure. There is, says our Belgian colleague, at this moment an "inexplicable dearth of new plants. What does this mean? Are connoisseurs more particular (*difficiles*), or are the exhibitors of novelties more conscientious?"

Lastly, we may be excused for quoting the remark that the horticultural Press of this country is a great power. If, says M. PYNAERT, this country may boast of possessing without any special school, with no State aid, numerous gardeners well informed in all branches of horticulture, it is to its horticultural Press that these results are due—a Press conducted by eminent men of science, to whom week by week intelligent practitioners lend their aid, contribute the results of their observations, and the record of their failures, as well as of their successes. This is a compliment to the English gardening Press which they may accept for its obvious sincerity, and from the consciousness that, successfully or otherwise, the horticultural Press, while not unmindful of its own interests, sees that those interests are best secured by constant endeavours to promote the welfare and stimulate the progress of horticulture.

—MR. EDMUND BAKER.—Those of our readers (and they must be many) who have profited by the learning and good nature of the father will rejoice at the success of the only son of Mr. J. G. BAKER, F.R.S., of the Kew Herbarium. Mr. EDMUND BAKER has been highly successful at the recent examinations of the Pharmaceutical Society of Great Britain, having gained a Certificate of Honour for Chemistry, the Silver Medal for Botany and Materia Medica, the Bronze Medal for Practical Chemistry, the PEREIRA Silver Medal, and the HILL's books

prize, and the PETER SQUIRE books prize for Practical Botany. The PEREIRA Medal and the prizes of books are open to all comers. This event must be very gratifying to the botanists at Kew, following as it does so quickly after the great college successes of Mr. FRANK OLIVER, the only son of Professor OLIVER.

—MAPS AT THE COLONIAL EXHIBITION.—The information to be derived from this exhibition seems endless. No such opportunity for studying the geography and products of our various colonies has ever been afforded. The ordinary visitor has too much to attract his attention to be able to look at maps, but we may recommend those who are something more than sightseers to look at the grand maps of South Africa, New Zealand, &c. They give juster ideas of the size and physical features of a country than any other means. Mr. BOLUS's monthly rainfall maps for the various provinces of South Africa are most instructive and should be very serviceable to growers of Cape plants.

—DOUBLE FLOWERS.—It would seem as if the autumn season had some influence in the production of double flowers; in any case, setting aside Begonias, Fuchsias, and Pelargoniums, which are produced under glass, there were to be seen, as forming special features, at South Kensington on Tuesday last, double Zinnias, Petunias, Balsams, Hollyhocks, Asters, Finks, Dahlias, and Roses.

—GRAND NATIONAL DAHLIA SHOW.—The Hon. Secretary, Mr. T. MOORE, writes as follows:—"Will you kindly allow me to remind growers and exhibitors of the Dahlia that the show will this year take place on September 3 and 4, at the usual place, the Crystal Palace, Sydenham, and that the TURNER Memorial Prize (Silver Cup, value £10, for twelve show and six fancy Dahlias) is open to further competition on this occasion. Entries for the show should be sent to Mr. MOORE (Botanic Garden, Chelsea, S.W.) on or before August 27. Schedules may be had on application, and donations to the Prize Fund will be welcomed. The schedule of the Dahlia Show comprises eighteen classes, and the attractions of the show will be enhanced by a display of Gladioli, Asters, Hollyhocks, and other flowers not in bloom at the date of the previous horticultural exhibitions. The fruit show to be held in conjunction with that of the Dahlias should likewise be a good one, the prizes offered being numerous and attractive."

—NOMENCLATURE.—The nomenclature question has wide ramifications. Seedsmen complain that varieties sent out by them under one name are sent out by other seedsmen as novelties under another name, or perhaps with a qualification, such as So-and-So's Improved Poppin, or what-not. Messrs. HURST & SON send us a complaint that others in the trade are sending out under the name of Duke of Albany a Pea, of which they send samples, certainly inferior to the true Duke of Albany, and which we cannot recognise for certain, but which appears to be Duke of Connaught; in any case it is not what it is said to be, and it is decidedly inferior to it. The Vegetable Committee of the Royal Horticultural Society might report on such cases, and it is certainly their duty to withhold certificates till the exhibit is, so far as practicable, correctly named. Grumblers should also remember that the trials at Chiswick are constituted for the very purpose of settling the synonymy.

—COVENT GARDEN MARKET.—There is now, as is to be expected, a large supply of English fruit for sale, but at the same time the foreign produce finds a ready sale. Plums, &c., are of both kinds, but Strawberries, Raspberries, and other bush fruit are doubtless home-grown. Immense quantities of Gooseberries arrive, but do not sell well. Some fine English Pines may be obtained, but the foreign-grown fruit is almost if not quite as good, as the time taken on the voyage to England is greatly diminished now-a-days. English Apples are just commencing their season, but the Pears (Williams) offered for sale are foreign. Grapes (Hamburg and Muscats) are plentiful, and here again the supply is both home and foreign; the quality and size of the berries are very fine. Other hothouse fruits comprise Figs, Melons, Peaches, Nectarines, &c.; a few Nuts may also be

seen. Vegetables are now about as good as they will be. Salads of all sorts, Radishes, Cauliflowers, Beans, Artichokes, Tomatoes, Onions (Spanish and spring), Cucumbers, and a few others being very plentiful. Peas, of which the last are almost over, are very few, but of good quality. The plants in pots comprise many different kinds, a great selection being offered: Carnations, Ferns, Balsams, Lilliums, Begonias, Palms, Pelargoniums, Fuchsias, &c., being the most plentiful. Of cut flowers there is an almost endless variety, and we can only say that Composites and Centaureas are plentiful in many forms, Asters, Roses, Pelargoniums, Mignonette, Myosotis, Lilliums, Stocks, may be cited as the most plentiful. There are many hot-house flowers also. The end of summer is announced by the appearance of the Lavender and the berried branches of the Mountain Ash or Rowan tree.

— TWO NEW SPECIES OF RHODODENDRON.—Rhododendron Smirnowii is a tall shrub with branches, leaf-stalk, flower stalk, and the underside of the leaf covered with soft white wool-like hairs. The flowers, which are small, of a carmine-purple colour, are disposed in terminal umbels. R. Ungeri resembles the above in general characteristics, has smallish white flowers which are on the inside and outside of the throat covered with down. Both of these species were discovered in the district of Batoum by Baron UNGERN-STERNBERG, who found them growing under the protection of trees of *Picea orientalis*. Figured in *Garten Flora*, July 1.

— BEGONIA HOEGEA.—A beautiful climbing species, attaching itself by means of air roots to the walls of the stove. The flowers are white, and the leaves dark green, to cm. long. It is allied to *B. nitida* but differs from that species in the divided triangular raceme, much smaller flowers and almost oval leaves. Collected by H. HOEGE in the neighbourhood of Jalapa, Mexico. *Garten Flora*.

— A PLEASANT RECOGNITION.—MR. JOHN MARTIN, who has lately been employed in laying out and improving the estate of W. WEST, Esq., of Barcot, near Faringdon, and who has succeeded in converting the estate from its previous barren state to one of a fertile and attractive character, has been presented with a valuable gold watch by his employer, as a mark of his appreciation of Mr. MARTIN's services.

— ROYAL BOTANIC SOCIETY OF LONDON.—The annual meeting of the Fellows of this Society was held on Tuesday last, at the house of the Society, Inner Circle, Regent's Park. Mr. J. P. GASSIOT, Vice-President, occupied the chair. The forty-seventh annual report of the Council stated that although the number of new subscribers was small, the Council believed this to be but a temporary lull. The total receipts of the year had been £6038 18s., as against £6487 17s. 10d. in the previous year. The Council were cautious now in expenditure, and in some cases had been able to reduce the working expenses. A new hardy fernery had, however, been constructed, and a new vane tower had been erected, the latter being intended for the new sunshine recording instruments. Special reference was made to the facilities that had been afforded to the Indian and Colonial visitors to this country, which had been gratefully acknowledged, and it was further pointed out that another example of the Society's usefulness was the large number of students who year by year applied for admission to the gardens for study of various kinds, as well as for specimens to assist them in their studies. The number of artists and students on the books was 729, and of cut specimens supplied, 24,547. Various propositions were submitted by different members, but all of them fell through for want of supporters. A vote of thanks was passed to the Duke of Teck for his services as President.

— SECRETING GLANDS ON CHYSIS AUREA.—In addition to that mentioned at p. 84 of the present volume, and that figured and described in vol. xiv., p. 20, fig. 6, of this work, a similar instance in the case of *Chysis aurea* may be mentioned. Just when the flowers are on the point of opening or fully expanded, the sepals are seen to be dewed all over with little drops of moisture, secreted by glands, apparently irregularly scattered over their backs. The species of *Chysis* have fleshy flowers, and waste products may not infrequently be exuded by them during the many chemical changes that take place while the flowers are

being matured for fertilisation. A specimen flowers annually in the Orchid-house at Kew, and not only does it show the glands but it is habitually self-fertilised. Whether this is an individual character, or more or less conspicuously developed in different individuals or common to the species, would require an examination of specimens from as widely different localities as possible. But the specimen at Kew does not always behave alike in successive years. Occasionally the flowers last in beauty for some considerable time, while in other seasons they scarcely expand before the effects of fertilisation exhibit themselves by the shrivelling and drying up of the flowers. A great quantity of viscid matter is developed from the rostellum, by means of which the pollen tubes develop *in situ*, and pass down through the viscid matter to the stigmatic disc, when the column begins to swell and the flowers to fade. The species was figured in the *Botanical Register*, t. 1937.

— NATIONAL CHRYSANTHEMUM SOCIETY.—This important body has forwarded to us its *Catalogue of Chrysanthemums*, duly corrected down to date, thereby rendering great assistance to those who desire to enter the ranks of the Chrysanthemum growers. The synonyms given are very useful to beginners.

— A SUCCESSFUL FLOWER SHOW.—As an instance of a truly successful flower show in the provinces, we may point to that recently held in the Abbey Park, Leicester, on the 2d inst., when the show was visited by nearly 40,000 people—the takings amounting to £640. After paying all expenses a balance on the right side of £450 remained. Let us hope that this successful initial venture—with its handsome balance—may be the means of resuscitating the at present extinct Leicestershire.

— SCOTTISH ARBOREICULTURAL SOCIETY.—The members of this Society commenced their excursion on Wednesday, the 4th of August, under most favourable circumstances. It had been arranged that the visit this year should be to the woodlands of the Island of Bute, and to the policies of Inverary, permission having been obtained from the Marquis of BUTE and the Duke of ARGYLE. Next week we will give our readers an account of the excursion to the various places.

— PRESENTATION TO MR. INGRAM.—On Thursday, August 5, a presentation of plate and a cheque for £90 was made to Mr. W. INGRAM of Belvoir, "in appreciation of the manner in which he originated and developed the spring gardens at Belvoir." If this were the only ground for recognition we do not know that the matter would be of public interest, but as many of our readers know, and as we have had many years experience, Mr. INGRAM's merits have a much wider scope, and we rejoice that they have found such pleasing recognition. We shall give in our next issue a fuller account of the ceremony of presentation than circumstances now allow us to do.

— EXTRAORDINARY FORECAST OF THE RESULT OF THE GENERAL ELECTION.—On the day of the Manchester and Salford elections—July 2nd—Mr. BRUCE FINDLAY of the Botanical Gardens, Old Trafford, writing to Mr. BENJAMIN ARMITAGE, of Sorrel Bank, Pendleton, said:—"There will be six Conservatives returned to-day for Manchester and Salford. Final result: 390 Conservatives and Unionists, and 280 Gladstonians." This was the exact result according to an analysis published on July 24th.

— SUPPLY OF BULBS TO LONDON PARKS.—The Metropolitan Board of Works have accepted the tender of Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, London, N., for supplying Hyacinths, Tulips, Crocus, Daffodils, &c., for Finsbury Park, Southwark Park, Leicester Square, Victoria Embankment and Chelsea Embankment.

— GARDENING APPOINTMENTS.—MR. JAMES McCULLUM has been appointed Gardener to Lady HARRIET WARDE, Knotley Hall, Leigh, Tunbridge, Kent.—MR. J. BAILEY, late Foreman at the Gardens, Shoreham Place, Kent, has been appointed Gardener to Sir E. DORINGTON, Bart., M.P., Lypiatt Park, Stroud, Gloucestershire.

THE NOMENCLATURE OF ORCHIDS.

THE difficulty in the nomenclature of Orchids, especially that raised at South Kensington in connection with the naming of varieties by amateurs and private growers, is only one phase of the question, which is daily becoming a matter of serious apprehension. Owing to the vastness of the order and the almost endless series of closely allied species occurring in some of the genera, botanists of all ages have experienced great difficulty in defining them. Not only is this the case with specific distinctions, but even with closely allied genera, such as *Oncidium*, *Odontoglossum*, and *Miltonia*. This may easily be inferred by reference to Lindley's works, where, although he is known as the greatest exponent of the order, his writings teem with difficulties and the confessions, not only of other botanists' mistakes, but of his own. In the *Sertum Orchidaceum*, under plate xxv., he makes an attempt to define *Oncidium*, *Cyrtocidium*, *Miltonia*, and *Odontoglossum*, but after the examination of a great many other species, he was under the necessity of dropping out *Cyrtocidium* as a genus altogether, and merely regarding it as an artificial section of *Oncidium*. The species originally described under *Cyrtocidium* by Humboldt, Bonpland, and Kunth were distinct in themselves, but are connected with other species by numerous insensible gradations. The genus is now scattered all through the other three genera above mentioned, and even in *Cyrtocidium maculatum* var. *parviflorum*, Lindley discovered characters breaking down *Cyrtocidium* as a section. The *Genera Plantarum* does not adopt the above as a section, but includes the above species in section *Planifolia* of *Oncidium*. *Miltonia*, now pretty clearly defined in the *Genera Plantarum*, includes several species most commonly grown in gardens under the name of *Odontoglossum*, showing that when plants once get distributed under certain names it seems an insurmountable task to endeavour to correct the mistakes, or induce horticulturists to adopt the correct name, which to them seems merely an alternative or a new one. *M. vexillaria* is one of the most popular, commonest, useful, and most beautiful of the genus, but will probably retain a place in gardens for years to come under the name of *Odontoglossum*. The same objection applies to *M. Roezlii*, *M. Phalaenopsis*, *M. Endresii*, and *M. Warscewiczii*, some of which have been variously named, but generally *Odontoglossum*. The last-named species is cultivated under the names of *Oncidium Weltoni*, *O. fuscum*, and *Odontoglossum Weltoni*. *M. Endresii* is figured in the *Botanical Magazine*, t. 6163, under the name of *Odontoglossum Warscewiczii*, but being a true *Miltonia*, and the later specific name already employed, it has been found convenient in the *Illustrated Dictionary of Gardening* to name it after Endris, who first introduced live plants of it to this country. Another species may here be mentioned, namely, *M. flavescens*. It is figured in the *Botanical Register*, t. 1627, as *Cyrtocidium flavescens*, and is a connecting link between *Miltonia* and *Oncidium*. The whole form a sufficiently natural group, and Bentham must have been misinformed when he states (p. 563) in the *Genera Plantarum* that *M. vexillaria* and its allies do not hybridise with the other species of *Miltonia*.

Under *Mesosopidium* a number of species have been grouped, of very different characters and construction, and which nevertheless maintain their erroneous appellations in many collections. The typical and originally described species is now considered as a species of *Odontoglossum*, while all the others more recently grouped under the genus have been referred to various others. One of these is the popular and well-known *Ada aurantiaca*, while equally well known are *Cochlidium rosea*, *C. sanguinea*, and *C. vulcanica*. *C. rosea* was described under *Odontoglossum* by Lindley; but the structure of the flowers bears a close resemblance to that of *Epidendrum*, especially those of *C. rosea* and *C. vulcanica*, while the pollinia at once refer them to the great tribe *Vandae*.

Arachnantea Cathcartii still continues to be grown in gardens under the name of *Vanda*, although in structure it is distinctly different from the latter genus. The same statement applies to *A. Lowii* (the old *Vanda Lowii*), with its long slender racemes of large curiously dimorphic flowers, and which serve as a

connecting link between the broad-petalled *A. Cathartii* and the rest of the genus. The above-mentioned are but a few of the many rectifications needed in the great family of Orchids, for some of the genera, such as *Aëides* and *Odontoglossum*, are still very badly defaced. *J. F.*

FRUIT NOTES.

MORELLO CHERRIES: BORDERS TURFED OVER v. CULTIVATED BORDERS.

HAVING had considerable experience with both the above modes of cultivation, I should like to say a few words on this subject. We have a large quantity of trees on north walls in these gardens, the borders of which are turfed over, others with cultivated borders, for other purposes, but from those trees with the borders turfed over we gather the finest fruit; these trees are in the best of health, and do not have any branches die off, as is so often seen on those growing in cultivated borders. In my opinion this is certainly by far the best way to grow these Cherries as they withstand a dry season better, and also yield a larger quantity of much finer fruit, than those in cultivated borders, even with heavy mulchings of manure. And to those who have not already tried this system, I can highly recommend it after some years' experience of both systems.

PEACH ALEXANDER.

I gathered fruit from this variety on July 31, from a tree on the open wall, at the same time we were gathering Hale's Early from an unheated Peach-house. I am quite convinced that Alexander is much earlier than Hale's Early, and intend having the tree removed to the early Peach-house this autumn; the fruit is of good size, richly coloured, and of excellent flavour. *Edward Ward, Hewell Gardens, Bromley Grove.*

PEAR DELICES D'HIVER.

Fruit large, elongate pyriform, with a short stalk set obliquely; i.e. shallow; skin russet; flesh moderately fine, juicy, acid. Season, December to January. *Bulletin d'Arboriculture.*

WATERLOO PEACH.

Last week (August 3) I saw at Slough, in a garden belonging to the Royal Nurseries there, a young tree of this Peach covered with largish, very high and brightly coloured fruit. Mr. Arthur Turner informed me that he had been taking Peaches from this tree for a fortnight, and also that in a friend's garden the first fruit of the same variety had been gathered more than three weeks previously. The flavour, as in that of all very early Peaches, was not first-class, but was quite equal to Hale's Early in this respect. There was no coping on the wall, therefore Waterloo, if it will succeed elsewhere as it does at Slough, may be written down as an invaluable early outdoor Peach. *Il Vagabondo.*

ALPINE PLANTS IN SEASON.

GERANIUM ARGENTEUM.—Comparatively few gardens can boast of this choice species, although it has been a constant or intermittent inhabitant of British gardens since 1699, when it was introduced from South Europe. The protection of a cold frame was considered necessary for its welfare, but a plant on the rockery at Kew has stood out for several years unprotected, bravely holding its own like a true alpine, and although increase is very slow, the plant continues to throw up fresh flowers great part of the summer. The twin-flowered peduncles just rise above the foliage, bearing large pale rose or pink flowers, beautifully striated with darker veins. Not only is this species distinct and choice in its flowers and dwarf habit, but the silvery five to seven parted leaves furnish a delicate background to the still more delicate and attractive flowers. For rockwork it is even dwarfer and more compact than *G. sanguineum* var. *prostratum*, and if not rarer in a wild state is so in this country. Like most of the Geraniums, it delights in an open exposure in a situation that is well drained and rather dry than otherwise. Under these conditions it ripens perfectly, which is a great assistance in helping it to withstand our extremely changeable winter. There is a figure of the species in the *Botanical Magazine*, 504, and another in Sweet's *Geraniaceae*, 59.

DRYAS OCTOPETALA.

Of the two or three species recognised by science, not the least ornamental or useful is that of our native plant. It is essentially alpine in habit and distribution, ascending to an elevation of 2700 feet in some of the more mountainous districts of this island. On rockwork, of course, it is extremely hardy, and will thrive in the most exposed places, creeping over stones and rocky ledges, which it decorates in the most happy manner. In the neighbourhood of London, where the rainfall is light and the atmosphere dry, a good depth of soil is necessary in order that the roots may penetrate deeply and establish themselves beyond the reach of drought. For the same reason a peaty soil is often used as affording a cool medium into which the roots readily descend, after which the prostrate, much branched leafy stems will closely carpet the ground. Under such conditions no shade is necessary even in the climate of London, but the plants will display a healthy appearance and flower freely, extending over a considerable period, about this time. The coarsely-toothed Oak-like leaves are evergreen, and from their fancied resemblance to those of the latter tree suggested the generic name *Dryas*, meaning an Oak. The comparatively large white flowers are carried above the foliage on short peduncles, and when the petals have dropped the feathery styles elongate, and, becoming conspicuous, prolong the beauty of the plant for a considerable period. It is figured in *English Botany*, 451.

LINARIA ALPINA.

Singularly enough this alpine gem was introduced more than 300 years ago, yet the number of gardens into which it has found its way is as nothing compared with the number of years since first introduced from Austria. It enjoys a pretty extensive distribution on the Alps of Central and South Europe, and ought therefore to be harder than it is generally considered to be. The protection of a cold frame was formerly considered essential to preserve it in winter, but, in the neighbourhood of London at all events, this is not requisite, save in exceptionally severe winters. Like many other species of *Linaria* and *Antirrhinum*, it delights to insert its roots in the crevices of rocks and old walls, when it, conjointly with its congeners and near allies, is able to exist comfortably; whereas the same plants in rich moist soil would in most cases be killed in a severe winter. A full exposure to the sun, or at least to light, is a large item in its requirements, and it would soon appear unhappy if coddled in any way, especially in an imperfectly lighted place. The plant is perennial, and easily propagated by cuttings in sandy soil under a handlight. The slender procumbent stems bear the flowers in short numerous flowered racemes towards their apex, and are well furnished with linear leaves, four in a whorl, of a deep glaucous colour, characteristic of several other species, such as *L. tristis* and *L. purpurea*. The flowers are violet-purple, with a deep orange palate, and, though moderately small, are extremely pretty or fascinating. There are figures of the species in the *Botanical Magazine*, 205, and in *Flore des Serres*, 2128.

CYANANTHUS LOBATUS.

It is probable that this curious and uncommonly pretty little Campanulad has several times been lost and again raised from seeds since its first introduction in 1845. With most cultivators it proves somewhat difficult to manage, but to those who have made a tolerable acquaintance with it the difficulties dwarf into insignificance. Plants have been grown both on the old and new rockeries at Kew, but those succeed best planted in a cool, moist peaty bed, with an eastern aspect and full exposure to light. They thus receive the benefit of the morning sun, but are screened from direct sunlight for the rest of the day by some Pine trees, sufficiently distant not to affect the bed with their roots. By such treatment healthy plants are developed that commence flowering in the latter end of July or the beginning of August, and keep up a succession for several weeks. The flowers are produced singly at the ends of ascending leafy stems, and are of a beautiful light blue, with a wide spreading or reflexed lamina curiously bearded around the orifice with hairs of the same colour or paler. Of the six known species this is probably the finest and the best known, and ought to be harder than cultivators seem to reckon it, seeing that it inhabits the Himalayas at elevations ranging from 12,000—14,000 feet. The plant is liable to variation, if we are to judge from figures, or it may be

badly executed, but there is a tolerably good representation in the *Botanical Magazine*, t. 645.

GENTIANA SEPTEMFIDA.

The original and typical form of this species, figured in the *Botanical Magazine*, 1229, has ovate three nerved leaves, and does not seem to be so frequently cultivated now as a broader leaved form, with ovate-cordate five-nerved leaves. This latter form is figured in the *Botanical Magazine*, 1410, and more recently at 6497. By some mistake the latter had come to be known in gardens and disseminated under the name of *G. gelida*, a Siberian plant, with large yellow flowers, and possibly lost to cultivation. *G. gelida* is also recorded as coming from the Caucasus, while *G. septemfida* also comes from the latter place—the Crimea and the Persian Alps in the neighbourhood of the Caspian Sea. Of the dwarf blue-flowering species it is one of the prettiest, and at the same time most easily and successfully cultivated. The stems are ascending, bearing a cluster of deep blue flowers, finely spotted in the throat, and under ordinary circumstances do not exceed 6 or 8 inches in length. The flowers are also comparatively large for the size of the plant, with the corolla usually five-cleft at the mouth, and having five short, lacerated, intermediate segments. Pallas, who first named the species, must have described it from very exceptional specimens, as another acute botanist says that not one in a thousand has a seven-cleft corolla, as the specific name would lead us to suppose. Like most other Gentians this species is partial to a moist soil, and provided that is secured, it is a long-lived perennial, flowering annually without any trouble. If planted on rockwork, with an eastern aspect, and screened from the mid-day and afternoon sun, it will thrive very satisfactorily. *J. F.*

STANCLIFFE.

[SEE SUPPLEMENTARY SHEET.]

In our number for December 27, 1884, we gave a double page illustration of the remarkable garden carved out of the hillside at Stancliffe, near Matlock. Nothing can exceed the boldness and beauty of the rock scenery here, and the utmost has been done to accentuate the fine scenery by judicious planting.

Sir Joseph Whitworth, to whom this unique estate belongs, has spared neither pains nor expense to clothe the barren sandstone rock, and to bring out in the most effective manner the contrast between the boldness and majesty of the rocks and the richness and variety of foliage and flowers. What Mr. Dawson has succeeded in effecting under Sir Joseph's directions is amply detailed in the number already indicated, but we gladly avail ourselves of another opportunity of illustrating this fine garden as remarkable for the variety and vigorous health of the trees and shrubs in general as for the rock scenery and excellent keeping.

We are indebted to the kindness of Mr. Dawson for the following more detailed account of the various plants wherewith the rock garden is planted:—

This makes a charming scene, it being the point of resistance of a very fine crescent, at the foot of which, in its hollow, is a small piece of ornamental water, which washes the base of the rocks (shown in the illustration) which rise out of it. On one of the overhanging cliffs, and springing out of a carpeting of *Cotoneaster microphylla*, which grows here in great abundance, is a well grown specimen of *Picea lasiocarpa* about 15 feet high. Behind it are two *Cedrus Deodora*, whose drooping habit of growth contrasts favourably with the more formal looking *Picea*. Still higher on the slope are several good specimens of *Wellingtonia gigantea*, which do well here so long as they have sufficient shelter from the rough winds with which the district is often visited. This portion is known as the Wellington bank. Amongst the latter there are several fine plants of *Cedrus atlantica*, *Pinus Cembra*, and *Pinus austriaca*, which are readily distinguishable in the illustration from the various other forms with which this bank is covered. Conspicuous amongst these are dwarf growing Heaths in variety, *Rhododendrons hirsutum*, *ferrugineum*, and *Wilsoni*, and *Gaultheria Shallon*, which are planted in masses; the rocks forming its base are chiefly occupied by *Cotoneaster microphylla* and different varieties of *Berberis*, with here and there a mass of Sweet Williams, now at this season

at their best. Half-way up this bank, along a ledge of varying width, but concealed by the shrubs as seen from below, is a walk 9 feet wide, with a narrow verge of turf, which widens here and there into small bays as space permits. This is called the Cavern Walk, because it gives the means of access to a cavern in the rocks of considerable dimensions, which is composed of huge blocks of sandstone, and bears traces of a great upheaval in some long-past age. Passing along this walk a fine collection of Hollies is seen occupying the ascending banks. On the lower side of the slope, between the level of the walk and the rocks, which rise out of the water before mentioned, are several groups of Cupressus Lawsoniana and other pyramidal trees, each of which is a specimen in itself.

SCOTCH NOTES.

ORCHIDS, &c., AT NUNFIELD, DUMFRIES.

MR. HENRY WALTER SCOTT exhibits at his fine place, Nunfield, near Dumfries, the same keen and intelligent interest in horticulture that his brother, Mr. George Scott, does at Wood Bank. In a number of well constructed houses there is a fine collection of miscellaneous stove and greenhouse plants, and a comprehensive selection of choice Orchids, all in the finest condition as regards culture. Among the Orchids in bloom we noted grand samples of the following:—*Oncidium intertextum*, with five enormous panicles carrying over 300 blooms; *O. macranthum*, a remarkable boldly marked variety; *O. Jonesianum*, flowering very freely in several distinct varieties; these were growing on bare blocks suspended near the glass, and had made fine growth; *Odonoglossum Pescatorei* bearing two strong spikes with over too blooms of medium-size but deep rose-tinted and of great substance; *O. Lindleyanum*, a fine plant in a 9-inch pot, bearing twenty-five spikes—a beautiful variety; *O. Rozeii*, a very healthy plant, covered with large clearly coloured flowers. In Cattleyas in bloom were some fine samples of *C. Gaskelliana*, one variety with unusually large deep purple-rose blooms being very attractive; and a very fine form of *C. Eldorado* flowering freely. A grand plant of the former species, throwing up thirty-one spikes of bloom, will be something of a spectacle in itself shortly. *Dendrobium Falconeri*, a magnificent specimen on a block, was flowering in great profusion; *D. Bensoniæ* is remarkably well done here—Mr. Rowe, the gardener, grows it in pure cocoa-nut fibre; the growths are exceptionally strong, and even now well advanced in ripening. Other Orchids in bloom were beautiful plants of the curious *Masdevallia bella* and *Acrides virens*.

The Orchid baskets here are worthy of special remark. Mr. Rowe is not only a good cultivator, but a tasteful mechanic, as is exemplified in the numerous well adapted and handsome baskets he has in use. Instead of the usual square form commonly seen, they are either circular or octagonal in shape; and the Teak bars of which they are made are placed perpendicularly instead of horizontally: these are kept apart by means of small blocks of Teak at the top and bottom, those at the top being a little thicker than those at the bottom, thus increasing the diameter upwards, very much in the way of a well made tub. All the pieces are bound firmly together by a wire passing through the centre of each piece. The superiority of these in point of form over the heavy looking squares commonly used, is very obvious, especially in the larger sized baskets.

Among the general collection of plants in houses apart from those devoted to Orchids were some splendidly coloured *Crotons* of the best types. There was also a fine group of *Nepenthes*, among which was conspicuous *N. Mastersii* ×, showing enormously large and highly coloured pitchers. *Adiantum Williamsii* is here grown in a cool-house instead of in the stove or intermediate-house, as is often done. The result is most satisfactory. The young fronds show none of that tendency to damp off which has operated against the more general adoption of it in collections that its distinct character, elegance of form, and pleasing tint of colour entitle it to. We have never seen it used in baskets till we saw it here, where it is very successfully done in that style, and very beautiful it is.

THE ROSE DISPLAY AT THE INTERNATIONAL EXHIBITION, EDINBURGH.

THE proposed Rose display that was announced to take place in the Exhibition buildings, Edinburgh, was, from causes that need not be commented upon, a very poor affair as regards the numbers that took part in it. Only two growers came forward with collections, but as regards the quality of the blooms and the rich variety of the most popular and the newer sorts exhibited, nothing was left to be desired. Messrs. T. Smith, nurserymen, Stranraer, N.B., and Hugh Dickson, nurseryman, Belmont, Belfast, had the field to themselves, and each kept up a display daily of from 250 to 350 blooms for about a fortnight, closing on Saturday last. The exhibits of both were throughout of the most creditable description. The Irish Roses maintained the most uniform claims to superiority in regard to size, substance, and richness of colouring throughout the period during which the display lasted, but each exhibit had its own individual merits; for instance, *Merveille de Lyon*, from Stranraer, eclipsed completely those from Belmont; they were, in fact, superb in size, substance, and colour, proving it the most desirable white Rose in cultivation. On the other hand, Teas from Belmont were remarkably well done; splendid samples of *alba rosea*, *Perle des Jardins*, *devoniensis*, *Madame Marie Van Houtte*, *William Allan Richardson*, *Niphetos*, *Souvenir d'Elise*, and others being exhibited daily in perfect condition.

In connection with the above display Messrs. Dickson & Co., Edinburgh, had a continuous exhibit of *Pansies*, *Caranations*, their new white *Pink Mrs. Welsh*, a very clear white variety, with medium sized, neatly-formed flowers, obviously well adapted for cutting and for border decoration; a grand display of *Dianthus Napoleon III.* in splendid size and colour of blooms; a collection of hardy herbaceous cut flowers, among which were fine samples of *Lilium Brownii* (true), and *L. Harrisii*. There were also some very fine blooms, evidently from under glass, of the following Teas:—*Madame Lambert*, *Jean Dacher*, *Madame Camille*, and *Grace Darling*.

Messrs. Dobbie & Son, of Rothesay, sent a good display of excellent *Pansies* and other florist's flowers during a few of the earlier days of the display, but these were the only contributors to what would undoubtedly have been a most attractive feature to thousands of visitors to the Exhibition daily had there been adequate encouragement given to induce a more general response to the invitations sent out by the executive of the Exhibition to growers to take part in the display. X.

LILIUM HUMBOLDTI.

This magnificent species of Lily is now to be seen in splendid condition in the nurseries of Mr. Service, Maxwellton, near Dumfries, at the present time. Old established clumps are sending up stems 7 to 8 feet in height, bearing an average of two dozen blooms each. A hardy plant of such noble character as this ought to be more frequently seen in private gardens than it is. Towering above masses of dwarf shrubs in ornamental grounds, its splendid panicles of light yellow flowers would be most effective and pleasing.

WHAT IS A HYBRID PERPETUAL ROSE?

A VERY eminent logician has told us that definitions are dangerous things, and that, however carefully made, they will not always "go on all fours," and therefore I feel that in attempting to do so with regard to hybrid perpetuals I am treading on difficult and, it may be, dangerous ground; indeed, it may be perhaps asked, "Why attempt such a thing at all? We all know what a hybrid perpetual is." Do we, indeed? Well, I very much doubt it; and there are several good reasons why we should attempt to clear up the matter. The name is a misnomer, the French form, "*hybride remontante*," being a much more correct one, and, I imagine, will give us a better chance of deciding the question with which I have headed this paper.

An attempt has lately been made to confuse our nomenclature of Roses still more by making hybrid Teas a separate class, for it is a class which ought not to have any separate existence, and the National Rose Society has, I think, done well in discountenancing it by deciding that all so-called hybrid

Teas must be shown as hybrid perpetuals. This was but the logical conclusion from their former rule, that they could not be shown amongst Teas or Noisettes. I think a moment's consideration will show that this is a wise decision. If we take some Roses which have always appeared in the catalogues as hybrid perpetuals we shall find, I think, that they would be as much entitled to be called hybrid Teas as those which are specially so designated. Take, for example, *La France*: has not this as much Teas blood in it as *Countess of Pembroke*?—indeed, Mr. Guillot has lately relegated it to the class of hybrid Teas, and the same may be said of *Captain Christy*; and if we are to put into the hybrid Teas class those which have any Teas blood in them, where are we to stop? Are they to be octoroons, quadroons, or creoles? Is the first issue of a hybrid and perpetual to be a hybrid Teas? What is to become of their issue? Or if a Rose has originated, as many of our very best flowers have, by chance fertilisation, who is to decide, or what is to decide whether they belong to hybrid Teas or hybrid perpetuals? Another reason is the very equivocal position that some Roses have occupied; at an exhibition last year that fine Rose, *Lady Mary Fitzwilliam*, was in a stand for twenty-four hybrid perpetuals; the winner of the 2d prize objected to it that it was not a hybrid perpetual; the stand was disqualified, and the matter was referred to the committee of the National Rose Society, but almost at the time that it was so referred the society's medal for the best hybrid perpetual in the exhibition had been awarded at the provincial show of the society to the same Rose. The question was brought before the committee, which comprises some of the best rosarians in the kingdom, and the decision was, no matter what its parentage, it could not be shown as a pure Teas or Noisette, and must therefore be considered a hybrid perpetual.

But what is, then, a hybrid perpetual? Let us hear what the very best authority we have had upon Roses, the late Mr. Thomas Rivers, has said upon the subject. The hybrid China Rose owes its origin to the China Tea-scented Noisette and Bourbon Roses, fertilised with the French Provence and other Roses. As is well known they bloom but once in the season, but he says "some of these hybrids, unlike many plants of the same description, bear seed freely; these fertile varieties have been crossed with different varieties of China and Bourbon Roses. From seed thus produced we have gained a new race of autumnal Roses, bearing abundance of flowers during the whole of the summer and autumn, and are called hybrid perpetuals; their habit is robust and vigorous in a remarkable degree, and above all they are perfectly hardy." How wisely, too, he writes when he says, "Some authorities divide them into groups having affinities and characteristics. These groups only tend to confuse the amateur. It appears to me that we cannot simplify enough the classification of Roses. The division headed 'hybrid perpetual Roses' ought to include all of its origin deserving the name; and those that diverge from the general character may have their character attached to them." So that my contention about hybrid Teas has the imprimatur of this great Rose authority. I desire no better. A hybrid perpetual Rose is a hybrid whose second growth more or less frequently produces flowers, and hence, as these Roses make growth at various times after July, one often obtains autumnal blooms. This definition would exclude Gallier's hybrid Bourbons and some Roses which have been on their first introduction considered hybrid perpetuals but which are really only summer Roses, such as *Miss Ingram* and, I am sorry to say, *Her Majesty*. I fear this latter will be a grievous disappointment to many who have regarded it as a grand addition to our hybrid perpetuals, but its raiser states that he never announced it as such, and that he cannot help what others have done. In looking at his own advertisements, one is bound to say that it is never called a H.P., although it so appears in those of others.

The distinction which I have made in my definition of a hybrid perpetual—that it more or less frequently throws a blooming shoot—will thus save from exclusion from this class some Roses which, if other words were substituted, would have to be relegated to the summer Roses. Take, for instance, *Madame Gabrielle Luizet*, this has by some been denied because, although beautiful in itself, it never gives another bloom; but this is not the case—it does, although but sparingly. In looking through my plants now, I see several shoots on which bloom-buds are living, although

by far the greater number are not. There are other Roses, however, whose claim to the distinction is never doubted, which show a similar character; there are, again, others which are almost certain to produce autumn flowers, and, as might have been expected, those in which there is a large infusion of Tea blood are the most constant in this respect—that fine and sweetly-scented Rose, La France, is amongst these, and the manner in which it throws its clusters of blooms evidences its origin. Captain Chirist is another of similar character; Baronne Maynard, and others which approach to it, such as Boule de Neige, exhibit their affinity to the Noisette, and are always dependable for second blooms; while that grand Rose, A. K. Williams, which some will have to be too perfectly shaped, is one of the most certain of second bloomers; the same may be said of Baroness Rothschild.

There is another thing to be remarked about these Roses—that in some seasons they are more ready to produce autumn flowers than in others. I have known Charles Lefebvre one year to be very free in its second blooming, while another they are very rare; it is not, therefore, wise to deprive oneself of the pleasure of an autumn flower because at some seasons it may disappoint, and especially is this the case with regard to new Roses, although I very much fear our friends across the Channel are sending over some Roses whose hybrid perpetual character is very doubtful. In some the growth is so unmistakable that they are immediately detected, while in the case of others a little patience is required before the matter can be finally settled.

The definition I have given would also include what may be regarded as more purely distinct and separate sections—the Teas, Noisettes, and Bourbons. The former of these deserve more thoroughly than any other the name of perpetual bloomers; they come out before the H. P.s, and they continue on throughout the summer, and until the heavy rains and early frosts of autumn put an end to their vigour. The Bourbons are a very tender class, and with the exception of that grand autumn flowering Rose, Souvenir de la Malmaison, are but little sought after; and this I have often seen both catalogued and exhibited as a Tea! Although it has no affinity with them, it is certainly one of the most constant autumn Roses we have, and whereas in its earlier period of blooming the flowers scarcely ever open properly, they usually do in the autumn. I may add that so convinced are many people of the value of the Tea Rose, that they are grubbing the hybrid perpetuals and planting them instead.

Let me add one word of thanks to "W. J. M." about his notice of Messrs. Dicksons', of Newtownards, new Roses. I hope that we may see something of them on this side of the Channel next year. *Wild Rose.*

A REVISION OF THE GENUS PHALÆNOPSIS.

(Continued from p. 170.)

ENUMERATION OF SPECIES.

Section I. EUPHALÆNOPSIS, Benth. & Hook, f.—Petals much broader than sepals, roundish in outline, the upper edge much more curved than the lower one, and the base much contracted; lip with a pair of antenno-like appendages at the apex; the appendages sometimes reduced to a pair of short teeth; column without a long proboscis-like rostellum.

Eleven forms of this group have received distinctive names, of which ten are confined to the Philippines; the remaining one being found in Java, Borneo, Celebes, and the Moluccas. It is doubtful, however, whether more than six or seven are really distinct, and of these, three or four are by some considered as natural hybrids. P. Lowii has the broad petals of this section (where, indeed, Mr. Bentham places it), but the remarkable proboscis-like rostellum, the absence of the apical lip-appendages, and the deciduous leaves, are all such distinctive characters as to induce me to found an entirely new section for it.

1. *P. amabilis*, Blume, *Bijdr.* p. 294, t. 44; *Rumphia*, iv, t. 104 and 109; Benth., *Pl. Jav.*, t. 8.—*P. grandiflora*, Lindl., in *Gard. Chron.*, 1848, p. 39, fig. 1; *Bot. Mag.*, t. 5184; *Rev. Hort.*, 1850, p. 238, figs. 53, 54.—*Cymbidium amabile*, Roxb., *Fl. Ind.*, iii, p. 457.—*Epidendrum amabile*, L., *Sp. Pl.*, ed. i, p. 593; Sw. in *Nov. Act. Soc. Sc. Upsal.*, vi, p. 67.—*Angraecum album majus*, Rumph. *Herb. Amb.*, vi, p. 99, t. 43.—This is the original *P. amabilis*; but not the plant which now bears that name in gardens. It is also the *P. grandiflora* of Lindley, a much more recent name. It is found in Java, Borneo, and Celebes; also in Amboyna and Buru of the Moluc-

cas Islands; generally at low elevations and not very far from the coast. Fortune obtained it in China (his n. 18 at Kew, and in the British Museum), also Maingay in the Malayan peninsula (his n. 1643), but in both these places there are strong reasons for believing it to be merely cultivated for ornament. It is constantly distinguished from the following species by its long and narrow lip. The longer leaves is also a good distinguishing character. The following varieties have been described:—

Var. *aurea*.—*P. grandiflora* var. *aurea*, Warner, *Select Orch.*, ser. 2, t. 7.—P. Ruckeri, *Proc. Roy. Hort. Soc. iv*, p. 97.—Front half of lateral lobes of lip, with the entire front lobe, including the horns, stained with deep yellow. Native of Borneo.

Var. *fusca*, Rehb. f., in *Bot. Zeit.*, 1852, p. 214.—Lip suffused with a dusky tint. Native of Borneo.

2. *P. Aphrodite*, Rehb. f., in *Otto Hamb. Gartenz.*, 1862, p. 35; *Xen. Orch.*, ii, p. 5.—*P. amabilis*, Lindl. (not Blume), *Bot. Reg.*, 1838, t. 94; *Bot. Mag.*, t. 497; *Maund. Bot.*, iii, t. 133; *Faxi. Mag. of Bot.*, vi, t. 49; *Fl. del Serres*, t. 36; *Gard. Chron.*, 1848, p. 39, fig. 2; *Orch. Alb.*, t. 11.—This is the *P. amabilis* of Lindley, and of gardens, but not the original plant described by Blume under that name, which is the *P. grandiflora* of gardens. The confusion was pointed out long ago by Dr. Reichenbach. It is only known from the Philippine Islands, and is readily distinguished from the foregoing species by the shorter and broader lip, also by the shorter and broader leaves. The following have received distinctive names, but seem to me mere forms or varieties of this species rather than natural hybrids:—

P. ambigua, Rehb. f., in *Otto Hamb. Gartenz.*, 1862, p. 35.—Said to have the flowers of this and leaves of the preceding species, and supposed to be a hybrid between the two. It seems to me a mere state of *P. Aphrodite* with leaves somewhat longer than usual, for the supposed parents occupy distinct geographical areas, and we have no evidence that a seedling *Phalenopsis* had at that time flowered in gardens.

P. casta, Rehb. f., in *Gard. Chron.*, n.s., iii, p. 590.—Leaves thinly spotted; flowers of *Aphrodite*, with a slight rosy tint, especially at base of petals, also a few spots at the base of lateral sepals. A mere variety, and scarcely distinguishable.

P. leucorrhoda, Rehb. f., in *Gard. Chron.*, n.s., iii, p. 301; *Fl. Mag.*, n.s., t. 166.—Leaves blotched with grey in irregular transverse bands; sepals and petals flushed with rose, sepals yellowish outside; callus of lip yellow with purple spots.

P. leucorrhoda var. *alba*, *Fl. and Pomol.*, 1883, p. 42.—Flowers white with purple spots on lip and base of lateral sepals.

P. Sanderiana, Rehb. f., in *Gard. Chron.*, n.s., xix, p. 656.—Flowers suffused with rose; lip variegated with brown, purple and yellow. Found in the island of Mindanao.

P. Sanderiana var. *marmorata*, Rehb. f., in *Gard. Chron.*, n.s., xx, p. 812.—Flowers magenta-pink plush; sepals and petals yellowish-white outside.

3. *P. Stuartiana*, Rehb. f., in *Gard. Chron.*, xvi, p. 748, also 753, fig. 149; *Bot. Mag.*, t. 6622; *Ill. Hort.*, 1884, t. 540; *Fl. and Pomol.*, 1882, p. 49, t. 559; *Regel. Gartenfl.*, t. 1130; *Orch. Alb.*, t. 39; *Lindleya*, t. 8.—Supposed to be a natural hybrid between *P. Aphrodite* and *P. Schilleriana*. Leaves transversely marbled with greyish brown; flowers white, except lower half of lateral sepals and lip, which are densely spotted with brownish or cinnamon-red. Native of the Philippines. Two slight varieties have received distinctive names.

Var. *Hruskyana*, Rehb. f., in *Gard. Chron.*, n.s., xxi, p. 372.—Sepals and petals purple on back, with white margins.

Var. *punctatissima*, Rehb. f., in *Gard. Chron.*, n.s., xvii, p. 44.—Spots more numerous than usual, and mauve in colour.

4. *P. Schilleriana*, Rehb. f., in *Otto Hamb. Gartenz.*, 1860, p. 144; *Gard. Chron.*, 1850, p. 216; *Bot. Zeit.*, 1861, p. 383; *Xen. Orch.*, ii, t. 101; *Fl. Mag.*, n.s., t. 257; *Regel. Gartenflora*, t. 581; *Fl. del Serres*, t. 1559; *Gard. Chron.*, n.s., xii, p. 301, fig. 41; Warner, *Sci. Orch.*, ser. 3, t. 5; Jennings, *Orch.*, t. 15.—A beautiful species with mottled leaves and rose-coloured flowers. Native of the Philippines. The following varieties have been described:—

Var. *major*, Hook., *Bot. Mag.*, t. 5530.—Flowers large and pale.

Var. *reticulata*, Rehb. f., in *Gard. Chron.*, n.s., xvii, p. 330.—Flowers white.

Var. *immaculata*, Rehb. f., in *Gard. Chron.*, n.s., iii, p. 429.—Flowers rosy without spots. Side lobes of lip white with a violet margin and yellow callus.

5. *P. delicata*, Rehb. f., in *Gard. Chron.*, xvii, p. 700.—I have not seen this, and therefore am doubtful how to regard it, though it can scarcely claim specific rank. Reichenbach says the leaves and roots are like *Aphrodite*, though it has neither the tendrils of that species nor the forcate teeth of *intermedia*. I suspect it will prove to be a form of *Aphrodite*, with which the sepals and petals are said to agree.

6. *P. intermedia*, Lindl., in *Faxi. Fl. Gard.*, iii, p. 163, fig. 310.—A natural hybrid between *P. Aphrodite* and *P. rosea*, as originally suspected by Dr. Lindley and now confirmed by its artificial production in the establishment of the Messrs. Veitch. The fact is a most interesting one, as the two are placed in different sections of the genus. Native of the Philippines. Two varieties have been named:—

Var. *Brymeriana*, Rehb. f., in *Gard. Chron.*, n.s., v, p. 366; *Fl. Mag.*, n.s., t. 263.—A richly coloured variety.

Var. *Portei*, Rehb. f., in *Bot. Zeit.*, 1863, p. 128; Warner, *Sci. Orch.*, ser. ii, t. 2.—*P. Portei*, *Gard. Chron.*, n.s., v, p. 370, fig. 72.—Flowers large, stained with bluish.

7. *P. Veitchiana*, Rehb. f., in *Gard. Chron.*, 1872, p. 935; *Fl. Mag.*, n.s., t. 213.—A very rare plant, for a long time a single individual only being known, and this in the possession of the Messrs. Veitch. It has been surmised to be a natural hybrid between *P. rosea* and *P. Schilleriana*. The sepals and petals are somewhat like the former, but larger, and rosy-lilac in colour. The shape of the lip is unique, it being terminated by two straight sharp teeth. Native of the Philippines.

Var. *brachyodon*, Rehb. f., in *Gard. Chron.*, n.s., xxi, p. 270.—Sepals and petals pure white, lateral sepals with some brown spots near base; lip white, with purple markings.

R. A. Rolfe, *Herbarium, Royal Gardens, Kew.*
(To be continued.)

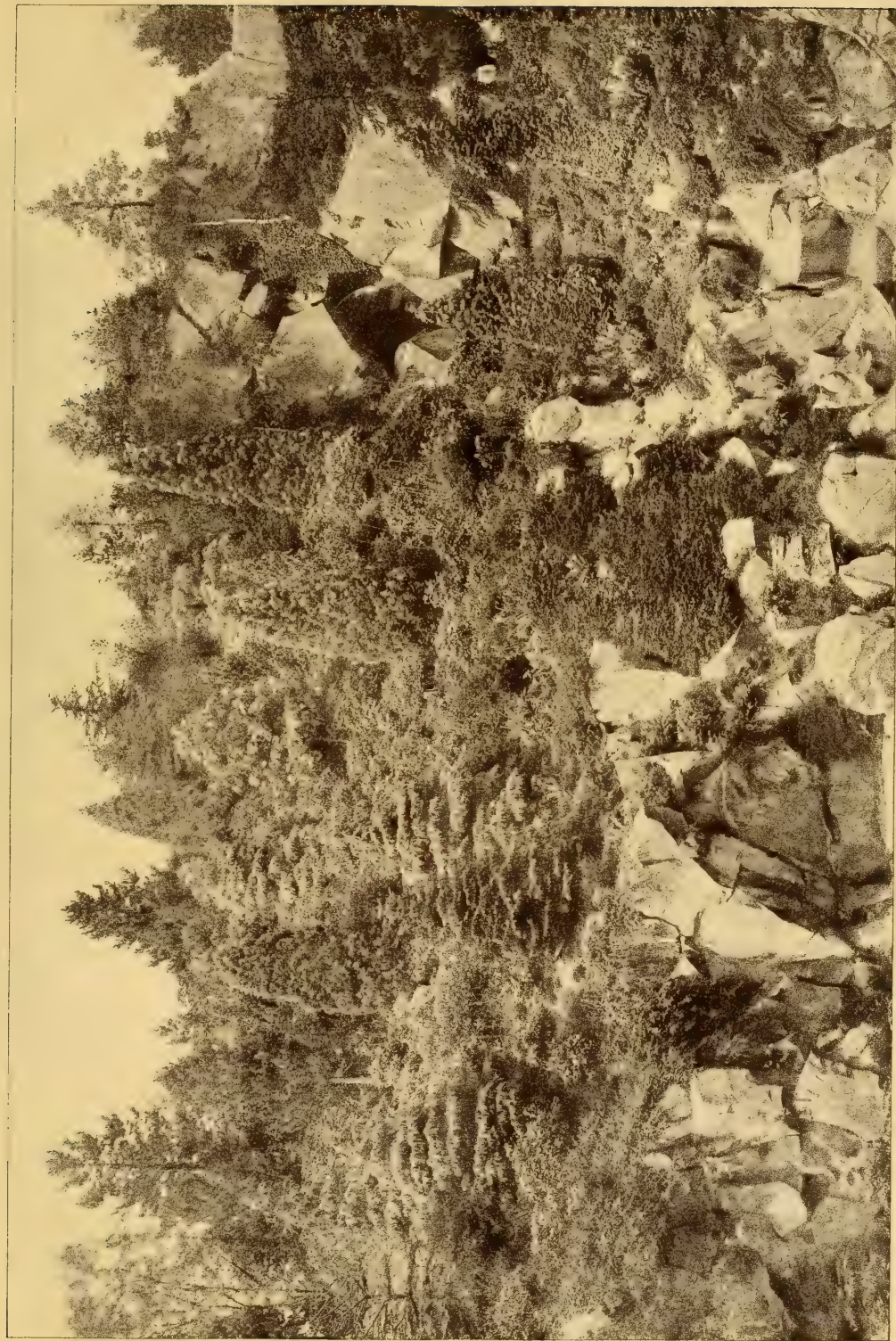
THE INDIGENEOUS VEGETATION OF AUSTRALIA, WITH SPECIAL REFERENCE TO THE EUCALYPTI.*

THE indigenous vegetation of Australia is evergreen. In England it is deciduous—that is, trees that annually lose their leaves.

The fresh green scenery of June over the face of England is ever absent in primitive Australia. The Daisies and Buttercups, Primroses and Cowslips do not deck her pasture lands; neither do her people behold the Mayflower hedges or view the Chestnut leaf, or the glossy dark copper foliage of the Beech. And yet Australian flowers are gay in colour, and the plant life is varied and pleasing. Sundews and Orchids, wild Pelargoniums and native Fuchsias, and Heath blossoms in almost endless coloured tints, abound in many parts in reckless profusion; and these and many other flowering and foliage plants intermingle their varied hues over the surface of the land. Along the side of the creeks and watercourses may be seen, during many months of the year, the Mimosa trees in full bloom, the tufted bunches hanging like golden balls, and perfuming the air with the sweet scent of the cassie. Even in the forests around evergreen Fern trees grow in luxuriance and beauty under the shade of tall timber trees, where can be seen pretty tiny flowers peeping up between the broken pieces of the fallen shed bark from the Gum trees. Parrots and cockatoos scream their wild notes, wrens and robins and other gay-coloured birds twitter about the scene, and all over reigns a bright sunny sky. These and other tropical and subtropical beauties greatly compensate for the absence of England's native flowers.

But the lively scenery and pretty flowers of Australia are not so much the object of this paper as it is to give some interesting facts of a peculiar vegetation known as the Eucalyptus, which exists and reigns almost supreme over the greater portion of Australia and Tasmania, although entirely absent in the other islands of the South, with the exception of a few species in New Guinea. There can scarcely be a doubt but that at some period of the world's history Tasmania and New Guinea formed a part of Australia; hence the Eucalyptus may be considered as a vegetation purely Australian. Strong evidences exist proving that the Eucalyptus is an ancient Australian vegetation. River beds of great antiquity have been met with, at depths varying from 100 to 200 feet, and even deeper, in various alluvial gold mining districts of Victoria, revealing occasionally massive timber trees without any sign of decay, belonging to the family of the Eucalyptus, chiefly those of the Red Gum (rostrata), and the Ironbark (Leucocylon) species. Some species growing at the present day on the alluvial flats, mountainous ranges, and in the valleys, attain a prodigious size, both as to girth and

* Lecture delivered in the Conference room at the Colonial and Indian Exhibition, Monday, June 28, by Joseph Bostio, M.P., J.F., President of the Royal Commission for Victoria.



THE PHOTOGRAPH BY MR. DE MANTON, LANE, GARDEN, ST. LOUIS, MO.

THE ROCK GARDENS AT STANCLIFFE.

height, bespeaking their longevity, possibly contemporaneous with the Cedars of Lebanon.

†The word "Eucalyptus," from *eu*, "well," and *kalypto*, "to cover," is aptly chosen to distinguish this splendid family of plants from all others. This characteristic is observable in the limb of the calyx completely covering the flower before expansion; and during its gradual development the operculum, or lid, is uplifted in shape like an extinguisher, which falls off immediately the flower becomes matured. The chief characters of all Eucalypts are in the firmness of the calyx, the absence of petals,

In the vegetable kingdom the Eucalypts belong to the Myrtle family, so placed on account of their bearing certain botanical outlines similar to those of the garden Myrtle of England; but the physical characters, as well as some peculiar botanical features of the Eucalypts, place them as a distinct genus in the Myrtle family of plants. Considering the vast area of the Australian continent, consisting of something over 3,000,000 of square miles, and measuring 2500 miles from west to east, and 2000 miles from north to south, it is surprising to find one tribe of trees forming at the present day four-fifths of the whole of

branch, the top being capped with radiating branches (like the ribs of an umbrella) full of foliage.

On the undulating lands, although bearing many Acacias and a variety of other kinds of trees, the prevailing feature is the Eucalyptus; no matter where the traveller journeys this vegetation is generally present.

Throughout Australia it may be viewed as a firm friend to man and beast. To the cattle depasturing, and to the tens of thousands of sheep grazing over the pasture lands of the country, it gives shelter from the midday sun and from dewy night. The wandering swagsman, or the travelling bushman, reaching no homestead at sundown, finds rest under its wide-spreading branches, and often shelter within some patriarchal Gum tree, which, although standing firm and erect, has become through old age hollow in the centre, sufficient to give him, or even half-a-dozen other persons, a comfortable rest-house for the night. To many of the early pioneers of Australia have these trees given a nightly home, and many a meal of damper and mutton, and many a pipe of peace have been partaken inside their cavernous recesses.

In the scant rain tracts of Australia there are many millions of acres on which grow a scrub of dwarf Eucalypts, averaging in height not more than 8 feet; this scrub is so dense that it almost shuts out the sight of sun and sky. Once an untutored traveller loses the track, and gets entangled but a small distance in this forest of sticks and leaves, the chances are that he never returns either to kith or kin again. Many persons travelling through this country have died for the want of water, and yet there is always a supply sufficient to sustain life close at hand, did they but know it; for in one kind of this dwarf vegetation there is lodged in the stem about half a pint of pure water. As a bushman generally carries a tin pannikin and a small tomahawk, he has nothing to do but to cut down one of these stick-like stems and place the lower end of it into this vessel, when he will in a short time obtain water. This strange tract of country I have traversed; there is not a sound of life to break the solemn silence, scarce a bird to be seen, and not a stone or a pebble to be obtained the size of a marble; a few dingoes or wild dogs prowl about here and there at night. Native wells scattered far apart over an area extending some thousands of square miles are to be met with, but they are more frequently found dried up than otherwise; and yet the soil in many parts is well adapted for Wheat growing; it is a mixture of sand, decomposed ironstone and vegetation, with a substratum of limestone. Weird is the scene; still the vegetation found growing jungle-like over these lands contains health principles both for climate and for suffering humanity.

The Government of Victoria is, I am happy to say, fully alive to the advantages of irrigation. Only in last Saturday's London papers appears a cable message from Melbourne, stating that the Hon. Alfred Deakin, Chief Secretary, has introduced a Bill in the House of Assembly providing for a system of irrigation embracing an area of 3,250,000 acres, to be carried out under the management of the Water Trust, but vesting the supreme control of the works in the Government. The system is expected to prove of immense benefit to farming interests. The expense is estimated at £3,800,000.

It is the Eucalyptus which has given character to Australia, both in climate and in the health and comfort of her people. From the heavily timbered Eucalyptus forests down to the scrub I have just mentioned, every variety of wood is obtainable, whether it be for ship or house building, or for docks, or bridges, for carriages or waggons, for land fencing or garden ornamentation, or for fuel, its variety is unbounded and its durability is in many cases equal to its longevity. In the several Australian courts the timber trophies consist chiefly of the many species of the Eucalyptus, or, as they are termed in Australia, Gum trees; an examination of these will satisfy any person that I have not exaggerated the timber value of these trees.

Although the leading forest timbers of Australia consist of the Eucalyptus, yet there are a variety of other kinds. In the Eucalyptus the wood varies in character quite as much as do other kinds obtainable from other timber trees. For instance, the well-known Blue Gum (*E. globulus*) is a hard light-coloured timber of great strength and tenacity, as well as durability, extensively used for beams and joists in buildings and for railway sleepers, also piers and bridges. A comparative test has been made between some Blue Gum, English Oak, and Indian Teak,

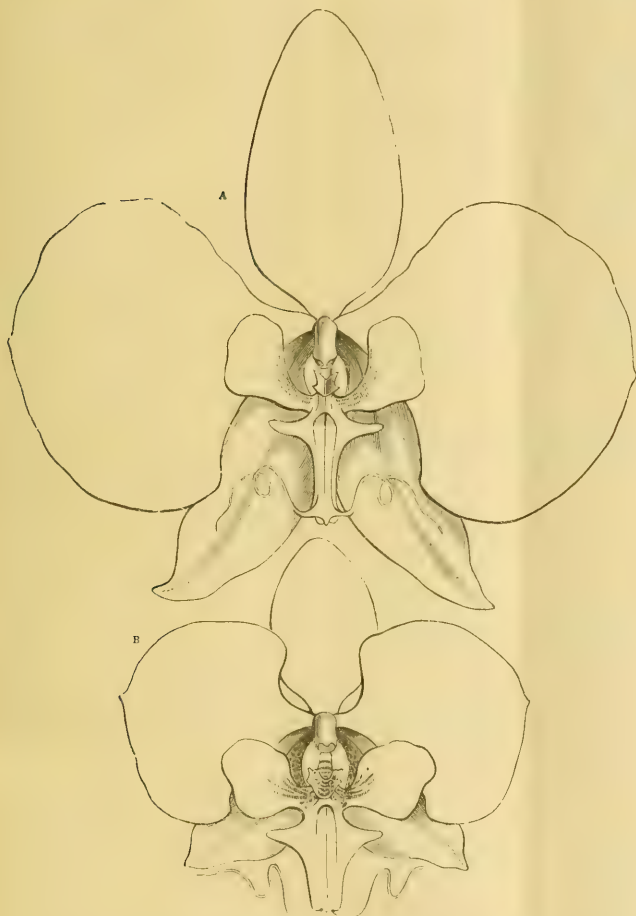


FIG. 43.—A, *PHALENOPSIS AMABILIS*, Blume, = *GRANDIFLORA*, Lindley; B, *PHALENOPSIS* APHRODITE = *AMABILIS*, Lindley, not of Blume. (SEE P. 212)

the numerous rows of stamens inserted close to the edge of the calyx tube, the stamens being nearly always fertile, and also the many form variations of the anthers in the different species. This systematic arrangement was made by the late venerable Bentham, and acquiesced in by our Government botanist, Baron von Mueller, as being the wisest to adopt.

The Eucalyptus is an evergreen. It casts its bark annually; but this does not take place, like the falling leaf of England, at one given period of the year, hence there is always a rough and ragged appearance on the trunk of the tree. In those pictures in the Victoria Court which depict Australian bush scenery this is to be noticed, and is not therefore the fault of the painter, as some persons have imagined.

the indigenous vegetation. An Australian traveller frequently feels the monotony of the scenery; but this is greatly dispelled by noticing the interesting variations in the leaf formation, in the colour both of leaf and flower, in the appearances of the tree-bark, and in the shape and varied stature of the trees.

Of the 150 kinds or species found existing over Australia, it can easily be understood that the variations must be very great indeed.

On the mountains and in the valleys, and on alluvial flats where the woodman's axe is but seldom heard, stand gigantic Eucalyptus timber trees, in girth varying from 16 feet to 80 feet, and in height from 200 feet to 420 feet, and that often without a

The Blue Gum carried 14 lb. weight more than the Oak, and 17½ lb. more than the Teak per square inch.

The Red Gum tree (*E. rostrata*) is a very hard compact wood, possessing a handsome curled but short grain, red in colour, well adapted for many purposes in ship-building, such as heavy framing, beams, and knees; it is also used in the construction of culverts, bridges, and wharves, and by wheelwrights for the felloes of heavy wheels, and is employed in Australia for railway sleepers and engine buffers. Owing to an acid it contains, termed "eucalyptic acid," it resists the attack of the Terebrantia, or sea-worm. The Iron-bark Gum tree is one of the hardest and heaviest of our native woods.

The Stringy-bark tree (*E. obliqua*) is an easy splitting wood, and is usually employed for palings, shingles, and posts. In like manner do all the varieties change. Many varieties of Tree Acacias are met with in all the forests of Australia, such as the Myall and the Wattles, also Pines, Banksias, Casuarinas, Pittosporums, Eugénias, Melaleucas, and others too numerous to mention.

It is to be deplored that just now the country is being subjected to a wasteful destruction of many kinds of the Eucalyptus. Some of the varieties in various districts are totally disappearing, and without some determined and immediate action on the part of the Governments of Australia, but few decades will pass before a timber dearth sets in.

The subject of forestry has attracted the attention of most countries of the world; even in Australia botanists, builders, contractors and legislators have uttered a warning voice. The lands of Australia at present are full of the seed of timber trees; the selectors of our lands know this right well. Let them but neglect to cultivate their farms for a season or two, they find them covered with a growth of young timber plants consisting of the Eucalyptus and Acacias; but tree seed, although covered with an epicarp in order to protect the germ from an early loss of life, yet cannot retain their power of germination for many years when the lands are kept under cultivation. Vegetation aids materially in equalising the temperature and climate of a country. There can be no doubt that the climate of Australia, speaking in general terms, is not so hot as it was forty years ago. The modification is produced by cultivation and the opening up of lands which formerly were covered with dense forests, tangled bushes, Ferns, climbing plants, lichens and mosses. But the climate of an extended area like Australia cannot be dealt with in one general statement. The highest mountain is less than 10,000 feet high, and few exceed 6500 feet in height. Majestic alpine chains of ranges stretch through many parts. The snow line of Australia is less in altitude than most other countries, arising probably from the cold antarcctic winds receiving their first break on these bleak mountain ranges. Aërial, oceanic and terrestrial magnetic currents produce many changes over so vast a continent. The rainfall of Australia varies considerably in many parts: in the hill districts approximately it may be stated to be 50 inches per annum; in the undulating woodland districts, from 30 to 50 inches; on the adjoining plains 20 inches; over the wide expansive plains away from mountains or hills, from 5 to 15 inches; while farther on into the interior, rain has been known to be absent for two or three years together. All these things affect climate, but there is nothing in the physical features of Australia to promote miasma. Its lagoons and swamps are not extensive; most of them are dry during the summer months; and even where they remain otherwise there are surroundings of a healthy character, especially the tan barks and leaves of the Eucalyptus, which fall in, obviating thereby any ill effect.

The physical geography of Australia does not differ in its general outline from that of other countries. The first Victorian geologist—now Professor Selwyn, the Government geologist of Canada—reported that: "In general structure, character, and composition in geological sequence, and in physical and palæontological relations, the rock formations are in all respects analogous to those of other regions." But there is a factor at work throughout Australia which makes the climate so acceptable to human life, and that is the Eucalyptus vegetation, belonging, as I have before intimated, to the Myrtle family of plants. It is full of aromatising odours. The sense of smell when in our forests, or even travelling in the country,

bears ample testimony to the presence of its volatile bodies in the air, for there is no mistaking the odour, as it is different from all others. There is not a single species but what possesses in its leaves a volatile essence; each kind varies in percentage of yield; but still of the vast number they can be reduced for practical illustration under eight types, or species, namely:—

The Viminalis, or Manna yielding Eucalyptus.
The Olorata, or sweet smelling.
The Rostrata, or Red Gum tree.
The Obliqua, or Stringy-bark.
The Leucocylon, or Iron-bark.
The Globulus, or Blue Gum.
The Dumosa, or Mallee.
The Amygdalina, or peppermint-scented Eucalyptus.

The eight kinds I have mentioned supply the minimum to the maximum; the minimum yielding seven fluid ounces of the volatile essence, and the maximum 500 fluid ounces, or twenty-five imperial pints from every 1000 pounds weight of fresh leaves. No vegetation occupying so vast a country contains so much volatile odour in its leaf portion as the Eucalyptus. Assessing alone the whole colony of Victoria (being that part of Australia in which most of my experiments were made) at the low average of supply of 20 ounces, or one pint to the acre, we have 9,730,500 gallons of an essential and volatile substance held at one and the same time in the Eucalyptus vegetation.

So far as I have been able to proceed in this investigation over the continent of Australia, similar conditions exist; so that it may be safely asserted that in the whole of the leaf surface of the Eucalypts in Australia there is continually 95,877,440,000 gallons of this volatile material. If, therefore, the whole of the odorous principles were retained in the leaves until set free by the art of man, in that case its effect on climate would fail; but if they are given up freely by the natural forces of the tree under the aid of light, heat, or electricity as existing around, or by some or all of these forces in combination, then we have good reason to value the Eucalyptus vegetation beyond all others in being capable of influencing the climate of a country for purposes of health. Leaves of trees necessarily are in close connection with the roots; together they keep up a continuous action of exhalation and replenishment. Evergreen trees, especially the Eucalyptus, unlike deciduous trees which sleep during many months of the year, work constantly, though at times less energetically. Deciduous leaves generally perform their functions on one side only, that is, they change the sap juices of the plant on the side turned upward to the sun; but in the case of the Eucalyptus it is quite different, these have a double action. There is no difference in the anatomy of the two sides of the leaf; breathing pores abound on each side, and the cells containing the volatile oil run through the leaf. These oil cells in most cases are visible to the naked eye, and can be counted in hundreds. Light and warmth operate alike on both sides of the leaf; each being suspended in a line with the axis of the tree, giving facility for the remarkable and interesting movement of the petiole or leaf-stalk, which is continuous in its action under the warm currents of the air, or the direct rays of the sun, keeping one side of the leaf's surface to face the sun or the warm air current, and so establishing perpetual leaf operation. Now it is by the natural forces of the tree and the leaf action acting in unison that the watery and odorous bodies are continually set free in the air, and in such minute and diffusive atoms that they may be expressed as the fragrant breath of the tree, requiring as it does thousands of its compound particles to form a single drop. Under such circumstances these odorous bodies speedily change their molecular condition, and supply to the atmosphere an extra amount of active oxygen; it is this unceasing health factor throughout Australia which makes its climate, on the whole, the finest in the world.

OBSERVATIONS ON THE THERMAL CONSTANT OF VEGETATION.—Prof. H. Hoffmann, communicating the result of the most recent observations on the thermal constant of vegetation, compares the figures for a number of plants for Upsala and Giessen, and concludes that the results agree quite as closely as can be expected, showing that there is no change in the constant depending on latitude or climate. (*D. M. Z.*, i, p. 407.)

HOME CORRESPONDENCE.

Potato Species.—I am very pleased to find it is now admitted that *Solanum Maglia* is the true *S. tuberosum* or parent of our garden Potato. When I saw *S. Maglia* growing at Mr. Fenn's place last year I felt then that it must have been the progenitor of our Potatos; and it is remarkable how little, comparatively, so far as top growth is concerned, its progeny has deviated from it. It is true we have dwarf kinds and tall kinds, and much variation in leafage, but still, through all the type remains the same. Specially is it so in the features to which you refer, viz., flowers and calyx-sheaths. I have examined myriads of flowers not merely of named varieties but also of seedlings, and have found variations in length of the calyx-lobes, some being quite half an inch long, and very much reflexed; others are, perhaps, not half so long, and very diminutive, but still all are pointed, not a single obtuse one being found. A pleasing study might be made of the variations in colour found in flowers, and really many are beautiful, but colour of bloom gives no indication of the colour of the tubers beneath; even seedlings which have tops almost black in colour have flowers of the whitest. For a long time yet the Potato will afford interesting study. *A. D.*

Temperature, Vegetation, &c., in the Botanic Garden, Glasgow, for June and July, 1886.—The lowest temperature registered during the month of June was 36° during the nights of the 22d and 23d respectively. The highest day temperatures in the shade was 72° on the 18th, and 73° on the 19th, 20th, 29th, and 30th. On the same dates the temperature in the sun varied from 100° to 107°. Collectively the maximum and minimum temperatures correspond closely with those recorded for June last year. On the whole the weather has been cool and dry. Vegetation is suffering much for want of rain, growth being stunted, and many plants forced to bloom prematurely. Hardy trees and shrubs have not bloomed well this year, which is attributable to the unfavourable season of last year. During the month of July the weather has been variable, and often very cold for the season. The highest day temperature in the shade was 75°, on the 1st and 2d, and 71° on the 1st, 3d, and 21st respectively. The lowest day reading was 58°, on the 29th. During the nights of the 26th and 27th the mercury fell to 38° and 37°, the thermometer at the time being sheltered by the foliage of large trees. A few miles east from here the freezing point was touched, single *Dulias* being perceptibly affected. Although rain has fallen frequently since the early part of the month, the showers have been light, especially so compared with the rainfall in many parts of the country. Such weather has been conducive to the growth of both hardy and half-hardy plants; the blooming properties of the latter having been well developed during the hot, dry days which prevailed at the end of last and early part of the present month, a fine display has been the result. Owing to want of the sinews of war few annuals have been seen this year, and those of the commonest kinds; both these and many hardy herbaceous plants are from two to three weeks later in bloom than usual. *R. Bullen, Curator.*

Corydalis lutea.—During such a trying hot season as was recently experienced here there was an opportunity to observe any species of plants which root too superficially, or are too fragile to withstand the severe test of extreme aridity and bright sunny weather. Any hardy plant being a fitting subject for herbaceous borders which will stand these conditions of plant-life and still keep on blooming and remain in perfect health, must therefore be invaluable. I write least of all for expensively prepared, mulched, and watered borders, but rather for the many who can give only ordinary attention, and who are by far the more numerous. No ordinary herbaceous border should be without an admixture of *Fumeworts*, and our native yellow variety more especially. *Corydalis lutea*, with glaucous foliage, resembling a Maidenhair, will grow upon the top or sides of walls, and it never seems to suffer in any position, growing grandly in deep rich soil, and has a longevity second to none. *William Earley.*

Bees.—The recent exhibition at South Kensington by the British Bee-keepers' Association, apart from its many other interesting and useful aspects, claimed some little notice at the hands of horticulturists. A little interest was imparted to the show by a display of bee flowers arranged amongst the exhibits, such, for instance, as *Lavender*, *Solidago* (Golden Rod), *Veronica*, *Honeysuckles* (very appropriately named), *Clover*, *Hyssop*, &c. Doubtless there were some aesthetic exhibitors, or examples of the *Sunflower*—a favourite with the bees—would have been exhibited. Those learned in bee flowers might at convenience

contribute to your columns, with the Editor's permission, a complete list of those favoured by this extraordinary tribe; a further degree of interest would attach to such by its being noted where this has been observed, the colours of the flowers that are most visited, this, doubtless, playing an important part in "improving the shining hour." B.

Centaurea macrocephala (see p. 168, in last issue).—To use an Hibernicism, you have anticipated the precursors. I have had served at table east of Marseilles, several times, the above in place of *Cynara scolymus*. The change is not desirable. S. A.

A Giant Fungus.—I have sent you a fungus which I found growing in the garden this morning. Being one of the largest I have seen, I thought it would be worth sending. You perhaps have seen larger specimens. W. Byron, *Thorpe Lee Garden, Egham, Surrey*. [The fungus is the Giant Puffball (*Lycoperdon giganteum*). It develops with extreme rapidity, and is perfectly wholesome if eaten whilst still snow-white. It should be cut in slices and fried, when it will be found to be delicious; care must, however, be taken to eat it only so long as it is snow white. Ed.]

Pea Telephone.—I am sadly disappointed in this Pea; many of the blossoms shrivelled up and never developed into pods, and the haulm curled up and did not grow, both of which may have been owing to the great heat we had in July; but that is a serious objection. I have seen the case. For beside it, under the same conditions, Dickson's Favorite, Huntingtonia and Champion of England have all done splendidly, while Ne Plus Ultra is all that can be desired and generally holds out till the end of October. Many of the new Peas are admirably adapted for the exhibition tent, but my advice to beginners is, prove them by the side of older varieties before you go in for them exclusively. J. Rust, *Eridge Castle*.

On the Origin of the Pink.—For the information of "R. D." and others, I may say that the first Pink worthy of notice was raised in the year 1772 by Mr. James Major, who was then gardener to the Duchess of Lancaster, previous to which there were but four sorts, and those of very little note, being cultivated only for common border flowers. This variety was sent out the ensuing year to the public under the name Major's Duchess of Lancaster, at 10s. 6d. per pair, the orders for which amounted to the sum of £80. One order to a single individual of forty pairs was delivered at the above price. Lady Sovereign, referred to by "R. D.", was a seedling from Duchess of Lancaster. Mr. Major lived many years in the parish of Lewisham, Kent, and died on March 18, 1831, at the advanced age of ninety-four years. *North Norfolk*.

The Potato Crop in the South of Ireland.—This is still—some say "unfortunately"—one of the staple crops in this country, and though the produce may be generally less than last year, on the whole at present it promises fairly well. The prospect at the end of June is in reclaimed peaty or moorland, which always retains sufficient moisture, was by no means reassuring. I always manage to have some fit to use on a warm southern border about June 12, giving the preference for quality to Myatt's Ashleaf and Carter's First Crop. If I were a market gardener, and quantity and size were the objects in view, I should sow, first, Beauty of Hebron, then Early Rose (a week earlier), then Favourite of Lisleham—very proper; and lastly, The Vicar of Lechliffe. This last is seemingly not yet Anticipated. I never see it referred to in any list that comes under my notice, but it is largely grown in three-fourths of Ireland. It is very early, and gives a heavy return in rich deep loams, and in a season such as this, when the crop is wholly disposed of before blight appears, should be most profitable. We still grow it largely, and though most liable to it, is still free from disease—a subject of vital importance to this country, and on which I shall say a word before concluding. I have had two varieties for the first time this season—"Cetewayo," one of the blackest kidneys in commerce. The flesh when cooked is purple, and except being of an irregular kidney shape, reminded me of the old Skerry Blue I used to grow when I had charge of Potato experiments at the Government Farming Institute at Glasnevin a quarter of a century since. It is likely to be largely grown as a curiosity. The other, appropriately named the Purple Blacksmith, is a distinct addition to the dark-skinned and white-fleshed round class. The skin is netted, but not so as to produce much waste, while the flavour is most desirable. Both ripened early, perhaps prematurely, owing to June being unusually dry and warm here. What has become of that fine garden variety, Extra Early Vermont? This season should suit it admirably. But some one may be disposed to widen the query, and ask, What becomes, in a short time, of all the American introduced varieties? Evidently, coming from a warmer

and drier climate, they rapidly degenerate and become deficient in quality—then pass out of cultivation; the Peronospora aiding their exit. At the time referred to I had the carrying out of some Potato experiments at Glasnevin, by direction of Prince Albert, who visited there, and of thirty American varieties, many of them then well known, not one is now in common use. Evidently the proper course is to raise new varieties that can be tested before going into commerce at home. This seems to be the view taken by the Commissioners of National Education in Ireland when offering prizes to their teachers for last year in amounting to £100, and which were referred to at length in the *Gardeners' Chronicle* last autumn. Whether judging by appearances will determine also quality remains to be seen. My field Potatoes are principally Magnum Bonums and Champions, with smaller quantities of Heros, Scottish Queen, Adiradack, Kemp's, and a Potato that should be better known in this country, Cosmopolitan. Fortunately I had them pubed and moulded before the drought set in, otherwise they would be much smaller than they promise to be. Never at this time of the year I am satisfied did the general crop look more promising. The drought in the South of England being much more prolonged than here, they suffered much more than we did. Great blessing and boon as the Champion has been to Ireland, there is no denying it is slowly degenerating. Some imported, as I did, several tons from Dorsetshire, and they are by no means so robust as say, four or five years since, and this is general. From being 3 feet high the stalks are not more than half that, and so on. There is, however, one subject of general congratulation, that I am sure you will be pleased to hear—there is no Potato disease in Ireland so far, and this means millions on the creditor side, and, more than that, it means plenty to the Irish peasant—for all—for human beings, the farm animals if necessary, pigs, fowls—everything: much more than you can realise in England. I have seen the Potato crop ruined by disease. We are now a month later than when I first wrote, and the fibre of the haulm is so matured it can do no harm even if it comes. W. J. Murphy, *Clonmel*.

Tomato Sutton's Main Crop.—This variety, with very strong, greyish-green foliage, is an immense cropper out-of-doors. The fruits are almost smooth, and globular in shape, of great solidity, and a rich scarlet colour. It ripens readily in the open quarry. M.

Spiranthes Romanzoviana is now well in flower, thanks to the courtesy of Mr. Gumbleton, who last season kindly forwarded me living specimens of this rare and interesting native Orchid. Save in one or two stations in the County Cork this plant has, so far as is at present known, been found wild in no other part of Europe, its nearest stations being a few of the cold upland bogs of North America. I have been always puzzled how to reconcile home drawings of this Orchid with those sent me from America—their opposite appearance, as drawn in foliage and flower arrangement as might well be. Now, however, that the genuine Cork specimens are in full flower I must admit that the American drawings are infinitely more correct—at least, represent the plant as I now have it—than those executed in this country. The creamy-white, sweetly scented (Violet) flowers are spirally arranged in three rows, with the sepals and petals forming a close hood over the lip. It is known as S. Hibernica in the South of Ireland. A. D. Webster.

Rose Prince Arthur.—This Rose, which was sent out without any ostentation by the Cranston Nursery Co., has been blooming in very vigorous style in the same nurseries. The colour is a glowing dark crimson, and the form in every stage good, notwithstanding the looseness of the outer petals. A Rose which is truly perpetual in blooming like this, and is at the same time so attractive, ought not to be missing from the gardens of your readers. *Il Vagabondo*.

Annuals.—Why do not gardeners more commonly grow *Erysimum Peroffkianum* as a yellow flowering plant for groups in the border and for small beds? The colour is a pure lemon-yellow, the flowers resembling at a distance those of the Wallflower. It grows readily, and only dislikes shade. Eschscholtzia Rose Cardinal, is another pretty annual, better than Mandarin, which has not made its way in gardens as was predicted of it. *Helianthus minimus* is a fine dwarf miniature Sunflower, of a very free flowering habit and of the easiest culture. It blooms all through the summer and autumn till cut down by frost. *Nasturtium Cloth of Gold*, is a dwarf variety that does not flower well, but is desirable for its pale yellow foliage, its height is $\frac{1}{2}$ foot. *Tropaeolum pium*; is a charming variety, of climbing habit, with flowers of sulphur-yellow and light rose. *Visitor*.

Epipactis ovata.—This dwarf-growing early flowering Hellebore has now blossomed so well

under cultivation as this season. The flowers are pink-purple, in a short raceme, and produced about a month before the broad-leaved form—*E. latifolia*. By some botanists this plant is reckoned as but a form of *E. latifolia*, but the organs of fertilisation are widely different, the method of increase different, too, and the time of flowering and height of the plants more different still. A. D. W.

Reports of Societies.

ROYAL HORTICULTURAL: August 10.

QUITE an extensive show of flowering plants and cut flowers were exhibited on this occasion at South Kensington. Foremost amongst the objects shown which deserve notice were Roses, cut blooms, of Messrs. W. Paul & Son, Cheshunt; and Messrs. Paul & Son, Waltham Cross; the Gladioli from Messrs. Kelway & Son, and the fine display of hardy flowers shown by Mr. Ware, Tottenham. Fuchsias, Begonias, Asters, &c., were shown for competition, as were also vegetables in collections. Of the first named (Fuchsias), nothing good may be said, worse examples having rarely appeared at these shows, whereas the Begonias were noticeable for their excellence. The Aster competition was poorly responded to, and but very few good examples were observed. A group of Orchids and a few novelties gave additional interest to the meeting.

Floral Committee.

Present: G. F. Wilson, Esq., F.R.S., in the chair; Messrs. J. Laing, H. Canham, Shirley Hibberd, H. Herbst, J. Douglas, H. Ballantyne, &c. Noble, I. Dominy, H. M. Pollett, J. O'Brien, A. J. Lend, E. Hill, H. Turner, W. Holmes, J. Walker, Amos Perry, and Dr. M. T. Masters.

COMPETING CLASSES.

Five Fuchsias, distinct.—The 1st prize fell to Mr. J. Buss, gr. to A. S. Price, Esq., Parkside, Ewell, the plants being under 3 feet in height, and full of flower; ad, H. W. Segatsch, Esq., Elmfield, Lodge, Herne Hill, mostly standards, aged, and not ornamental in a high degree; ad, Mr. E. Cook, 26, Queensbury Mews East, South Kensington, the plants ranging from a foot to 6 feet in height.

Twelve Fuchsia-flowered Asters.—1st, Mrs. Gibson, Saffron Walden (gr. Mr. W. Archer), with blooms pretty as to colour, regular in form, and in sufficient variety; ad, Major Scott, Wray Park, Reigate (gr. Mr. J. Morgan), with smaller flowers; ad, A. S. Price, Esq.

Twelve Fuchsia-flowered Asters.—In this class A. S. Price, Esq., took the lead, with nice flowers well varied; ad, Major Scott; ad, J. Rain, Esq., Nightingale Lane, Balham (gr. Mr. W. Clark).

Group of Tuberous Begonias.—In this class Messrs. J. Laing & Co. were the only exhibitors, a splendid bank of plants in flower being staged. The lot was composed of plants of a large size, covered with enormous blooms, and chiefly of shades of scarlet, the few plants with yellow flowers of various tints distributed at intervals showing by contrast. Some of the double-flowered section, presumably from the open ground, resembled in their doubleness *Turban Ranunculus*.

Nine Begonias, tuberous, distinct.—Of these there were six lots exhibited, well flowered and grown, the prizes going, irrespective of size, to the newest varieties. 1st, Sir E. Saunders, Farnham, Wimbledon Common, the plants bearing very large flowers, and comprised shades of scarlet, cerise, &c.; ad, W. N. Cheesman, The Hall, Dulwich—bushy plants, furnished well with flowers and foliage; ad, H. Little, Esq., The Barons, Twickenham (gr. Mr. Hill)—nice plants of Messrs. Laing's strain.

Nine Gloxinias, distinct.—The 1st prize was taken by H. W. Segatsch, Esq., with plants showing good and bad forms of foliage and flowers, but fairly well bloomed; the ad and 3d were taken by Mr. C. J. Waite, Glenhurst, Esq., and by W. N. Cheesman, Esq.

Admirable collection of Roses, consisting of twelve baskets of cut blooms of Teas, and fifteen boxes of H.P., the individual blooms being generally as perfect and as fresh as those shown earlier in the season, especially attractive being the following varieties:—*Perle des Jardins*, *Homer*, *Madame de Watteville*, *Etendard de Zinnia d'Arc*, *Marie Van Houtte*. A Silver-gilt Medal was awarded.

Messrs. Paul & Son, The Old Nurseries, Cheshunt, showed a collection of fourteen boxes of Roses, as fresh and charming as could be desired; besides these, were numerous hardy flowers shown in the cut state, consisting largely of Phloxes, Potentillas, Erythroniums, and other Composites. A Silver-gilt Banksian Medal was awarded.

Messrs. Vilmorin-Andrieux & Co., Paris, exhibited collections of blooms of Zinnias, Petunias, Liliputian Asters, and Balsams: foremost for novel colouring amongst the first-named, a dwarf strain was shown, flaked and sometimes marked in sections, resembling in this way spotted Carnations. The markings were remarkable, and are said to be pretty constant. A strain of large-flowered Zinnia elegans, of beautiful colours, some of them being of a large size; Camellia-flowered Balsams, double-flowered Petunias and Gaillardia Lorenziana in variety. A

Dianthus chinensis, Black Prince, with black-brownish-purple flower, was shown, the colour of the semi-double flowers being very remarkable.

Mr. C. Turner, Slough, showed *Picotee* Duchess, an immense bloom, with yellow ground, scarlet edged.

A tuberos *Begonia*, with immense flowers, single, of a lovely shade of crimson, was shown by Mr. R. Owen, nurseryman, Maidenhead.

Mr. Miles, Victoria Nursery, Brighton, showed a large yellow *Chrysanthemum*, of the early Anemone-flowered section, most unseasonable when *Roses* and *Picotees* are shown at the same time.

Mr. E. H. Krelage, Haarlem, sent some of his seedlings of the new race of hardy *Gladioli*, Nos. 4, 15, 18, and 24 being of pleasing colours.

Mr. Chater, nurseries, Cambridge, exhibited a stand of blooms of *Hollyhocks* that were conspicuous for their good quality—*Revala*, a creamy-yellow, well built flower, being considered the best.

Herr E. Benary, seed grower, Erfurt, showed *Aster* Rose, dark scarlet, a perfectly new colour, very distinct; the flower is of medium size, incurved, with flat petals.

Messrs. H. Cannell & Sons, Swanley, exhibited a stand of blooms of *Verbenas*, the eyed flowers amongst them being fine for beds or pots; *Lobelia Fascination*, a dark flower with a white eye and a number of Swanley seedling *Begonia* blooms.

Messrs. J. Carter & Co., High Holborn, showed their strain of double *Petunia*, amongst them a dark blue self, which, if the foliage be not too soft, should make a splendid bedding variety.

Mr. J. Blundell, Martell Road, West Dulwich, showed four stands of *Hollyhock* blooms of so great excellence that three of them received Certificates, viz., *Prince of Wales*, cerise, very full, with numerous petals; *Shirley Hibberd*, a crimson, large and full with guard petals; distinct and prominent—the colour is of a pleasing shade; *Primrose Gem*, a primrose-yellow, of medium size and good form.

Messrs. Kelway & Sons, Langport, Somerset, put up the finest stand which has been seen at the Royal Horticultural Society's shows, and of which only a few received First-class Certificates, viz., *Sir Cunliffe Owen*, pink and yellow, a fine new colour, long spike and large flowers; *Lord R. Churchill*, cerise, with a white stripe on each segment; *Lord Salisbury*, a cerise and white, deep crimson, purplish in the throat, the segments flamed with dark crimson; *Clarence*, of maroon stripes on a crimson colour, and of velvety texture—a very fine flower. Other superior spikes were *Sir M. H. Beach*, a very handsome cherry-red flower; *Countess Onslow*, an opaque white with a purplish-white flange; *Lord Halsbury*, a brilliant cerise, with white throat and stamens. The total number of spikes shown was 200. A Silver-gilt Banksian Medal was awarded.

The New Plant and Bulb Company showed a collection of *Lilium auratum* as cut blooms, and a tall *Vallota purpurea* magnificent, and from the Royal Horticultural Society's Garden, Chiswick, were brought specimens of *East Indian Cotton* plants furnished with ripe seed-pods; a plant of *Fuchsia triphylla*, with small dark green foliage, edged crimson and orange-scarlet, constricted tubular blossoms, which are terminal, as in *F. cymosa*; and *Carnation Chiswick Red*, a useful bouquet variety.

Messrs. Webb & Brand, Saffron Walden, showed cut blooms of *Hollyhocks*, the quality of which was very good; *Crimson Queen*, a full regularly formed flower, of a dark crimson colour, was considered to be the best.

Mr. J. Douglas, Great Gears, showed *Annie Douglas*, a yellow ground *Picotee*, with white and pink petals to make a full flower; *P. Almina*, a pure lemon-yellow variety, with a rose wire edge, good form, and of a large size.

A plant of *Beaufortia splendens* in flower came from Messrs. H. Low & Co., Clapton, Nurseries; the *Callistemon*-like flower is vivid scarlet, and the foliage resembles that of a *Diosma*.

R. J. Measures, Esq., Cambridge Lodge, Camberwell, showed a group of *Orchids* in considerable variety, amongst which were observed several *Oncidium Jonesianum* with good spikes; *Acridies virens superba*; *A. odoratum*, grown without fire-heat, the plant healthy and plentifully furnished with short spikes; *Odontoglossum mirandum* &c.; also *Cattleya velutina*, a pretty species; *Trichoplia luteo-purpurea*, sepals green, flowers brown, and tube dark red; and *Cypripedium Lawrenceanum atro-purpureum*, a tall stalked dark form of this variety.

Mr. W. Bull, New Plant Nursery, Chelsea, exhibited *Impatiens Hawkeri*, well bloomed specimens; *Mittonia spectabilis* bicolor, the lip very large comparatively and the purplish bloom at the base occupying half the area; it makes a distinct and pretty addition to the genus. *Cattleya Schofieldiana* was likewise shown. A group of the *Cienkowski* *Kirki* was also shown in flower.

Mr. T. S. Ware, Hall Farm, Tottenham, had a magnificent display of hardy flowers, in which *Papaver nudicaule*, *Hyacinthus candicans*, *Lilies*, *Gladioli*, *Trifolium*, *Harpa*, *Primula*, *Pinks*, &c., were the showiest subjects. A rarity was shown from this nursery in *Sparaxis pulcherrima*, a tall Reed-like species, 4 feet in height, with flower-racemes of 1 foot in length; the flowers are pendulous campanulate, of a rosy-red colour.

Olearia Haasti was shown in quantity in pots, the plants being covered with its dense masses of white flowers.

FIRST-CLASS CERTIFICATES.

To Messrs. Kelway & Sons, for *Gladiolus* Lord Salisbury.

To Messrs. Kelway & Sons, for *Gladiolus* Clarence.

To Messrs. Kelway & Sons, for *Gladiolus* Sir Cunliffe Owen.

To Mr. Blundell, for *Hollyhock* Princess of Wales.

To Messrs. Webb & Brand, for *Hollyhock* *Crimson Queen*.

To Messrs. Webb & Brand, for *Hollyhock* *Primrose Gem*.

Mr. G. Mills, for *Chrysanthemum* (early) Mrs. Burrell.

To Mr. W. Bull, for *Mittonia spectabilis* bicolor.

To Mr. Phillips, for *Adiantum cuneatum*, Phillips var.

To Mr. Blundell, for *Hollyhock* Mr. Shirley Hibberd.

To Messrs. Vilmorin-Andrieux & Co., for *Zinnia elegans*, dwarf striped strain.

To Messrs. Vilmorin-Andrieux & Co., for *Dianthus* (chinois) Black Prince.

To Mr. Chater, for *Hollyhock* *Revala*.

To Mr. C. Turner, for *Picotee* *Duchess*.

To Mr. T. S. Ware, for single *Dahlia* *Squire Gamble*.

To the Society's Garden, Chiswick, for *Fuchsia* triphylla.

To Mr. R. Owen, for *Begonia* *Imperial*.

To Mr. E. Benary, for *Aster* *Rose*, dark scarlet.

To Mr. Douglas, for yellow *Picotees* *Annie Douglas* and *Almina*.

Fruit Committee.

Present: Dr. Hogg in the chair; Messrs. H. T. Miles, J. Woodbridge, W. Warren, C. Ross, G. H. Wier, J. R. Adam, G. Norman, P. Crowley, G. Silverlock, R. D. Blackmore, G. Bunyard, J. Smith, and G. Goldsmith.

The Commissioners of South Australia again contributed good productions, in the form of tinned fruits of the Quince, Pear, Apricot, and Plum.

Messrs. Vilmorin-Andrieux & Co. exhibited a collection of *Endives*, many of which are unknown, under the names given, to growers in this country.

Messrs. J. Carter & Co. exhibited *Blenheim Orange* Tomato, a pink-coloured fruit, round in form, stated to be of Carter's Green Gage and Carter's Dedham Favourite.

Mr. Barlow, York Nurseries, Stamford Hill, showed fourteen fruits of Tomato, weighing 7½ lb. It was incorrectly marked as being *Hathaway's* Excelsior.

Mr. C. Lane, Springfield Gardens, Ulverston, showed six fruits of Royal George from a tree four years old, and the same number of *Noble's* Peaches, from a tree twenty-four years old: both samples were of a large size, the fruit from the old tree being larger if anything than the others.

VEGETABLES: COMPETING CLASSES.

In the collections the 1st prize fell to Mr. Waite, Glenhurst, Essex, who is becoming a redoubtable exhibitor of vegetables at metropolitan and other shows.

The different items were excellent. But little behind the winner in general good quality came Mr. Beckett, Cole Orton, Farm, Penn, Bucks; and 3d, Mr. Buss. We observed nothing that was novel amongst the sorts shown, but several which appeared to be old varieties under new names.

MATLOCK BATH HORTICULTURAL AND FLORAL: August 7.

THIS Society, which commenced in a small way about six years ago, is steadily growing in importance, and especially so since the establishment of the Pavilion Gardens with its handsome concert hall furnished the Society with an excellent place in which to hold its show. On this occasion, the weather being beautifully fine, an immense company attended, visitors coming in from Derby, Manchester, Chesterfield, Nottingham, &c., and the sum of over £181 was taken, mainly in shillings. The Postmaster of Matlock Bath, Mr. A. Clark, is a most energetic and assisted by Mr. Edward Hon. Secretary, and is assisted by Mr. Edward Speed. The exhibition bids fair to become a very influential and popular one in the district under their management.

GROUPS.

In the spacious central hall of the Pavilion were arranged the groups of plants, occupying spaces not exceeding 200 feet, competing for the handsome money prizes open to all England. There were three entries, and being arranged in the form of a crescent, had a very imposing effect. The best came from Mr. Geo. Williams, gr. b S. Baerlin, Esq., Didsbury, Manchester. From a bed of Maidenhair Ferns rose *Crotone*, *Dracenas*, *Ialms*, &c., with dwarf flowering plants, &c., here and there. Mr. A. Anderson, gr. to W. Walker, Esq., Lea, Matlock, was 2d, having an excellent lot of tall green and flowered plants, of which a good deal more could have been made from an artistic point of view. 3d, Mr. C. Yates, gr. to R. Wildegoose, Esq., Lea, Matlock Bath.

Prizes were also offered for groups of plants arranged on raised tables, but these being only 3 feet 6 inches in width it was difficult to make anything like an effective arrangement, and it would be much better if for the future, the collections could be arranged on the floor. Mr. N. B. Baerlin, gr. to F. C. Arkwright, Esq., Willersley Castle, Cromford, was 1st, with a charming lot of *Crotone*, *Dracenas*, Ferns, &c., edged with Maidenhair Fern and *Panicum variegatum*; 2d, Mr. John Brown, nurseryman, Matlock Bath, who had a table of gay flowering plants.

Plants were also shown by Amateurs and cottagers, but contained nothing worthy of special notice.

CUT FLOWERS.

In the class for twenty-four cut blooms of *Roses*, Mr. John Henson, florist, Derby, was 1st with a nice fresh lot; Mr. R. W. Proctor, nurseryman, Chesterfield, being 2d. Mr. Henson also had the best twelve *Dahlias*, fine blooms for this district at this season of the year.

Cut zonal *Paragoriums* in twelve bunches, three trusses in a bunch were a very fine feature; Messrs. J. R. Pearson & Sons, Chilwell Nurseries, Nottingham, being run very hard indeed for 1st place by W. Carrington, who was a remarkably good 2d.

Mr. Henson was the only exhibitor of twelve spikes of *Gladioli*, having some very good ones for the season of the year. Mr. Henson also had the best eighteen bunches of cut flowers, staging a very good lot indeed; Mr. J. Stevenson, gr. to A. Wathall, Esq., Alton Manor, Matlock, being 2d.

Bouquets and baskets of *Roses* were a pretty feature, and good prizes being offered there was an excellent competition.

The following subjects, staged not for competition, were Highly Commended:—Cut *Roses* from Messrs. Dickson, Brown & Tait, and Dickson & Robinson, both of Manchester; and *Carnations* and fancy Pansies from Mr. R. W. Proctor, nurseryman, Chesterfield.

FRUIT.

In this department of the show, Mr. J. H. Goodacre, The Gardens, Elvaston Gardens, Elvaston Castle, scored the leading honours; he had the 1st prize for eight dishes, staging fine Black Hamburgh and Muscat of Alexandria Grapes, Cayenne Pine, Peaches, Nectarines, Elton Pine, Strawberries, Cherries, and Melon; 2d, Mr. Jos. Ward, gr. to C. H. Oates, Esq., Ridding's Home, Derbyshire.

Mr. Barlas had the best six dishes, staging a very creditable lot.

In the class for four bunches of Grapes, Mr. Goodacre was 1st with two bunches each of Madresfield Court and Muscat of Alexandria; 2d, Mr. Jos. Ward, with excellent Muscat Hamburgh and white Muscats.

Mr. Goodacre was 1st both with two bunches of black and white Grapes, staging in the first instance admirable Muscat of Alexandria, and in the second Black Hamburgh. Mr. Anderson was a good 2d with white, and Mr. Ward with black Grapes.

Peaches, Nectarines, Melons, Tomatoes, and Cucumbers were well represented.

VEGETABLES.

The best collection of twelve dishes came from Mr. John Cothers, Matlock Bath; Mr. G. Richards, of the same place, being 2d.

There were classes for six dishes, and also for many single dishes, and in all cases the exhibits were good.

CLAY CROSS HORTICULTURAL: August 10.

NOTHING could have been more depressing than the circumstances under which the above Society held its twenty-ninth show, under the above date. The weather, which was so beautifully fine on several days previously, broke up early in the morning, and drenching rain fell almost uninterruptedly until midday, completely saturating the ground, and making everything under foot uncomfortable in the extreme. It is a long time since the Society has suffered from bad weather, and its occurrence on the show day is the more to be regretted as the Clay Cross show is a great popular festival, and thousands come in from all parts when the weather is fine, and a large sum of money is taken at the gates. This is the twenty-third year that Mr. James Stollard, the Secretary, has acted in that capacity, and it is to his energy so much of the success of the annual gathering is due.

The show took place in the grounds attached to the residence of one of the leading managers of the Clay Cross Company. The exhibits were arranged in three large tents, forming three sides of a square, and the tents were so joined together that a continuous promenade was formed. In the middle tent were mainly arranged the exhibits in the principal division, open to all subscribers, and a very fine feature was thus formed. Hardy fruits and cut flowers and vegetables were wonderful features, being extensively shown, and of very fine quality.

PLANTS.

The prime feature of the show were the groups of miscellaneous plants arranged for effect, and occupying a space not exceeding 300 feet. Five of these were competed, and, being arranged in part on stages, they nearly filled the centre of the spacious tent, and made a great display. Decidedly the best came from Mr. J. Lyon, gr. to Viscountess Ossington, Ossington Hall, Newark, the arrangement consisting of a ground-

work of Maidenhair Fern, with Palms, Crotons, Dracenas, &c., exhibited about it, a few large specimens being at the back. This group displayed excellent taste, and it was greatly admired. 2d, Mr. A. Webb, gr. to J. H. Mannes-Sutton, Esq., Kelham Hall, Newark, with a very bold and striking group, in which large specimen Crotons, &c., played a conspicuous part. 3d, Mr. J. Ward, gr. to T. H. Oakes, Esq., Riddings, Derbyshire. Two other prizes were awarded.

Then there was a class for smaller groups, not exceeding 150 feet, and here Mr. J. W. Clements, gr. to S. P. Wood, Esq., Brambling House, Chesterfield, was 1st; 2d, Mr. C. Yates, gr. to R. Wildgoose, Esq., The Poplars, Cromford; 3d, Mr. J. Lyon.

The handsome prizes formerly offered for collections of stove and greenhouse plants, and which used to bring Mr. Cypher and others, were omitted from the schedule this year, consequently but few specimen plants were present, groups occupied so large a space. The prizes offered for stove and greenhouse plants, and for three, four, and two Orchids, brought a fairly good competition, but nothing worthy of special notice.

Mr. Webb had the best six Ferns; Mr. J. Firth, gr. to J. Jackson, Esq., Stubben Edge Hall, Chesterfield, being 2d.

Some very good Fuchsias were shown by Mr. J. W. Clements.

Mr. Firth was 1st with three fine specimen flowering Begonias, Mr. Ward being 2d.

Coleus, zonal and variegated Pelargoniums, Balsams, Petunias, &c., were all numerous shown, and of good quality.

CUT FLOWERS.

Boxes of twenty-four bunches of stove and greenhouse cut flowers made a very fine feature—Mr. J. Ward being 1st, and Mr. A. Webb 2d.

Mr. R. W. Proctor, nurseryman, Chesterfield, had the best twelve Roses, staging good blooms of *Merveille de Lyon*, *Captain Christy*, *Countess of Rosebery*, *Dr. Chailus*, *Madame Eugenie Verdier*, *Star of Waltham*, *Mrs. Laxton*, &c.; 2d, Messrs. J. R. Pearson & Sons, exhibitors, Nottingham.

The last named had the best twelve blooms of *Dahlia*s; Mr. W. A. Holmes, Brampton Moor, Chesterfield, was 2d.

Some excellent Carnations and Picoetes were staged by Mr. R. W. Proctor, he being a long way 1st in both classes. Of Carnations he had *William Slack*, C.B.; J. D. Hextall, C.B.; *Rose of Stapleford*, R.F.; *Master Fred*, C.B.; *Arthur Medhurst*, S.B.; *Sir G. Wolsley*, P.P.B.; *Biddy McBane*, R.F.; *James Flowsley*, R.F.; *Stanley Hudson*, C.B.; *Sportsman*, S.F.; &c. 2d, Mr. W. A. Holmes. Mr. Proctor's Picoetes included good blooms of red edges: J. B. Bryant and *Thomas William*; purple edges: *Baroness Burdett Coutts*, *Clara Penson*, *Muriel*, and *Nymph*; rose edges: *Daisy*, *Edith d'Ombraïn*, *Favourite*, and *Lucy*. In this class Mr. W. A. Holmes was 2d. In addition a very fine lot of Carnations and cut Roses were shown by Mr. Proctor, not for competition, and zonal Pelargoniums, also not for competition, by Messrs. J. R. Pearson & Sons, and Highly Commended.

Stocks were numerous and very fine; French and African Marigolds, Asters, Pansies, &c., were all shown in good condition by both amateurs and cottagers.

Mr. J. Ward had the best *epergne* of flowers and fruit for table decoration, Mr. John Dore, Tibshelf, being 2d. The best ball-room bouquet came from Messrs. J. R. Pearson & Sons, and also the best six button-holes; Mr. W. A. Holmes being 2d in both classes.

FRUIT.

One of the best displays of fruit seen at Clay Cross for some years past was exhibited on this occasion. Mr. J. Edmonds, gr. to the Duke of St. Albans, Bestwood Park, Nottingham, was 1st, with Black Hamburg and Muscat of Alexandria Grapes, very fine Peaches and Nectarines, Figs, Cherries, Melon, and an excellent Pine-apple; 2d, Mr. J. Ward, with a very good lot; 3d, Mr. J. Lyon being 3d.

Mr. A. Webb had the best Pine-apple, Mr. J. Crauford, gr. to Colonel Thorpe, Codrington Hall, Newark, being 2d.

Mr. J. Lyon had the best dish of Peaches, Mr. T. Egglestone, gr. to F. Smith, Esq., Wingfield Park, Chesterfield, being 2d.

Mr. Edmonds had the best dish of Nectarines, staging a remarkably good sample.

Mr. Crauford had the best six dishes of hardy fruits, a very good lot indeed; Mr. Edmonds being 2d, and Mr. A. Webb 3d.

Grapes were finely shown. Mr. Lyon had the best two bunches of black, staging superb examples of Black Hamburgs; Mr. Ward being 2d, and Mr. Frith 3d, with the same variety.

Mr. Frith came in 1st with admirable bunches of white Grapes, having Muscat of Alexandria in splendid form, Mr. Ward being 2d, with smaller but finely finished bunches; and Mr. Crauford 3d, with fine bunches of Foster's Seedling.

Gooseberries, Currants, Cherries, Raspberries, and other hardy fruits were both numerous and finely shown.

VEGETABLES.

These were so largely represented, and so very good, that they made a large show in themselves. Mr. Crauford had the best twelve dishes—an admirable exhibit; Mr. J. Ward was 2d.

Mr. Firth had the best six dishes; Mr. Egglestone being 2d.

Potatoes were in abundance, and it seemed as if the judges favoured the largest rather than the most shapely roots; scab seemed to be characteristic of a good many of the samples. Among a large number of coloured rounds, Gramplan and Reading Russet seemed to be preferred.

Notwithstanding the badness of the weather the excursion trains brought a great many visitors into the town; the weather cleared in the afternoon, and perhaps the takings at the gates proved better than was at one time feared.

BRACKLEY HORTICULTURAL SHOW.

This show was held on Tuesday last, and, as usual, the exhibits proved a decided success, but the weather being so very wet the greater part of the day caused great falling off in the attendance. The worthy Hon. Secs., Messrs. R. J. and A. H. Russell, as on previous occasions, provided a capital repast for gardeners and their assistants, which was highly appreciated.

The groups of ornamental and flowering plants arranged for effect were numerous, and most tastefully arranged, especially so in the prize group of Mr. John Price, gr. to the Hon. Percy Barrington, as also that of Mr. Slarke, gr. to the Earl of Ellesmere.

W. L. Bird, Esq., Norton Hall, carried off 1st honours for six ornamental foliage plants, the 2d prize going to the Earl of Effingham.

The decorations for a dinner-table, fruit included, brought out only two competitors, in the persons of Mr. Haskins, gr. to the Duke of Buckingham, and his better half, Mrs. Haskins, who on this occasion proved it beyond all doubt by securing the coveted 1st prize of £3; the design was most elaborate, and, as it deserved, proved a notable feature in the show. The 2d prize was awarded to Mr. Haskins, whose design was simply elegant.

Mr. Aggiss, gr. to the Earl of Effingham, was a long way ahead with cut flowers, twelve kinds of blooms, each bunch one distinct variety; as also for Pelargonium blooms, eight varieties, not more than three bunches in a truss. The same exhibitor was awarded the premier prize for the best collection of fruit, six kinds, as also for the best Melon; thus fully maintaining the reputation of the Tusmore Gardens.

Mr. W. Rawlings, gr. to J. W. Brown, Esq., Croughton, staged twenty-four blooms of Roses, for which he was deservedly adjudged the winner of the 1st prize.

Vegetables were especially strong, and the quality excellent. W. L. Bird, Esq., took the 1st prize for the best collection of eight kinds, very closely followed by the Earl of Ellesmere.

The Onions were very fine, and the competition keen, the 1st and 2d prizes going to the Rousham Park Hero, grown by R. J. Russell, Esq., and Mr. Gunthorpe.

The cottagers' productions were extremely good, more particularly the stump-rooted Intermediate Carrots and Long Red Surrey, as also the Farnipins, Potatoes, Peas, and Rousham Park Hero Onions, which gained 1st and 2d prizes, some wonderfully good bulbs being noticed in the prize collection.

MISCELLANEOUS.

Mr. Turner, of Slough, exhibited a box of magnificent Picoetes and Carnations which were greatly admired; and Mr. Deverill, of the Royal Seed Stores, Banbury, a fine display of Onions, extraordinary for the time of year, thirty-six bulbs weighing upwards of 40 lb., the two largest scaling 3 lb. 2 oz. Mr. Perry, of the Banbury Nursery, also exhibited a pretty basket of Roses, crosses, &c.

WOODSIDE HORTICULTURAL.

THE annual show of this Society was held in the Town Hall, Woodside, near Aberdeen, on August 7, and was in every way as successful as former years. The number of exhibits was less than last year, being 627 against 756, but the quality was superior to that of last year, and fully made up for the deficiency in number. There were only two divisions this year—professionals and amateurs being classed together, and the other division being set apart for working men. Although there were not many entries the amateurs held their own against the professionals, and not much difference could be noticed between the different lots. The amateur and professional division consisted chiefly of pot plants, Tree Ferns, Pelar-

goniums, Fuchsias, Petunias, Lycopods, Begonias, Myrtles, &c. For pot plants, Mr. S. Maitland carried off the principal honours, having premier position for greenhouse and Cape Heaths, Ferns, show Pelargoniums, and others. Among the other prize winners were Messrs. J. Menzies, D. Fraser, and John Yule. In this division there were also grand collections of cut flowers, fruit, and vegetables, in which Mr. Maitland again distinguished himself. The working-classes division was highly interesting, and reflected great credit on the exhibitors. In both divisions the display of small and bush fruit was exceedingly fine, both in size and quality.

TREES AND SHRUBS.

LARGE DECIDUOUS CYPRESS.

THE largest and finest tree of this kind, *Taxodium distichum*, I have seen in the grounds at Longford Castle, near Llanrwst. It is fully 50 feet high, girths 9 feet in diameter at a yard up, and has a spread of branches covering a diameter of fully 30 feet. *Pinus Cembra* and *P. Strobus* do remarkably well at the same place, many of the latter towering to over 80 feet in height, with clean smooth stems of 8 feet girth and upwards at 3 feet from the ground. A. D. Weister.

CEANOTHUS GLOIRE DE VERSAILLES.

Amongst very showy free-flowering evergreen shrubs for covering walls, a worthy place is held by *Ceanothus Gloire de Versailles*. Just now a goodly portion of one of the walls at Chiswick, is literally aglow with this particular variety—a desirable kind—its numerous panicles of lightish-blue flowers having a very pretty effect set off by its green foliage.

OLEARIA HAASTII.

In the mixed shrubbery border at Chiswick, near to the Council-room, is a fine specimen of this useful, neat, evergreen, flowering shrub, bearing clusters of little star-shaped white flowers, which are somewhat sweetly scented. Some interest attaches at the present time to this plant. It is named after Sir Julius von Haast, one of the New Zealand Commissioners in connection with the Colonial Exhibition now being held at South Kensington—and one who took, and still takes some interest in the New Zealand fernery, a conspicuous and pretty feature at the Exhibition. B.

EUCRYPHIA PINNATIFIDA.

Messrs. Veitch send us flowering sprays of this very lovely flowering shrub of which we gave a figure at p. 337, vol. xiv., 1880. The branches are stiff, of a deep purple colour, and bear pinnate leaves like those of a Rose, but of a deep green colour and somewhat leathery texture. The flowers are like those of a green *Cistus* without the blotch. It is one of the loveliest of hardy shrubs.

PAVIA MACROSTACHYA.

Messrs. Veitch & Sons send us from Combe Wood specimens of this very beautiful flowering tree. It bears elegant palmate leaves of finer texture than those of the common *Horse Chestnut*, and with long slender purplish leaf stalks. The white or pinkish flowers are borne in erect narrow pyramidal spikes, and are very beautiful. It is a small growing tree, which should form part of all collections. A figure of it was given at p. 656, vol. viii., 1877.

PRUNUS PISSARDI.

Paying a visit to my former employer, Mr. Vetter, superintendent of the well-known Wilhelmshöhe Park, he took me round his extensive collection. "Here are ripe Plums," said he. I doubted. "Look here," said he; "are these young Plums not just as dark red as ripe ones?" Yes, so they were, but they were not ripe; the fruits in question were young fruits of *Prunus Pissardi*, showing just the same colour as the leaves of this beautiful shrub or tree. Mr. Vetter showed me also one of the most striking novelties, the cut-leaved Pear tree. The plant is still a small one, and must become very beautiful when it grows older. C. Wissenbach, Friedhofs-Inspector, Cassel, Germany.

PUBLICATION RECEIVED.—*Catalogue of Chrysanthemums*. By a Special Committee of the National Chrysanthemum Society (London: E. W. Allen, 4, Ave Maria Lane).

THE ADVANTAGES OF TOBACCO.

DR. PEREIRA states in his *Materia Medica* that he is "unacquainted with any well determined ill-effects from the practice of smoking," and Christison speaks of it as a luxury used all the world over without any bad effects having been clearly traced to it." In a letter of Dr. Parke's, author of *Parke's Manual of Practical Hygiene* in the *Lancet*, p. 384, 1880, he confesses that he has searched in vain for any satisfactory evidence of the harmful effects of Tobacco, and that it was for this reason that its consideration was not given place in the work mentioned.

The fact has been pointed out that men are on the whole as healthy as women, while nine out of ten of the male population of the world use Tobacco, and women as a rule abstain. In the learned professions about one-half of the ministers are addicted to it in some form, three-fourths of all physicians, and nine-tenths of members of the legal fraternity.

In looking calmly at the Tobacco question, there is one feature calculated to excite alarm, and that is the habit of chewing and smoking so widely practised among boys. This, to young growing boys, is unqualifiedly hurtful. They voluntarily endure the first disagreeable effects of the Tobacco to acquire what they consider an accomplishment, the habit is finally confirmed, and with an entire ignorance of its powers, added to a tendency to immorality, the growth and development is often seriously interfered with, and the worst results follow. They smoke and chew generally the worst Tobacco, and to a degree which would positively be harmful with the majority of adults. This matter should be corrected by proper action of our legislators, with whom the responsibility rests. Smoking, when done at proper times, facilitates digestion. The sense of relief obtained by a cigar, after a heavy meal, is well known to smokers. Dyspepsia sometimes follows the discontinuance of Tobacco, and is removed when the habit is resumed. While the abuse of Tobacco weakens the system and leads to emaciation, used intelligently it exerts a favourable influence upon nutrition.

Hammond, by observation upon himself, found a gain in weight with the use of Tobacco. Fiske attributed an increase of 20 lb. in three months to Tobacco. "Tobacco, when the food is sufficient to preserve the weight, increases it; when insufficient, and the body is losing, Tobacco restrains the loss" (Hammond). Boerhaave, of Holland, nearly 200 years ago, referred to Tobacco as being antidotal to hunger. It seems that the power to undergo severe exertion and fatigue, either mental or physical, is aided by Tobacco. "Soldiers of all nations use it. It was a standing injunction of Napoleon that his troops should have Tobacco, and it was of great advantage in the retreat from Moscow." (Fiske.) During our late war the soldier would be patient under very severe privations, if he but had a good supply of Tobacco to smoke or chew, and when on picket duty would risk his life to strike a match for his pipe.

Situations for loneliness are always rendered more tolerable by Tobacco, and it is the constant companion of those who lead lives of solitude, such as that of the herdsmen or ranchmen. A feeling of unrest or discontent made up of ill-defined longings, of imaginary disappointments, and unpleasant anticipations, commonly known as *ennui*, is responsible for much unhappiness. This unfortunate condition of mind is removed by the soothing influence of a cigar, and the moroseness and gloom are quickly dispelled. As much of every day is filled up with care, our degree of comfort in this life will depend largely upon our ability to bear it uncomplainingly. That Tobacco assists us to do this—that it enables us to look upon life more complacently, must be the conclusion of every one who has experienced its influence. That it enables us to toil with less fatigue is equally true. The readiest writers generally use Tobacco, and cannot accomplish the same amount of work in the same time without it, and those connected with newspaper and other literary work, who have often to write against time, find it of inestimable value.

Tobacco formerly enjoyed a deserved reputation as a medical agent, and was extensively used in scabies and other cutaneous disorders. It has been largely supplanted, however, in modern practice, by other remedies. The use of Tobacco during a mercurial course decreases the risk of salivation, and cases of pyralism have been reported cured by its employment.

Before the discovery of chloroform, Tobacco served a useful purpose in the hands of the surgeon in cases of strangulated hernia for obtaining complete relaxation. Tobacco constitutes a most valuable addition to the ordinary poultice in local painful affections. In two cases of cancer of the breast, by incorporating it in a local application, a marked advantage was noticed by the writer in the relief of pain. As an ingredient in asthmatic cigarettes, with belladonna, stramonium, &c., it is entitled to share in the remedial effect.

The limited medical range of Tobacco is unimportant in comparison with its social and physical influences. Among its many beneficent powers it appears to allay worry and lighten toil. It is an aid to mental work, and a help to reflection and placidity. It promotes sociability, and in the words of one of its champions, "makes a man act more like a Samaritan." While it is neither liked nor needed by animals, who loathe it, it seems to be required and craved by man, to whom its characteristic properties appear peculiarly grateful and often useful. It has repeatedly and unjustly been called a curse, but those who have written most of its baneful effects, as a rule, have never used it. Indeed, this comforting substance is so far removed from the idea of a curse, that it should not be forgotten when we recount the many blessings of mankind. *Indian Agriculturist*. [Apart from the undoubted and direct injury done to young persons by the use of Tobacco, the worst probably that can be said against it is that a good many who smoke much drink in proportion. On the other hand, it enables many to dispense with alcoholic stimulants. If smokers would only smoke where the habit is not a nuisance to non-smokers there would be no cause of complaint.]



INDIAN NOTES.

BOTANIC GARDEN, SEEBPORE.—The Bengal Government resolution on the report of the Royal Botanic Garden, Seebore, for 1885-86, notices that a high standard had been kept up in the cultivation and arrangement of the garden. The show of Orchids was excellent, and the general appearance of the garden very satisfactory. A large quantity of Mahogany seed was received from Kew and Jamaica, much of which was distributed, and the remainder sown in the garden, from which about 20,000 seedlings have been raised. Other timber plants are also grown for distribution. Dr. King reports that further experience confirms him in the belief that the paper Mulberry tree, from which the "tappa" cloth of Polynesia, and the bulk of the paper of China and Japan is manufactured, finds a congenial home in the soil and climate of Bengal. This is important, and the fact should be made known widely, plants being distributed gratis to those wishing to cultivate this useful tree, the bark of which is considered by English paper-makers to be nearly the best of paper fibres. The utilisation of the common Plantain fibre for paper-making has been rendered possible, we are told, by the invention of a machine patented by a retired officer of the Madras army. The herbarium received material additions, specimens having been contributed by Mr. Kiinstler from Malay, Mr. Pantling from the Eastern Himalayas, and other gentlemen from various parts of India, as well as from England, Australia, Germany, Java, and Penang. Nearly 54,000 plants were distributed, and about 9251 received during the year; 3292 packets of seeds were distributed, and 914 packets received.

ARABIAN DATE PALMS.

We note with satisfaction that there is some hope of the Arabian Date Palm being acclimatised in Bangalore. Mr. Cameron, the Superintendent of the Lal Bagh, Bangalore, writes as follows in his last report on these gardens:—"Acting on the suggestion of Dr. Bonavia, Civil Surgeon at Etawah, who is an authority on the subject, I applied to Government, and obtained sanction for the expenditure of two hundred rupees on introducing the Arabian Date Palm (*Phoenix dactylifera*) direct from the Persian Gulf. This work has been promptly and so far successfully carried out, thanks to Mr. Girdlestone, the

acting British Resident, who kindly gave me a letter of introduction to Colonel Ross, the British Resident at the Persian Gulf. In October we received 116 offsets of the finest varieties of Date, and excepting six, which I believe are dead, the offsets are doing fairly well. Being unrooted, the present dry season is much against them, but when the rains set in, I hope to see a decided improvement in their condition. Last January we received from the Persian Gulf 41 lb. of seed in pulp, and these have been distributed. The offsets and seeds arrived in capital order, and I am indebted to Mr. A. R. Hakim, Khan Bahador, Assistant to the Political Resident, for much valuable information which accompanied them. But prior to receiving the above consignments I had obtained some seeds from Mr. Ridley, Superintendent of the Horticultural Gardens, Lucknow, where the Date Palm is already domesticated through the efforts of Dr. Bonavia and Mr. Ridley. This seed produced sixty-three healthy seedlings, which are now growing vigorously. An attempt was made to introduce the Date Palm in 1872-73, which resulted in failure; but Dr. Bonavia is sanguine of success, and I shall do everything in my power to support such a worthy object. Writing to me a few days ago, the Doctor urges the importance of sowing and planting periodically in the following words:—"I am very glad to hear you have made so good a start with the Date Palm. If you go on sowing and planting every year, when they begin to fruit you will have the satisfaction of knowing that every year more and more will fruit. But if you plant one lot, and then stop to watch the result, you will be sorry when you see the result that you did not make an annual sowing." I quite concur in the above opinion. To make the experiment felt we must obtain and sow large quantities of seeds at various centres every year. The importation of seeds is not an expensive measure, and, judging from the courtesy already experienced, I believe we have only to make our requirement known to be well served by the authorities at the Persian Gulf. *B. S.*" *Indian Agriculturist*, July 17.

Obituary.

THE LATE H. F. HANCE, PH.D., F.L.S., &c.—The sad news of the decease at Amoy on June 21 of Dr. Hance, H.B.M.'s Consul at that port, will produce feelings of the deepest regret amongst those who had the good fortune of his friendship; and by the scientific world, to which his eminent attainments and works as a learned and indefatigable botanist made him so well known and respected, his loss will be, if possible, even more felt.

Dr. Hance was born on August 4, 1827. He entered the Civil Service of Hong Kong on September 1, 1844, and was transferred to the Consular Service and appointed Vice-Consul at Whampoa in 1861. He has been an almost continuous resident in South China for nearly forty-two years.

On his arrival in China he seems to have commenced botanical investigations, beginning with laborious expeditions in plant hunting in Hong Kong and in forming a herbarium to assist him in his studies. These studies he gradually extended to regions far and wide in the Chinese Empire, from whence travellers and residents have delighted to furnish him with collections of plants. These studies were carried on almost to the day of his death. The collection of dried plants gradually accumulated until they now stand at the large number of about 22,000 species artistically mounted and scientifically named and arranged. The immense work which this entailed was carried on simultaneously with the discharge of his official duties in the Colonial and Consular Services.

Dr. Hance's chief botanical work was in descriptive and systematic botany; scarcely a month has passed for many years without seeing the publication of descriptions of some plants from China which were new to science, or notes on others which were new to the country.

In 1871 Dr. Hance published a supplement to the *Flora Hongkongensis*, which was much needed, as there had been many discoveries in the island subsequent to the publication by Bentham, a decade before, of the *Flora Hongkongensis*.

The first number in 1878 of the *Journal of Botany* contained a paper from the pen of this eminent author, entitled *Spicilgia Flora Sinensis*. Contributions under this title have been appearing since that time,

and they contained "Diagnosis of New and Habitats of Rare or hitherto unrecorded Chinese Plants" to the number of 633 species. Dr. Hance truly remarked in a quotation from Miquel at the commencement of this series of papers that:—"Un pays sur lequel nos connaissances sont encore très-bornées, et qui, sous le point de vue de la géographie botanique et des questions qui s'y rapportent, mérite toute notre attention."

In addition to strictly scientific and technical work amongst other things, the following papers on subjects of economic and commercial importance were produced:—"On the Sources of the Chinese Matting of Commerce," "On the Silkworm Oaks of Northern China," "On the Source of Radix Galangae Minoris of Pharmacologists," "On the So-called Olives of South China."

In regard to his botanical work scarcely any one can take up and carry out the precise lines on which Dr. Hance has been for so long usefully engaged.

At the instance of the Kew authorities an enumeration of all known Chinese plants is being compiled. I believe Sir Joseph Hooker would have been very glad if Dr. Hance could have been induced to go to Kew and there undertake the direction of this work. In the report of the meeting of the Linnean Society in London on April 1 of this year this enumeration is mentioned as follows:—"The first part of a communication of a lengthened and technical character, entitled *Index Florae Sinensis*, or an enumeration of all the plants known from China proper, Formosa, and the Liuchiu Islands, together with their synonymy and distribution, was introduced by the authors, Messrs. Francis B. Forbes and Wm. B. Hemsley." I happened to be present at that meeting, and was very pleased to note the high estimation in which Dr. Hance was held by scientific men at home. In this work Dr. Hance could have rendered eminent services. As it is, however, his writings will be of the greatest service in the elaboration of the *Index Florae Sinensis*.

Dr. Hance kept up frequent correspondence with the principal botanical establishments of the world, and it is few of them which have not benefited from his generous donations of rare and valuable botanical treasures for herbaria.

When Hong Kong began to think (about a quarter of a century ago) of establishing a public garden, Dr. Hance was consulted as to the suitability of a site, and it was on his recommendation that that was chosen on which the old portion of the Botanic Gardens now rests.

Since the gardens began, in 1871, to assume a scientific character, Dr. Hance's extensive and high acquisitions have always been at our disposal, and they have been extensively availed of in botanical matters, a regular and large correspondence having been maintained with him on scientific subjects of mutual interest, which has been greatly to the advantage of the scientific work of the Botanical Department.

Dr. Hance was ever ready to furnish information and help without regard to the trouble it gave himself, and botanists making visits to his extensive herbarium and library were sure to meet with the greatest courtesy and hospitality, and to depart with a fund of new information. His death makes a gap which will not soon be filled, and many will feel the acute pangs of grief which follow the loss of a friend.

Dr. Hance was buried at Hong Kong, June 26, 1886. C. Forth, Hong Kong.

—MR. T. CHAPMAN.—Lovers of the Carnation and Picotee will bear with pain the death of Mr. Tom Chapman, of Leicester, who passed away on the 1st inst., after three weeks of grievous suffering from sunstroke, aged 27. He was a member of the committee of the Oxford Carnation and Picotee Union, and a thorough lover of the flowers. Mr. E. S. Dodwell has named one of his fine scarlet-flake Carnations after him. Though comparatively young, he had endeared himself to a wide circle of friends by the simplicity of his character and his ingenious bearing; and his floricultural brethren have to mourn the loss of a most promising florist.

—WILLIAM FLETCHER.—We regret to record the death, on August 9, of William Fletcher, of Ottershaw Nursery, Chertsey. He had been at the above nursery for sixty-two years, and for the last thirty-three years proprietor. He was a generous patron of horticulture.



STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, AUGUST 11, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DEVIATIONS FROM GLAISHER'S TABLE 7th Edition.	WIND.	RAINFALL.
	Mean Reading from 6 a.m. to 3 p.m.	Departure from mean of 18 years.	Highest.	Lowest.	Range.	Mean for Day.			
Aug.	In.	In.	°	°	°	°	Dew Point.	Degrees of Humidity.	
5	29.89	+0.14	71.0	58.8	12.2	61.0	74	S.W.	0.00
6	29.75	+0.08	75.0	58.0	17.0	65.2	81	S.W.	0.00
7	29.78	+0.03	75.0	58.2	16.8	65.7	82	S.W.	0.00
8	29.86	+0.11	75.0	58.4	16.6	65.4	81	S.W.	0.06
9	29.85	+0.10	76.0	59.5	16.5	65.7	85	S.W.	0.02
10	29.81	+0.06	63.0	59.0	4.0	60.8	91	S.W.	0.43
11	29.77	+0.02	65.5	49.6	15.9	56.9	74	W.S.W.	0.02
Mean	29.81	+0.08	70.5	57.2	13.3	57.6	81	S.W.	0.51

Aug. 5.—The day was fine till the evening, and the sky was overcast from 6 p.m. to 11 p.m.
 — 6.—Fine, but frequently cloudy, sky deep blue afternoon; fine night.
 — 7.—Fine morning, but frequently cloudy and dull; afternoon the sun shone brightly; fine night.
 — 8.—Fine, morning sky frequently covered, very fine afternoon; rain from 1 p.m. to 4 p.m.
 — 9.—Fine, but chiefly dull with gleams of sunshine at times.
 — 10.—Heavy rain in the morning, afterwards fine but dull.
 — 11.—A very fine day throughout.

LONDON: Atmospheric Pressure.—During the week ending August 7, the reading of the barometer at the level of the sea decreased from 29.78 inches at the beginning of the week, to 29.65 inches by 9 A.M. on the 2d, increased to 30.13 inches by 9 A.M. on the 4th, decreased to 29.93 inches by 5 P.M. on the 6th, and was 29.97 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.96 inches, being 0.18 inch lower than last week, and 0.03 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 76° on the 7th; on the 2d the highest was 69° 2. The mean of the seven high day temperatures was 69° 2.

The lowest temperature in the week was 49° 9, on the 3d; on the 7th the lowest was 58° 2. The mean of the seven low night temperatures was 53° 5.

The greatest range of temperature in one day was 18° 7 on the 3d; the smallest was 6° 7 on the 2d. The mean of the seven daily ranges was 15° 7.

The mean daily temperatures were, 58° 9 on the 1st; 57° 2 on the 2d and 3d; 56° 5 on the 4th; 61° on the 5th; 65° 2 on the 6th; and 66° 7 on the 7th. These were all below their averages, with the exception of 6th and 7th, which was 3° 2, and 4° 5 above, by 3° 4, 5° 1, 5° 5, 5° 7, and 1° 1 respectively.

The mean temperature of the week was 60° 4, being 1° 1 higher than last week, and 1° 8 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun, was 131° on the 7th. The mean of the seven readings was 117°.

Rain.—Rain fell on two days to the amount of 0.18 inch.

ENGLAND: Temperature.—During the week ending August 7, the highest temperatures were 79° 6 at Cambridge, 76° 6 at Blackheath, and 76° at Hull; the highest at Preston was 66° 6, and at Liverpool and Newcastle 68°. The general mean was 72° 5.

The lowest temperatures were 38° 9 at Wolver-

hampton, 42° at Sheffield and Sunderland; the lowest at Blackheath was 49° 9, at Liverpool 48° 2, and at Brighton 48°. The general mean was 44° 7.

The greatest ranges were at Wolverhampton, 35° 6, at Cambridge 35°, and at Hull 33°; the least ranges were 19° 8 at Liverpool, 20° at Preston and 24° Newcastle. The general mean was 27° 8.

The mean of the seven high day temperatures was highest at Cambridge 72°, at Truro 69° 3, and at Blackheath, 69° 2; was lowest at Preston 62° 6, at Liverpool, 63° 4, and at Newcastle; 63° 6. The general mean was 66° 6.

The mean of the seven low night temperatures was highest at Blackheath, 53° 5, at Plymouth 53° 4, and at Liverpool 53° 3; and was lowest at Wolverhampton 48°, at Sunderland 48° 5, and at Hull 48° 9. The general mean was 48° 2.

The mean daily range was greatest at Cambridge, 21° 3, at Hull 19° 4, and at Truro 17° 7; and was least at Liverpool, 10° 1, at Preston 10° 9, and at Newcastle 13° 6. The general mean was 15° 4.

The mean temperature was highest at Blackheath, 60° 4, at Cambridge 59° 5, and at Truro and Brighton 58° 6; and was lowest at Wolverhampton 54° 8, at Newcastle 55°, and at Preston 55° 3. The general mean was 57° 3.

Rain.—The largest rain fall was 0.81 inch at Newcastle, 0.64 inch at Preston, and 0.49 inch at Leeds; the smallest fall was 0.07 inch at Sheffield, 0.08 inch at Sunderland, 0.09 inch at Wolverhampton, and 0.11 inch at Cambridge. The general mean fall was 0.29 inch.

SCOTLAND: Temperature.—During the week ending August 7, the highest temperature was 73° at Aberdeen, the highest at Greenock was 64° 5. The general mean was 67° 5.

The lowest temperature in the week was 36° at Glasgow; at Leith the lowest was 43°. The general mean was 40° 2.

The mean temperature was highest at Dundee, 56° 4; and lowest at Glasgow 53° 5. The general mean was 54° 8.

Rain.—The largest fall was 0.53 inch at Greenock, and the smallest fall was 0.05 inch at Dundee. The general mean fall was 0.17 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, August 9, 1886, issued by the Meteorological Office, 116, Victoria Street, London, S.W.:—The weather was generally fair during the earlier part of the period, but towards the close the sky became cloudy or overcast, and at most of our stations falls of rain occurred.

The temperature has been about equal to the mean in "England, N.E.," "England, S.," and "Ireland, S.," but in the other districts it has varied between 1° and 3° below. The highest of the maxima, which were registered in most places either on the 6th or 7th, ranged from 62° to 73° in Scotland, from 71° to 74° in Ireland, and over England from 68° in "England, N.W.," to 79° in the "Midland Counties," and to 81° in "England, S." The lowest of the minima were recorded either on the 3d or 4th, when the thermometer fell to 30° in "Scotland, N.," at (Wick), to 38° in "Scotland, E.," "England, N.W.," and "Ireland, N.," to between 39° and 43° over England, and to 53° in the "Channel Islands." Towards the end of the week the nights were warm and close, the thermometer at many of our southern stations not descending to 60°; at Hereford and in London the minimum temperature during the night of the 8th—9th was no lower than 63°.

The rainfall has been less than the mean in all districts except the "Channel Islands," where a slight excess is shown. Bright sunshine has been more prevalent than it was last week in the "wheat producing districts," but less so in the "grazing districts." The percentages of the possible amount of duration ranged from 19 in "Ireland, N.," to 39 in "Scotland, E.," and "England, N.E.," and to 46 in the "Channel Islands."

Depressions observed.—During the earlier part of the week the distribution of pressure over the United Kingdom was anticyclonic and the wind light and variable; on the 5th, however, the barometer fell decidedly on our western and northern coasts, and the high pressure area moved southwards. During the remainder of the period, small, shallow depres-

sions passed in an easterly direction over our Islands, the wind became light or moderate from between southerly and westerly, and the weather cloudy and unsettled.

Enquiries.

"He that questioneth much shall learn much."—BACON.

OK BARK.—Will you be so good as to inform me what salts are in, or the manural value of, ashes produced from Oak-bark burnt fresh as it comes from the tannery, not heated? And will it answer the same purpose in a Vine-border as wood-ashes are recommended for, and if so, what quantity is it advisable to dress on an old border? *An Old Subscriber.* [We have not been able to find any published analysis of the ashes of Oak bark, but as the bark is known to contain potash and lime, which would remain in the ash, it should have similar manural value to wood-ashes. Ed.]

Answers to Correspondents.

CARNATIONS AND MAIDENHAIR FERNS: *S. T. H.* The first-named are in 2's there is no need to give them a shift now, as with proper treatment the plants should go well through the blooming season; but do not stop them any more. Standen's manure would be suitable for these. Some of the Norwegian fish-manures might suit your carnations, but Ferns generally do not like applications of manure unless in very weak doses.

CATERPILLAR EATING SKIN OF RIPE GRAPES. *W. H. Stretcham.* The grub is that of *Tortrix angustiorana*, which eats the skin, and a little of the flesh of the Grape, and joins several furrows together by a web. The grub appears to be on one berry, which rots, and causes the neighbouring ones to decay also. Hand-picking is the only mode of getting rid of the pest.

CEADAR OF LEBANON: *H.* The apparent young cones are really the male flowers. Asteriscus is correct. We shall be glad of the cones.

CUCUMBER: *Birmingham.* A case of gumming, due to mischief at the root.

ERRATA: In "Plant Illustrations," &c., p. 167, col. a, Buddleya Colville, stated to be not yet introduced, is incorrect, the plant being now in commerce. Southampton show report, p. 185, col. a, Mr. Ward, Longford Castle Gardens, obtained the ad prize for eight varieties of Potatoes; Messrs. West and Oxford being respectively 3d and 4th.

EUCHARIS AND VALLOTA: *F. P.* The bulbs were infested with the Eucharis mite.

INSECTS: *G. N.* Your "tough-cased black pupae" are the cocoons of a moderate-sized black parasitic Ichneumon, which probably from your account of their flying about your Gooseberry bushes are the natural enemies of the grubs of the Gooseberry sawfly. Do not destroy them. *I. O. W.*

MATRICARIA: *J. C. & Sons.* We do not see in the specimen as it reached us much difference from the now common form.

NAMES OF PLANTS: *C. E. F.* *Cystopteris alpina*.—*W. Little.* *Stanhopea insignis*.—*W. S. C. D.* *I.* and *2.* not known; *3.* *Verbascum nigrum*; *4.* *V. Lychitis*; *5.* *Verbascum thapsus*; *6.* *Calceolaria amplexicaulis*.—*J. Hill.* *Griselinia littoralis*.—*W. H. H.* *1.* *Retinospora distachya*; *2.* not recognised; *3.* *Thuia*, or *Thuopsis Standishii*; *4.* *Athrotaxis cupressoides*; *5.* *Abies Pattoniana*; *6.* *Podocarpus chilensis*; *7.* *Viburnum Lantana*; *8.* *Virgilia lutea*; *9.* *Cercis Siliquastrum*.—*P. I.* *Pleopeltis pustulata*.—*W. Smythe.* The Currant is like Shilling's White.—*K. B.* *Salvia sclarea*.—*A. B.* *1.* *Colutea arborescens*; *2.* *Marsdenia erecta*; *3.* *Santolonia chamecyperis*; *4.* *Pittosporum tenuifolium*.—*W. S. C. P.* *1.* *Gentiana*, specimen insufficient; *2.* *Dicentra formosa*; *3.* *Balsaminia grandiflora*; *4.* *Sedum rhodiola*; *5.* *Campanula*, species were unable to name; *6.* *Campanula rapunculoides*.—*J. M.* *Quercus imbricaria* (North America).—*C. E. F.* *Laetrea spinulosa* (true).—*B.* *Lamproloma*. Varieties of *Calceolaria intermedia*, the finer being the var. *C. Lodigiesii*.—*Constant Reader.* *1.* not recognised; *2.* *Malope grandiflora*; *3.* *Hypericum hircinum*; *4.* *Hypericum calycinum*; *5.* *Olearia Haastii*; *6.* *Gnaphalium macrocarpa*.—*Birmingham.* *Rhus cotinus*, the wig plant.

OFFICER D'ACADEMIE: *C.* This has nothing to do with the Academy of Sciences, as you suppose, but is a distinction conferred by the French Minister of Public Instruction on those who have rendered service to literature, science, or fine art. After eight years the "officer" may be promoted to the grade of "Inspecteur d'Universite," when he is entitled to wear a ribbon with gold. Palm leaves, instead of silver, as before. That is all we can tell you. We do not know if it has ever been conferred on an Englishman.

TOMATOS FOR WINTER USE WHOLE: *B. A.* They may be kept in weak brine, keeping them under the surface by means of a floating piece of board weighted with a stone. Keep the scum that will appear wiped away once a week.

VARIATION OF LEAVES OF SAXIFRAGA SARMENTOSA: *A. B.* It is not known by what means the foliage of this plant became variegated, and there is no known method of producing variegation with

certainly. Poorness in the soil will bring it about, but not always, and great richness will cause variegation to partially disappear.

VARIETIES OF ADIANTUM: *T. F.* Both forms of *A. cucumatum*, No. 1 rather more cut or lobed than usual.

WATER WEED: *J. H.* A species of *Convolvulus*, or Water-silk. Rake it out, or turn in some saws. If these methods fail, there will be nothing left but to empty the lake, and let it remain dry for some months.

FOREIGN SUBSCRIBERS sending Post-Office Orders are requested to send them to the Publisher of this journal, 41, Wellington Street, Covent Garden, and to make them payable to William Richards, at the Post-Office, Drury Lane, London, W.C.

CATALOGUES RECEIVED.

W. CUTBUSH & SON, Highgate, London, N.—Flowering Bulbs, &c.

CARTER, HAGG & CO., 53, London Wall, London, E.C.—Dutch Bulbs, &c.

LOUIS DE SMET, Ledeborg-lez-Gand, Belgium—Supplyment of General Catalogue of Plants.

F. AND A. DICKSON & SONS, Upton Nurseries, Chester

WILLIAM SHAND, New Street, Lancaster—Dutch Bulbs, &c.

VILMORIN-ANDRIEU & CO., 4, Quai de la Megisserie, Paris—Flowering Bulbs, &c.

EUGENE VERVAET-DE-VOS, Sneyaerde, near Ghent

WAITE, NASH & CO., 79, Southwark Street, London, S.E.—Wholesale Catalogue of Flower Roots.

LITTLE & BALLANTYNE, Carlisle—Flowering Roots, Bulbs, Roses, &c.

EUGEN SCHMITER, Engineer, Zurich—Apparatus for Drying Fruit.

DICKSON & ROBINSON, 12, Old Millgate, Manchester

—Hyacinths and other Bulbs.

COMMUNICATIONS RECEIVED:—H. Cannell & Sons; J. Dawson; J. B. M. D. C. E.; A. Scottman; E. W. B. S.; O. O. W. H. H.; O. O. W. H. H.; B. T. L. H. S. W. Bull; P. L. S. Canon E. (many thanks); E. Rodrigues, Ghent; F. W. Sutton & Sons; N. E. B.

Markets.

COVENT GARDEN, August 12.

BUSINESS much quieter this week, with prices lower again. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Cherries, ½ sieve	1 3 0 8	Melons, each	1 0 2 0
Currants, ½ sieve	2 0 6 2	Peaches, per dozen	2 0 12 0
Figs, per dozen	1 6 2 0	Pears, per dozen	1 0 16 0
Grapes, per lb.	1 0 3 0	Pine-apples, Eng. lb.	2 0 3 0
Oranges, per dozen	1 6 2 0	Strawberries, per lb.	3 0 9 0
Lemons, per case	11 8 3 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, per doz.	4 0 1 0	Mushrooms, punnet 1	6 2 6
Asparagus, Eng. 100	2 0 2 0	Mustard and Cress, do.	4 0 1 0
Beans, Kidney, lb.	0 8 1 0	Onions, per bushel	4 0 1 0
Beet, red, per dozen	0 8 1 0	Peas, per bushel	4 0 1 0
Carrots, per bunch	0 6 1 0	Potatoes, per cwt.	4 0 5 0
Cauliflowers, per doz.	3 0 1 0	" " kidney, per cwt	4 0 5 0
Celery, per bundle	1 6 2 0	Spinach, per pound	0 3 0 0
Cucumbers, each	0 6 1 0	Spinach, per bushel	5 0 1 0
Endive, per dozen	1 0 2 0	Spruce Asparagus, per	
Herbs, per bunch	0 4 1 0	Tomatoes, per lb.	0 9 1 0
Leeks, per bunch	0 3 1 0	Turnips, bunch	0 6 1 0
Lettuce, per dozen	1 0 1 0	Veget. Mar., each	0 6 1 0
Mint, green, bunch	0 4 1 0		

POTATOES.—Jersey best Kidneys, 6s. 6d. do. Rounds, 4s.; Kent Kidneys, 5s. 6d. do. Rounds, 4s. per cwt.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0 18 0	Foliage Plants, var.	s. d. s. d.
Balsams, per dozen	3 0 6 0	each, each	2 0 10 0
Begonias, per dozen	6 0 12 0	Fuchsia, dozen	3 0 6 0
Bouvardias, doz.	12 0 18 0	Hydrangeas, doz.	6 0 12 0
Calceolarias, per doz.	4 0 8 0	Lilies, in var., doz.	12 0 30 0
Cockscombs, doz.	3 0 6 0	LOBELIAS, per dozen	3 0 4 0
Cornflowers, 12 bun.	0 12 0	Mignonette, per dozen	6 0 12 0
Dracena terminalis, per dozen	3 0 6 0	Mignonne, per doz.	4 0 6 0
Eucalyptus, per dozen	12 0 24 0	Yuccas, per dozen	6 0 12 0
Euonymus, in var., per dozen	6 0 18 0	Nasturtiums, dozen	6 0 12 0
Evergreens, in var., per dozen	6 0 24 0	Palms in var., each	2 0 12 0
Ficus elastica, each	1 6 7 0	Pelargoniums, doz.	6 0 12 0
Ferns, in var., dozen	4 0 18 0	Pennants, dozen	2 0 6 0
		Rhodanthes, dozen	6 0 9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum liliifolium, 12 blms.	4 0 6 0	Lilium longiflorum, 12 blms.	4 0 6 0
Asters, 12 blooms	2 0 4 0	Marqueurites, 12 bun.	3 0 6 0
Bouvardias, per bun.	0 6 1 0	Mignonette, 12 bun.	1 0 3 0
Carnations, 12 bun.	3 0 6 0	Pansies, 12 bunches	1 0 3 0
Cornflowers, 12 bun.	6 0 1 0	Pelargoniums, per 12	
Daisies, common, 12 bunches	2 0 4 0	trusses	0 9 1 0
Eucalyptus, per dozen	6 0 4 0	—scarlet, 12 truss	3 0 6 0
Forget-me-not, or Myosotis, 12 bun.	2 0 4 0	Pyrethrum, 12 bun.	6 0 9 0
Gladioli, 12 sprays	1 0 0 0	Rhodanthes, 12 bun.	6 0 9 0
Heliotrope, 12 spr.	0 6 1 0	Roses, Tea, per doz.	0 9 2 0
Jasmine, white, bun.	0 6 0 0	—red, per dozen	0 9 2 0
Lapageria, red, 12 blms.	12 0 0 0	—outdoor, 12 bun.	2 0 6 0
Lavender, 12 bun.	3 0 5 0	Stapleantus, 12 spr.	1 6 3 0
Lilium candidum, 12 blooms	0 6 1 0	Sweet Peas, 12 bun.	1 6 0 0
		Sweet Sultan, 12 bun.	3 0 4 0
		Tropaeolum, 12 bun.	1 0 2 0
		Tuberose, 12 blms.	4 0 9 0

SEEDS.

LONDON: August 11.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that nothing of importance transpired to-day in connection with the trade for farm seeds. There is a good trade in sowing white Mustard, which firmly maintains the late advance, supplies being now reduced to very narrow limits. New English Trifolium incarnatum sells freely at Monday's quotations. The demand is now increasing daily, both for the early and late varieties. Italian Rye-grass, owing to the low prices at which it is being offered, is attracting the attention of speculators. Hemp and Canary seed have a very dragging sale at the remarkably cheap rates previously reported. White Millet is in rather better request. There is not much doing in feeding Lined.

CORN.

MARK LANE: Aug. 9.—The market opened to-day with holders of English and Australian Wheat asking 6d. advance, but it was not currently obtained, and the business done was at the extreme prices of last week. English prime white Wheat ranged up to 36s. and in some cases 36s. 6d., and red up to 35s. American flour at about 19s. to 20s. suitable for milling, met some inquiry from country millers; but, apart from this, the market was dull and unaltered. Receipts of Barley continue small, and prices steady, with a moderate trade. Beans and Peas were 6d. dearer on the fortnight. Canadian White Peas, 27s. to 27s. 6d. Swedish Oats were rather dearer from scarcity. Russian in large supply but firm. Business in Wheat opened firm, but very quiet, and finishing dull. Flour was dull, but for most descriptions of American, prices fairly held, firm bearing. Army Beans, and Peas were firm, but quiet. Oats were firm at Monday's rates.

Average prices of corn for the week ending August 7:—Wheat, 31s. 8d.; Barley, 22s. 10d.; Oats, 21s. 4d. For the corresponding period last year:—Wheat, 33s. 6d.; Barley, 27s. 11d.; Oats, 23s. 6d.

FRUITS AND VEGETABLES.

COLUMBIA (East London): August 11.—Moderate supplies; prices fair. Quotations:—Apples, 2s. 6d. to 6s. per bushel; Pears, 2s. to 5s. do.; Green Gages, 2s. 6d. to 3s. 6d. per half sieve; Egg Plums, 2s. to 3s. do.; Cabbages, 2s. 6d. to 4s. per tally; Peas, 1s. to 2s. 6d. per sack; Scarlet Runners, 2s. to 2s. 6d. do.; French Beans, 1s. 6d. to 2s. 6d. per sieve; bunch Greens, 3s. to 5s. per tally; do. Turnips, 2s. per dozen; do. Carrots, 1s. 3d. to 2s. do.; do. Onions, 2s. 6d. to 3s. do.; do. Parsley, 2s. to 2s. 6d. do.; do. Mint, 1s. 6d. to 2s. do.

STAFFORD: August 10.—The market has been well supplied, and a fair trade was transacted at the under-mentioned prices:—Cabbages, 1s. 6d. per tally; Broccoli, 2s. per dozen; Carrots, household, 1s. 6d. to 2s. do.; Onions, 2s. 6d. to 3s. per dozen bunches; Apples, 3s. 6d. to 5s. per bushel; Peas, 4s. to 4s. 6d. per sack; Scarlet Runners, 2s. to 2s. 6d. do. to 1s. 1s. 6d. per sieve; Marrows, 2s. 6d. to 5s. per tally; Plums, 2s. 6d. to 3s. 6d. per half-bushel; Green Gages, 2s. to 3s. per tally.

POTATOES.

BOROUGH AND SPITALFIELDS: Aug. 10.—Full supplies, excepting best kidneys, which are rather scarce and firm; other sorts have a drooping tendency. Quotations:—Hebrons, 4s. to 5s.; Early Roses, 3s. 3d. to 4s.; Kent and Essex Regents, 4s. 6d. to 5s. 6d.; Jersey and French flukes, 5s. 6d. to 6s.; French rounds, 4s. to 5s. per cwt.

COLUMBIA (East London): Aug. 11.—Large quantities continue to arrive, and meet with a fair sale at the following quotations:—Magnums, 80s. to 90s.; Regents, 80s. to 85s.; Victorias, 65s. to 80s. per ton.

STAFFORD: Aug. 10.—Quotations:—Kidneys, 90s. to 100s.; Beauty of Hebron, 90s. to 100s.; Roses, 70s. to 75s.; Rounds, 70s. per ton.

Imports.—The Imports into London last week consisted of 200 bags from Rotterdam, 50 bags 30 tons from Cherbourg, and 49 tons from Barbier.

HAY.

WHITECHAPEL: Aug. 10.—Trade dull, with large supplies, and a drooping tendency all round. Quotations:—Clover, prime, 10s. to 10s. 6d.; inferior, 7s. to 8s.; hay, prime, 7s. to 7s. 6d.; inferior, 4s. to 6s.; and straw, 2s. to 3s. per load.

Aug. 12.—A fair supply was on offer. The trade was dull at previous prices.

CUMBERLAND (Regent's Park): Aug. 10.—A plentiful supply, with a still drooping trade. Quotations:—Clover, best, 90s. to 100s.; seconds, 75s. to 85s.; hay, best, 8s. to 9s.; seconds, 70s. to 80s.; and straw, 30s. to 35s. per load.

STAFFORD: Aug. 10.—Quotations:—Hay, 80s. to 100s.; Clover, 90s. to 110s.; and straw, 30s. to 35s. per load.

Government Stock.—Consols closed on Monday and Tuesday at 101½ to 101½ for both delivery and the account. Wednesday's figures were 101½ to 101½ for both transactions. Thursday's final quotations were 101½ to 101½ for delivery, and 101½ to 101½ for the account.

THE GARDENERS' CHRONICLE

(Established 1841)

CONTAINS ARTICLES ON ALL DEPARTMENTS OF

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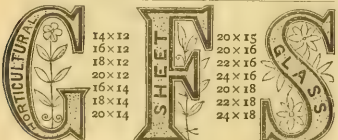
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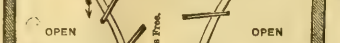
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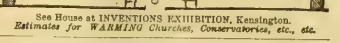
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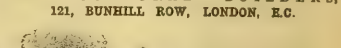
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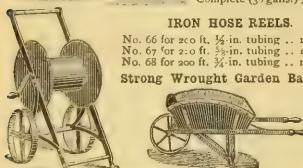
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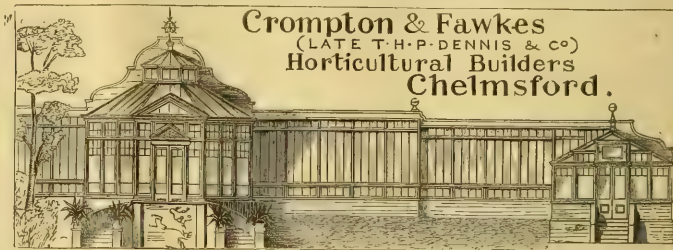
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Holland.—Wholesale CATALOGUE now ready, and may be had on application to **Mr. S. HILBERD, 100, SO, 25, Savage Gardens, Clutched Friars, London, E.C.**

Ferns—Ferns—Ferns.
H. B. MAY now offers an immense stock of these, consisting of all the most useful varieties for ornamental pots, or for growing on; 16s. per 100, cash with order. **W. H. DIVERS, Ketton Hall, Stamford.**

FOUR THOUSAND PALMS, in Thumbs, four and five leaves, 4s. 12s. per 100.
(Cythrae alata, Lantana bonibonica, Cocos plumosa, Arcaea sapida.)
J. BAGG, Haverhill Nursery, Middlesex.

DOUBLE SOUTH AFRICAN TUBEROSE BULBS.—First importations this season, and are enabled to obtain the highest market prices. All Cheques forwarded weekly. Bankers and good Trade references. Boxes and Labels supplied.
"second to none" ever sent from Natal. Send for quotations to the Growers' Agents—**PERCY J. POOL and Co., 4, Bishopgate Street, E.C.**
See illustration of this Journal of July 10.

Floral Commission Agency.
A. HILL and CO., 52, Hart Street, Covent Garden, W.C. are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity. A. H. & Co., giving personal attention to all consignments, are thus enabled to obtain the highest market prices. All Cheques forwarded weekly. Bankers and good Trade references. Boxes and Labels supplied.

SQUELCH and BARNHAM, North Row, Covent Garden, London, W.C. REQUIRE a very quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatoes, Cucumbers, choice Flowers, &c.

SQUELCH and BARNHAM, giving personal attention to all consignments, they are thus enabled to obtain the HIGHEST MARKET PRICE.

SQUELCH and BARNHAM, ACCOUNT SALES sent daily, and CHEQUES forwarded weekly.
BANKERS and TRADE REFERENCES.
BANKERS and TRADE REFERENCES.

WISE and RIDES, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Choice FRUIT and CUT FLOWERS. Cash, with account Sales daily.

WANTED, GERANIUM CUTTINGS of the best leading bedding kinds. State varieties and lowest price per 100 or 1000, to **J. W. SILVER, Nurseryman and Florist, The Norbury Nurseries, South Streatham, S.W.**

WANTED, GERANIUM CUTTINGS—Red Vesuvius Master Christine, Sir Robt. Napier, Black Douglas, Happy Thought. State price per 100 or 1000 to **C. FORD, Vicars Cross Nurseries, Chester.**

WANTED, Large Flowering PANSIES, in 12 distinct sorts, to name. Stock roots. State price per 100 or 1000, to **CHARLES YOUNG, Nurseryman, Balham Hill, London, S.W.**

WANTED, when ready, Berried AUCUBAS in pots, and Berried SKIMMIAS in pots or out of ground. Apply, stating lowest price for cash, to **WILKS and SON, Royal Exotic Nursery, Ouslow Crescent, South Kensington, S.W.**

WANTED, English APRICOTS. State quantity and price to **JOHN COBBAN and SON, Rotherham.**

New Fern
ADIANTUM FRAGRANTISSIMA (First-class Certificate).—See full description in *Gardeners' Chronicle*, July 10.
Strong healthy plants, in 4-inch pots, each, 5s. and 7s. 6d.; 6 for 21s. and 30s.
E. G. HENDERSON and SON, Pine-apple Nursery, Maids Vale, London, W.

FOR SALE, a large number of specimen STOVE and GREENHOUSE PLANTS, PALMS, FERNS, and FLOWERING PLANTS, at low prices (some fine exhibition specimens). Apply, **JAMES NOBLE, Woodburn Gardens, Darlington, Durham.**

DUTCH BULBS.—First quality only.—**CATALOGUES** may be obtained from **H. VAN DEN HAAG, 110, Newington Green Road, N.** "I have never had better Bulbs, and have been able to use them three years running.—The Earl of Tankerville's Gardener."

CAMELLIA STOCKS, fit for immediate working, 15s. per 100, packed free for cash.
E. COOLING, Derby.

JOHN DOWDIE (of the late firm of DOWDIE & LAIRD), 244, Princes Street, Edinburgh, has now issued his BULB CATALOGUE, which will be sent Gratis and Post-free on application.
TELEGRAPHIC ADDRESS—"DOWDIE," EDINBURGH.

NARCISUS.—All the best varieties for cutting and for every description of forcing Bulbs. See my Special Trade offer, which may be had upon application. **THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.**

ROSES in POTS.—Her Majesty, the Beaufort Rose, and all the best new English and Foreign varieties. All the choicest well tried sorts, in pots, 15s. to 36s. per dozen. Descriptive LIST free and unasked for.
RICHARD SMITH and Co., Nurserymen and Seed Merchants, Worcester.

LAPAGERIA ALBA.—Grand Specimen
Plants of the best variety in 14 to 18-inch pots. Price 6s. 6d. cash, 5 to 8 guineas each.
D. FFOLKES, Florist, Newcastle, Staffordshire.

CLEMATIS JACKMANII ALBA (new).—Strong flowering Plants (4 feet high), this free-blooming "White Jackmanii," now ready, 3s. each, 30s. per dozen. Choice varieties of CLEMATIS, in pots, 12s. 6d., 2s., to 2s. 6d. each. The usual allowance to the Trade.
GEO. JACKMAN and SON, Woking, Surrey.

OUR SPECIAL LIST OF ORCHIDS, No. 81, with NEW CATTLEYS, NEW EPIDENDRUMS, &c., is now published.
NEW PLANT and BULB COMPANY, Colchester.

BOX EDGING.—For Sale, 1000 yards, of strong growth. Apply to **S. LANDRY, Whitford Gardens, near Callington, Cornwall.**

PALM (CHAMEROPS EXCELSA), Large Specimen. Reason for export, want of room.—Further particulars, apply **R. COX, Gaisner, Hans Hall, Birmingham.**

LAPAGERIA ALBA.—Probably the grandest and most vigorous Plants in the country of the best variety; will cover wall or trellis in conservatory 40 feet wide and 20 feet high. Price for cash, 10 guineas each.
D. FFOLKES, Florist, Newcastle, Staffordshire.

LARGE PEACH and NECTARINE TREES.—Early Louise, Hale's Early, Groses Mignonne, &c., remarkably healthy; must be disposed of in autumn to give others more room. Most of them were moved last autumn, and have since borne good crops, so will move well, and fill a house at once. Call and see.
W. H. DIVERS, Ketton Hall, Stamford.

STRAWBERRY PLANTS, for Forcing and Planting.—The Best Varieties, the Best Plants, and the Cheapest in the Market.
Apply **R. GILBERT, High Park, Stamford.**

LOVEL'S STRAWBERRY RUNNERS.—A Strong, healthy, and well-rooted, from leading varieties. LIST on application.
Sample of Plants, post-free, 3d.
W. LOVEL and SON, Strawberry Grower, Driffield.

STRAWBERRIES.—A Descriptive CATALOGUE forwarded post-free on application. **THOS. RIVERS and SON, Nurseries, Sawbridgeworth, Herts.**

Strawberry Plants
JOHN FRASER of The Nurseries, Lea Bridge Road, Leyton, begs to announce that his Annual Descriptive LIST of Strawberry Plants, with instructions for culture and other important information, is now ready, and may be had on application.

Important Notice.
To Florists, Seedsmen, Horticultural Builders, &c.
PLANTS, FLOWERS, FRUITS, and TREES are a Specialty.
W. J. WELCH begs to call particular attention to his productions for **ILLUSTRATING BOOKS, MAGAZINES, CATALOGUES,** and for **ADVERTISING PURPOSES.**
For Specimens see *Gardeners' Chronicle*, 1883 to 1886.
ADDRESS, 25, Wellington Street, Strand, London, W.C.

SALES BY AUCTION.

Bulbs—Bulbs—Bulbs.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., every **MONDAY**, at 10 o'clock precisely, **SAURDAU**, first-class Bulbs from Holland, lotted to suit all Buyers.

On view morning of Sale, and Catalogues had.

Dutch Bulbs—Special Trade Sale.
MONDAY, THURSDAY, and SATURDAY NEXT.
MESSRS. PROTHOROE AND MORRIS will **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, on **MONDAY, THURSDAY, and SATURDAY**, at 10 o'clock precisely, each day, extensive consignments of **HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other ROOTS**, from Holland, of excellent quality, specially lotted to suit the Trade and other Large Buyers.

(On view mornings of Sale, and Catalogues had.)
N.B.—The SALE for THURSDAY NEXT also include 500 Double African Tuberoses, and a quantity of **PALM SEEDS.**

Clapham Park—Clearance Sale.

MESSRS. PROTHOROE AND MORRIS are instructed by Mr. J. C. Stevens, who is leaving the residence, to **SELL** by **AUCTION**, on the Premises, Clapham Park, Clearances, Clapham Park, on **WEDNESDAY NEXT**, August 25, at 1 o'clock precisely, the whole of the choice **COVEY and GREENHOUSE PLANTS, FERNS, PALMS, fine specimen AZALEAS and CAMELLIAS, a few ORCHIDS, several FRAMES, GARDEN ROLLERS, LAWN MOWER, &c.**

On view day prior to Sale. Catalogues had of Mr. BROUGH, the Gardener, on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Thursday Next.

50,000 DOUBLE AFRICAN TUBEROSES grown by Mr. W. Risley, Natal, and being the first consignment this season.

MESSRS. PROTHOROE AND MORRIS are instructed to include the above in their **SALE** of **EU. BS. for THURSDAY NEXT**, August 26, in lots of 1000 each. The Bulbs will be found to be of the first quality and well ripened. Also a quantity of **PALM SEEDS** from Brazil.

On view morning of Sale, and Catalogues had.

Friday Next. Colognyne Forstermanni.

MESSRS. PROTHOROE AND MORRIS will include in their **SALE** for **FRIDAY NEXT**, August 27, by order of a friend, a fine importation of **CELOGNYNE FORSTERMANNI**—a most magnificent new white **CELOGNYNE**.

Full descriptions will be found in Sale Catalogue.

Friday Next.

700 ODONTOGLOSSUM ALEXANDRE, received direct.
MESSRS. PROTHOROE AND MORRIS will include the above in their **SALE** on **FRIDAY NEXT**, August 27.

On view morning of Sale.

Friday Next.

MESSRS. PROTHOROE AND MORRIS are instructed by Mr. F. Sander to **SELL** by **AUCTION**, at the Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, August 27, at half-past 10 o'clock precisely, a grand and important lot of Rare and Established **ORCHIDS**, including many Specimens of the following:

Cattleya Reineckiana, grand variety, very rare
Cattleya Massangana, grand variety, very rare
Cypripedium Sanderianum
Phyllis Sanderiana
Lilia elegans presata
Daughters, white type
Cattleya Lawrenceana
Locate Skinneri
Angulus Ruckeri
Odontoglossum ALEXANDRE, a new yellow flowering **HOULETTIA**, a splendid variety of **ONCIDIUM JONIANUM**, with large dark spots; a fine variety of **CELOGNYNE FORSTERMANNI**, and many other **ORCHIDS**. Also about 700 **ODONTOGLOSSUM ALEXANDRE**, received direct.

On view morning of Sale, and Catalogues had.

Flowering Orchids—Special Sale.

MESSRS. PROTHOROE AND MORRIS beg to announce that their **NEXT SPECIAL SALE** of **ORCHIDS** in Flower and Bud will take place on **TUESDAY, August 25**, at which they will be glad to receive notice of entries as far as possible.

Preliminary.

The Cranston Nursery and Seed Company, Limited, in Liquidation. The King's-acre Nurseries, Hereford. **EXTENSIVE CLEARANCE SALE** of the whole of the remarkably well-grown **NURSERY STOCK**, extending over 120 acres of ground, and which is now in splendid condition, particularly the **FRUIT TREES**.

Important to Noblemen, Gentlemen, and the Trade contemplating planting during the coming season.

MESSRS. PROTHOROE AND MORRIS are favoured with instructions from the Liquidator to **SELL** the whole of the Stock by **AUCTION**, on the Premises as above, **EARLY IN OCTOBER**. The Sale will occupy five or six days, and an inspection is invited of the beautifully grown stock; and to receive some idea of its extent the following items may be mentioned:—

60,000 **FRUIT TREES**, Standard, Dwarf-trained, and Pyramidal.
150,000 **CURRENTS and GOOSEBERRIES**.
750,000 **FOREST TREES**.
70,000 **CHERRY and APPLE TREES**.
100,000 **SEEDLING ASH and OAK**.
250,000 **YUICK**.
15,000 **LAURELS**, 500 **AUCUBAS**, 400 **English YEWS**, thousands of **CONIFERS**.

Further particulars will appear in due course.

Lee, S.E.

GREAT ANNUAL TRADE SALE OF HEATHS.

MESSRS. PROTHOROE AND MORRIS are instructed by Mr. Sander to **SELL** by **AUCTION**, on the Premises, the Burnt Ash Lane Nurseries, Lee, S.E., on **TUESDAY, September 14**, at 11 o'clock precisely, 25,000 **WATERBURY**, 25,000 **WATERBURY**, including all the well-known sorts; many thousands of **SOLANUMS**, Single and Double **BOUARDIAS**, **ADANTUMS**, **PALMS**, **CRISTATAS**, &c.

May be viewed, and Catalogues had, when ready, on the Premises, or of the Auctioneers, 67 and 68, Cheapside, E.C.

Great Horticultural Sale Week.

ANNUAL TRADE SALES OF WINTER-FLOWERING HEATHS and GREENHOUSE PLANTS.

MESSRS. PROTHOROE AND MORRIS respectfully give notice that they have arranged these Annual Sales to take place as follows:

TUESDAY, September 14, at the **BURNT ASH LANE NURSERY, LEE**, by order of Messrs. B. Maller & Sons.

WEDNESDAY, September 15, at the **LEA BRIDGE NURSERY, LEYTON**, by order of Mr. John Fraser.

THURSDAY, September 16, at the **BLUNSWICK NURSERY, TOTTENHAM**, by order of Mr. John Maller.

FRIDAY, September 17, at the **LONGLANDS NURSERY, SIDCUP**, by order of Messrs. Gregory & Evans.

SATURDAY, September 18, at the **DYSON'S LANE NURSERY, EDMONTON**, by order of Mr. H. B. May.

Catalogues may be had, when ready, of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C., and Leytonstone.

Preliminary Notice of Forthcoming Sales of NURSERY STOCK.

Important to Gentlemen and the Trade intending to Plant during the coming Season.

MESSRS. PROTHOROE AND MORRIS beg to announce that they have fixed the following Sales:

OCTOBER 4 to 8, at **CRANSTON'S NURSERY, King's-acre, Hereford**, by order of the Liquidator of the Cranston Nursery and Seed Company, Limited.

OCTOBER 14 at the **UPPER TOOTING PARK NURSERY, Upper Tooting Park, S.W.**, by order of Mr. C. Large.

OCTOBER 13 and 14, at the **ELVASTON NURSERY, Borrowash, Derby**, by order of Messrs. Barron & Son.

On **OCTOBER—Two Days' Sale** at the **AMERICAN NURSERY, Leytonstone**.

NOVEMBER 4, at the **BOWER and LING NURSERY, Epsom**, by order of Messrs. Frost & Sons.

Other sales are in course of being fixed, and will be announced in future Advertisements.

Central Auction Rooms and Estate Offices, 67 and 68, Cheapside, E.C.

Preliminary Notice.

FORTHCOMING SALES OF GREENHOUSE PLANTS.
MESSRS. PROTHOROE AND MORRIS beg to announce that they have fixed Sales as follows, in addition to those already announced:

THURSDAY, September 8—At the **FLORAL NURSERY, Maidenhead**, a large quantity of **GREENHOUSE PLANTS** in variety, and a large collection of **BEGONIAS**, by order of Mr. J. Owen.

TUESDAY, September 7—At the **NURSERY, Queen's Road, Epsom**, a large quantity of **EUCARIS**, specimen white and other **CAMELLIAS** and **AZALEAS**, &c., specially suited to the Trade.

WEDNESDAY, September 8—At the **NURSERY, Beaufort Street, Chelsea**, the whole of the stock-in-trade, including a large quantity of specimen and other **DECORATIVE PLANTS, FERNS, &c.**

THURSDAY, September 9—At the **EXOTIC NURSERY, Chigwell**, a large quantity of **BOUARDIAS** in variety; **GARDENIAS, EUCARIS, STEPHANOTIS**, fine **ROSAS**, &c.

Catalogues will be forwarded on application. Central Auction Rooms and Estate Offices, 67 and 68, Cheapside, E.C.

Nurseries for Sale.

MESSRS. PROTHOROE AND MORRIS Publish a Printed List, containing over fifty of the above, from £100 to £1,000, which can be had on application to their Offices, 67 and 68, Cheapside, London, E.C.

Catalogues—Important Notice.

MESSRS. PROTHOROE AND MORRIS have compiled permanent Lists of those to whom their Catalogues are forwarded regularly, which enables them to bring before the notice of their clients all the new plants.

Gentlemen wishing to have their names entered on these Lists are requested to forward their full Addresses with a note of the particular requirements, when Catalogues will be posted free of charge.

Central Auction Rooms and Estate Offices, 67 and 68, Cheapside, E.C.

Llysone Gardens, near St. Clears.

And within a mile of Carnarvon.
An EXTENSIVE and UNRESERVED SALE of SHOW PLANTS,

of extraordinary growth and luxuriance.
MESSRS. WALTER LLOYD and SON are instructed by Captain Mansfield to **SELL** by **AUCTION**, in a spacious marquee on the Premises, on **THURSDAY, September 25**, commencing at half-past 10 o'clock sharp, about **SEVEN HUNDRED and FIFTY LOTS** of all the leading varieties of **SHOW PLANTS**, including a great number of prize specimens of **Crotons, Rondeletias, Alamandas, Dipladenias, Stephanotis, Bougainvilleas, Clerodendrons, Cycas revoluta, Anthuriums, Palms, Exotic and other Ferns, Pandanus, Caladiums, Aloes, Azaleas, Camellias, Bilbergia, Aroids, Ficus elastica, Epiphyllum, Pelargoniums, Zonal Geraniums, &c.**

Descriptive Catalogues of the above are being prepared, and may shortly be obtained of the Auctioneers, Myrdin, St. Clears.

N.B.—The Auctioneers will be pleased in inviting the special attention of Gentlemen and Florists to this unusually attractive Sale, and they are requested to state that Capt. Mansfield's sole reason for disposing of the Plants is that he has ceased to exhibit, and intends for the future to confine himself entirely to the production of cut flowers and fruit.

Auction and Estate Agency Offices, Myrdin, St. Clears.
Choice Orchids (upwards of 300 Plants) and the whole of the STOCK of the VALLEY NURSERY, CONSERVATORY, and GREENHOUSE PLANTS formed by the late T. B. CUTTS, Esq.

MR. THOS. NEALE is favoured with instructions from the Liquidator of the Valley Nursery, House, Mapperley Road, Nottingham, on **WEDNESDAY, FRIDAY, September 1** and 3, the above valuable **COLLECTED PLANTS**.

Catalogues are now ready, and may be had, gratis, on application, by post, to the Auctioneer, Whaler Gate, Nottingham.

WANTED, IMMEDIATELY.

To Rent, a Small **NURSERY**, of two or three Hot-houses, in good condition, near station, within an hour, south of London, in open situation. On high ground preferred. No stock wanted, and must be most conveniently situated.

Address, W. GILBERT, 2, Agnes Terrace, Allfarthing Lane, near Wandsworth, S.W.

FOR SALE, a HOUSE, FARM BUILDINGS, and 20 Acres of excellent LAND.

One mile from Rugby, 10 miles from Leicester. Apply to A. ABEL, Harrogate, Yorkshire.

To Gentlemen, Nurserymen, Farmers, Builders.

AND OTHERS.

TO BE SOLD (in consequence of the owner retiring from business), by Private Treaty, as a going concern, The **RUGBY NURSERY**, 10 miles from Leicester, established almost a century; comprising a handsome newly-erected Brick and Stone built Double-fronted Dwelling-house, with three entertaining Rooms, entrance Hall, Staircase, five Bedrooms, large Kitchen and Scullery with Nursery over, four Cellars and Out-offices, standing on an elevated site with tastefully laid out Walks and Ornamental Grounds and Shrubberies. The **NURSERY LAND**, containing about 22 acres, is well stocked with thousands of choice Flowering Shrubs and Evergreens, including Gold, Silver, Hedgus, and other fine Hollies, in quantity to feed the trade; Forest trees, including Elm, Rose, Thorns, Privet, &c. There are three strong Greenhouses, Propagating Frames, loose Lights, &c.

MARKET 10 acres of rich arable land, with or without the growing crops thereon, together with a detached Dwelling-house, with two sitting and five Bedrooms, of Ornamental and Kitchen Gardens, Ranges of extensive Out-buildings, Shipping wharf, newly erected Cart-shed of large size, and other Offices; also six well tenanted Cottages with the appurtenances thereto.

For who who contemplates about 40 s. 2 s. 3 p. of well drained **FREEHOLD LAND**, in full heart, in a ring fence, with frontages at least half a mile, to the two main roads from Liverpool, St. Helens, and Warrington, and with Nursery over, four Cellars and the Clock-face Stations on the London and North-Western Railway, and 4½ miles from Warrington; it is well situated for a Public House, or for a Farm.

A view and all particulars may be had from the proprietor, Mr. JOHN STEAD, on the Premises, also from Messrs. ROBERT DAVIES, Esq. and MR. KIRKCONNELL, Solicitors, Warrington; or from Messrs. ARTHUR STALL and HIND, Auctioneers, Manchester.

Vinstone Nurseries, near Plymouth.

TO BE LET, from Lady-day next, for a

Term of 7, 14, or 21 years, these well-known **NURSERIES**, for many 100 years successfully carried on by the late Mr. Stead, and his son, and situated in a fine position, near Plymouth, over 8 acres in extent, with a Dwelling-house and Gardener's Cottage, with large Greenhouse, Melon-pit, &c. and a large quantity of **WOOLCOMB and PRIDHAM**, Solicitors, Plymouth.

Kent.

In the best Fruit-Growing Districts. A few miles from London. **TO BE LET or SOLD**, about 35 acres of excellent LAND.

Apply to Messrs. PROTHOROE AND MORRIS, 67 and 68, Cheapside, E.C.

PROTHOROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E.C.

Monthly Catalogues had on application.

To Landed Proprietors, &c.

A. MCINTYKE (late of Victoria Park) is now at liberty to undertake the **FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELLING existing GARDENS**. Plans prepared. 115, Latona Park, Stamford Hill, N.

Pteris cretica, Mayti.

H. B. MAY is now offering the above, which is one of the greatest novelties of the season. The Plant is dwarf and compact in habit; the fronds beautifully branched and crested, and very varied in every distinct. It is one of the most lovely **FERNS** ever offered. Has been awarded First class Certificates by the Royal Horticultural and Royal Botanic Societies.

Well furnished Nursery, in 48's, 71, 62, each.

Dyson's Lane Nursery, Upper Edmonton, Middlesex.

Camellias, Azaleas, Rhododendrons, Palms, Orchids, &c.

Plants grown specially for English use.

C. VUYLESTEKE, NURSERYMAN,

Loochtry, Ghent, Belgium.

Wholesale Catalogue now ready, and may be had on application.

Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, Crutched Friars, London, E.C.

LILIES OF THE VALLEY.

FORCING CROWNS, i.e., 3 yr. old strong flowering Crowns, of my well-known large flowering variety. Prices per crown, 10 s. 6 d. and upwards, according to quality.

PLANTING CROWNS, i.e., young Plants for growing on for forcing, the true large flowering variety, acclimatised, and which will be fit for forcing two or three years.

Long since proved that Lilies of the Valley can be successfully grown in England, and in many cases exceed those from Germany.

I recommend every one who requires crowns for forcing to grow them himself. A Pamphlet, "How to Grow Lilies of the Valley Successfully," will be sent free with every order amounting to 10 s. and upwards, from November to April.

Price rose per 100, including packing, from 15 s. to 18 s. without remittance will be acknowledged.

J. JANNON, of the Valley Nursery, Dersingham, King's Lynn, Norfolk.

W. GORDON, IMPORTER OF ORCHIDS

FROM ALL PARTS OF THE WORLD—IRRESISTIBLE STOCK of recently imported Plants compels a SALE of the Established Plants to make room. These have not yet flowered, and are, therefore, to be sold at a great sacrifice.

VERY VALUABLE VARIETIES are certain to be obtained, and great bargains; see Public Journals for high prices recently obtained. **AUCTION** and **SPECIAL OFFER** affords a **PAYING INVESTMENT** in any one with glass at command, which should not be overlooked. **SUCH PLANTS** may never again be offered to the **PUBLIC** and the **TRADE**.

Apply to W. GORDON, the Nurseries, Anyand Park Road, Twickenham, Middlesex.

Now Ready.

SEEDSMEN BY ROYAL WARRANTS
To Her Majesty The Queen. To H.R.H. the Prince of Wales.

SUTTON'S AUTUMN CATALOGUE FOR 1886,

Contains complete Cultural Instructions and
Select List of the best kinds of
Flower Roots ;

ALSO A
HANDSOME COLOURED PLATE,
ILLUSTRATIVE OF
SUTTON'S HYACINTHS,
in full bloom at the Dutch Bulb Farms,
AND
NUMEROUS ENGRAVINGS.

Gratis and Post-free on application.

SUTTON & SONS,
THE QUEEN'S SEEDSMEN,
READING. BERKS.

PALMS for TABLE DECORATIONS, &c.
Latania borbonica, Seaforthia elegans, and Phoenix
rostrata, seedlings, 12 inches high, 4s. per doz.; 25s. per 100.
Latania borbonica, Seaforthia elegans, Arecia lutescens,
Euterpe edulis, Phoenix reclinata, and Corypha australis,
20 inches high, 12s. per dozen; less quantity, 1s. 3d. each.
Packages and Parcels post-free for cash with order. A few
large Pothos PALMS cheap, to clear.
GARDENER, Holly Lodge, Stamford Hill, London, N.

EARLY BULBS FOR FORCING.



WM. PAUL & SON

Respectfully solicit Orders for the following,
of which they have large stocks, of the *finest*
possible quality:—

ROMAN HYACINTHS, White, good root,
2s. per dozen; 12s. 6d. per 100.

ROMAN HYACINTHS, White, selected roots,
15s. per 100.

NARCISSUS, Double Roman, 1s. 6d. per
dozen, 10s. per 100.

NARCISSUS, Paper-White, 1s. 6d. per dozen,
10s. per 100.

FRESIA REFRACTA ALBA, 2s. 6d. per
dozen.

They have also now ready, LILIU M CANDIDUM, good
Roots, 3s. per dozen.
PAUL'S MUSHROOM SPAWN, unsurpassed for excel-
lence, 5s. per bushel.

PAUL'S NURSERIES,
WALTHAM CROSS, HERTS.

SEEDLING PLANTS OF CHOICE FLORISTS' FLOWERS, &c.

We have much pleasure in offering strong healthy
transplanted Seedlings from our superb strains of the
following:—

CALCEOLARIAS, from choicest flowers s. d. Per doz. Per 100.
only, beautifully tigered and spotted. 1 6 .. 10 6

CARNATIONS and PICOTEES, from
stage flowers, will produce 80 per cent.
of fine double blooms. 1 6 .. 10 6

CARNATIONS, choicest yellow, very fine 2 6 .. —

CINERARIAS, from a grand strain .. 1 6 .. 10 6

new dwarf, large flowered, fine .. 2 0 .. 12 6

CYCLOPS, Strong young plants, from
single pots, for blooming next season .. — .. —

CYCLOPS PERISCIUM ALBUM,
pure white, very fine .. 4 6 .. 30 0

CYCLOPS PERISCIUM, mixed .. 4 0 .. 25 0

PRIMULA, Crimson King, magnificent .. 2 6 .. —

„ Crimson King, extra strong plants .. 3 6 .. —

„ Daniels' choicest white, fine .. 2 6 .. 10 6

„ Daniels' choicest red, splendid .. 1 6 .. 10 6

„ Daniels' choicest mixed, many beauti-
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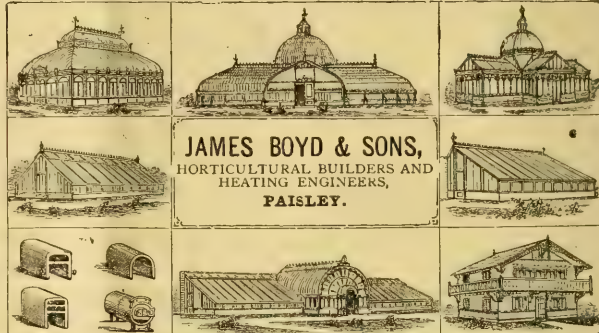
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THE

Gardeners' Chronicle.

SATURDAY, AUGUST 21, 1886.

TAPLOW COURT.

THE four miles of broad road between Tap-
low and Hedsor are bordered by the parks
and gardens of four great houses. The lands
of Cliveden, Dropmore, and Hedsor all
approach each other, and touch the road at a
spot called Nobleman's Corner; and if you
should meet hereabouts a good-looking gentle-
man in a white hat with hair tending to the
same colour, be sure you address him as "Your
Grace." If by mistake you call him "My
Lord" correct the error and add to that title,
"Duke, I mean," or "Your Grace, I should
say," for this gentleman is a great peer and
land proprietor, the head of the ancient house
of Grosvenor, owner of Cliveden and its
gardens, which the public can visit by his
favour during more weeks in the year than he
ever does himself. If you meet Mr. W. H.
Grenfell on the road, the owner of Taplow
Court, know him for a young Englishman of
adventurous spirit, who has travelled far in
remote regions, and who opens his gates freely
to those who wish to see his beautiful place of
residence.

Taplow Court, too, was formerly the seat of
a peer, the Earl of Orkney, and as recently as
three years ago the Dowager Countess of
Orkney was laid to rest at the age of seventy-
six, in what was then the churchyard, a few
paces from her former residence. The house is
a particularly handsome one of solid brick,
with ornamental chimneys and four storeys. It
is situated at the head of the little village of
Taplow, where the doors of the approach stand
open during daylight, flanked by aged Cedars
of Lebanon. The house lies straight before
you, with pleasing glimpses of lawns and flowers,
and a wealth of creepers—Ivy, Wistaria, and
others—concealing the wall of the kitchen
garden on the right. It is hardly the house
of a country gentleman, being a little more
palatial than country houses usually are,
but it is well adapted in style and propor-
tions for its situation, 20 miles from London,
and in such a "hot corner," as a sportsman
might say, for great peers and members of the
aristocracy.

The celebrated Tulip tree, 80 feet in height
and 12 feet in circumference, which is some-
times described in connection with Taplow and
Mr. Grenfell, is still to be found, I believe, on
the lawn of another Mr. Grenfell, of Taplow
House, in another part of the parish.

There is a great Cedar of Lebanon here of
the seventeenth century, with a head of many
branches, fenced by the trees of the river cliff
at the end of the lawn, and a gate below it
opens into a famous avenue of the same trees
planted at a later date. Mr. Wright, the super-
intendent of the gardens as well as land
steward, states that he remembers an old
labourer or foreman who planted the Cedars
for Lady Orkney, and as Mr. Wright's term of
service has reached thirty years, the trees may
be eighty or ninety years old. They are large

for their age, and form a noble avenue of half a mile in length parallel with the cliff and river.

Steps lead to the river banks, and to the boat-house, as well as to a rustic summer-house built of roots on a ledge of the cliff, commanding the river. A weir, with plenty of water falling over it, forms an interesting feature of the landscape. Cookham is 2 or 3 miles above, and Maidenhead, with its high ground, crowned by the conspicuous spire of Boyne Hill church, lies opposite.

Even a word painter could hardly describe this delightful residence; the grounds around the house, where Nature offers such attractions that adventitious art is needless; the long views, the vistas through the banks of foliage, the English Elms, whose stately proportions prove the excellence of the soil; the smooth inviting turf of the lawns, and the Turkey Oaks and graceful specimen Deodars. The place is beautiful, without any formal traces of the efforts of those who have helped to make it so. Thirteen gardeners are employed. In connection with the kitchen garden there are capital buildings of the usual kind, including a bothy for three young men, five vineries, three Peach-houses, and several others for the culture of flowers, containing among other things some very noticeable white flowers, *Lapageria alba*, white Roses, *Stephanotis*, and *Gardenias*.

Previous to the year 1836 the parish church of Taplow stood close against the great house. It was then removed, and the graveyard, immediately under the windows, has become an unobjectionable outlook by the simple artifice of placing the memorial stones flat on the ground, leaving the rest to grass and Ivy, and to the concealment of shrubs. The rather unusual prospect which such an enclosure offered is further and fortunately blocked by a very ancient specimen of an earthwork, far older than the church itself. In exploring this mound a year or two ago, Mr. Rutland, Secretary of the Berks Archaeological Society, ransacked its very interesting contents and unfortunately undermined a Yew tree, which had crowned the tumulus, according to its estimated age, during 1400 years. The grave therefore was almost as old as Christianity in this country. We now enjoy a spiritual faith and Mr. Rutland perhaps regrets that when the Yew tree subsided into the trench below, he was not quite, instead of almost, despatched to a better world. But Taplow is a pleasant place of residence for an archaeologist, since it is crowded with associations—Milton's mother was buried on the cliff here, and below runs the Thames, the great waterway along whose stream Romans, Saxons and Danes in turn pushed inland to the heart of the country. It is easy to understand that an archaeologist of Taplow might feel, in regard to leaving it, as Phillips the painter did when he had built his house and finished his garden at Hammersmith, and he was told he must die and go to heaven. "I would rather stop in Hammersmith," he said.

The pagan's body, or his dust, reached at a depth of 20 feet—for they trenched deep in those days; his gold fringe, drinking-horns, and other utensils, which were recovered, and have been described in great variety, are not in my department. H. E.

New Garden Plants.

ANTHURIUM SUBULATUM, *N. E. Brown, n. sp.*

SUBCAULESCENT. Petioles 10–18 inches long, 2½–3½ lines thick, terete, green. Lamina 10–15 inches long, 4½–7 inches broad, elongate cordate-ovate, somewhat cuspidate acuminate, dark shining green, a little paler beneath; basal lobes about one-fifth as long as the front lobe, very obtusely and broadly rounded, not overlapping, with a parabolic subacute sinus between them, 1½–2½ inches deep, ¾–1 inch broad. Midrib and veins nearly equally prominent on both sides, rounded above, acute beneath; primary lateral veins 7–11 (in average leaves about 10) on each side the midrib and one on each side at its very base, all more or less uniting in an intramarginal vein 2–3 lines distant from the margin; the postical branches of the midrib not denuded at the sinus, and divided near their base into three strongly curved branches, all running out at the margin. Peduncle 9–12 inches long, 2 lines thick, terete, light green. Spathe spreading, white on both sides (or sometimes light green), 4½–5 inches long, 1–1½ inch broad, oblong, rather abruptly narrowed into a convolute subulate point about 2 inches long. Spadix stout, cylindrical, obtuse, 2–3 inches long, 4–5 lines thick, purple-red; flowers small, 1 line in diameter. A native of Colombia, introduced by Mr. W. Ball, of Chelsea.

This is a very distinct and rather pretty species, easily recognised by the very long subulate point to the white spathe, which is well set off by the purple spadix and dark green of the leaves. *N. E. Brown.*

ANTHURIUM MOOREANUM, *N. E. Brown, n. sp.*

Stem short with crowded internodes. Petioles about 18 inches long, 2½ lines thick, terete, faintly flattened down the face. Lamina 11–13 inches long, 8–10 inches broad across the basal lobes, sub-hastate, front lobe oblong-ovate, cuspidate acuminate, basal lobes oblong, with very broadly rounded tips; basal sinus widely gaping, broadly rounded at the base, 2–2½ inches deep. Upper surface of leaf bright green, under surface whitish-green. Midrib and primary veins prominent on both sides, but more strongly above; primary lateral veins 4–5 on each side of the midrib, which unite in a continuous intramarginal vein 2–3 lines distant from the margin, and one on each side at its very base, which runs out at the margin about halfway up the front lobe; the postical branches of the midrib are denuded for about half to three-quarters of an inch in the sinus, and divide in the basal lobes into three strongly curved branches, the two lowermost of which run out at the margin, whilst the innermost branch unites by a loop with the lateral branches of the vein arising at the base of the petiole. Peduncle nearly or quite as long as the midrib, terete, green. Spathe reflexed or spreading, 4–4½ inches long, 6–7 lines broad, linear-oblong, convolute acuminate at apex, purplish-green. Spadix shortly stipitate, 5–6 inches long, 2½ lines thick, terete, slightly tapering, olive-brown; flowers about three quarters of a line in diameter.—Native country unknown; cultivated by Mr. W. Ball, of Chelsea. *N. E. Brown, Herbarium, Kew.*

THE GENUS ODONTOGLOSSUM.

(Continued from p. 104.)

ODONTOGLOSSUM URO-SKINNERI.—This strictly cool-house Orchid, although introduced more than thirty years, is still not common. It has creeping rhizomes, flatish oval pseudobulbs, and arching, broad lanceolate leaves. The scapes are erect, flowers 2½ inches across; sepals and petals yellow, barred with brown; the lip, which constitutes the chief attraction of the flower, is cordate, white, profusely spotted and mottled with rose or mauve. The plant usually flowers in autumn, and lasts three months in bloom in a suitable house. Guatemala.

O. BICTONENSE resembles O. Uro-Skinneri in the size of its flowers, which, however, are only half the size of it. Flower-spikes erect, often 4 feet, bearing in succession many flowers, which individually and collectively last well, and often keep the

plant in bloom for more than four months in the year. Sepals and petals greenish-yellow barred with brown, lip cordate, bluish-white to rose in the different varieties. Guatemala.

O. B. SUPERBUM.—A fine variety, with sepals and petals rich brown, and lip rose-purple.

O. B. ALEUM.—Sepals and petals yellow, barred with light brownish-yellow bars, and lip pure white. There are several varieties of this, some being small-flowered. The best have flowers as large as those of O. Uro-Skinneri, and of the same substance. A good example of it is in Mr. Lee's collection. O. bictonense, which was the first Odontoglossum introduced (1835), and its varieties, are very free-growing.

O. LONDESBOROUGHIANUM.—This is very distinct, and not near enough to class with any other. The plant has glaucous-green pseudobulbs, which are separated by running stems. The narrow ligulate leaves fall in winter, at which season the plants require keeping cool and rather drier than most Odontoglossums. The flowers, which much resemble some of the large yellow Oncidiums, are borne on the end of the stout scapes. Sepals and petals yellow barred with brown, lip large, often nearly 2 inches wide, bright yellow. It is a showy plant, requiring cool treatment and a drier atmosphere while in flower and until growth begins again, when a little extra heat in a well-ventilated house is beneficial to it. Mexico.

O. ROSEUM is a pretty dwarf growing plant, with small pseudobulbs and leaves resembling a small form of *Mesaspidium vulcanicum*, which plant its inflorescence also bears a likeness to in colour and general appearance, it is, however, structurally different. Flowers bright red, often two dozen on a spike; flowerspikes numerous in strong plants, thus forming very pretty objects. A cool-house plant from Peru.

O. RETUSUM.—This forms a pretty companion plant for O. roseum, it being of the same dwarf habit. Sepals and petals orange, lip oblong, varying in tint from yellow to orange. It is still rare, although Hartweg found it on rocks on the mountains of Saraguro, Peru, many years ago. It requires similar treatment to O. roseum. *James O'Brien.*

METHOD OF PRESERVING TIMBER IN JAPAN.

Now that we are getting Tea boxes from Japan, the following extract from the *Journal of Forestry* will be interesting. Be it noted, then, that the Japanese use only wood previously preserved as follows:—

PRESERVATION PROCESS APPLIED TO TIMBER.

At a distance of 20 or 30 chos (1 cho = about 120 yards) from the sea, and near the mouth of a stream, a large pond is dug, so that the sea may have free access to it. This is called Kakoiito (or storing pond). Its size is not fixed, but generally it contains an area of 14,000 or 15,000 tenbos (1 tenbo = about 36 square feet), and its owner keeps his office near by, so that he may transact his business on the spot. The circumference of the pond is built of stone or wooden walls, and a canal is dug on one side to communicate with the river, and thence with the sea; the flow of the tide being regulated by means of a sluice. The pond should not be deeper than 5 feet in the central parts at full tide, and not shallower than 2 feet in the margin at ebb tide. The right proportion of salt and fresh water for the pond is six parts of the former to four of the latter, for if the salt water exceeds this proportion timber becomes blackish in colour, and is liable to be much eaten by worms; if, on the other hand, the proportion of salt water becomes less, it is much sooner decayed than otherwise. The velocity of the flow of tide should also be very carefully regulated, for if the current is either too rapid or too slow, timber is again very liable to be much injured by worms. Hence in those places where there are two or three ponds near one another, their owner generally amalgamates them, on agreement, by means of small canals, which arrangement regulates the flow of tide very considerably. Timber for storing is usually piled in five layers according to its quality; the lowest layer consisting of middle-class timber; the next layer of first-class timber, the next layer above again of middle-class timber; the next layer of third-class timber; whilst the uppermost layer, which

IMPROVED METHOD OF PRESERVING WOOD.—The improved French method of preserving wood by the application of lime is found to work well. The plan is to pile the planks in a tank, and to put over all a layer of quicklime, which is gradually slaked with water. Timber for mines requires about a week to be thoroughly impregnated, and other wood more or less time according to its thickness. The material acquires remarkable consistence and hardness, it is stated, on being subjected to this simple process, and the assertion is made that it will never rot. Beech wood prepared in this way for hammers, and other tools for ironwork, is found to acquire the hardness of Oak, without parting with any of its well-known elasticity or toughness, and it also lasts longer. *Indian Forester.*

is usually exposed above the surface of the water, consists of very low quality, and by its weight the lower four layers are kept sunk under water. Those five layers are piled one upon another alternately at right angles, so that the whole arrangement presents the appearance of a toothed cube. Sometimes, however, the pile consists of only two or three layers; in that case they are tied to a big log (about 12 to 15 feet in length, and 7 or 8 inches in diameter) standing near by, and are thus prevented from floating about freely; sometimes also one or two separate pieces of different kinds of timber are kept in the pond for specimens. The durability of timber depends greatly on the amount of care bestowed on it, and to this end the washing is the most important. Twice in a year, generally in June or November, the cubical mass of timber above described is disengaged, and each piece is well washed by means of a straw brush. The different pieces are then reconstructed in a cube, but with the following alteration in the arrangement:—The middle-class timber, which before constituted the third layer, now forms the lowest layer, and the middle-class timber which in the former case was at the very bottom, now occupies the third layer. If washing cannot be done twice a year, it must be performed once a year at least. In the following table are shown (in the first column) the names of different kinds of timber, in the second column the number of years for which they may be preserved in the timber store, and in the third column the period at which they are best adapted for use:—

I.	II.	III.
Hinokii (<i>Thuja obtusa</i>)	for 8	after 3
Matsuo or Momi (<i>Abies firma</i>)	4	5
Sugi (<i>Cryptomeria japonica</i>)	5	2
Tsuga (<i>Tsuga Sieboldii</i>)	6	2
Hiba (<i>Thunbergii</i>)	8	1
Tsawara (<i>Quercus pedunculata</i>)	8	3
Reykai (<i>Zelkova Reykai</i>)	8	3
Kashi (" ")	10	4

(The number of years is calculated from the day of felling, and the time which is spent before timber comes to the store is reckoned to be one year.)

A pond of 15,000 tembo in area can, on the average, store up about 10,000 pieces of timber. They are of various lengths, as the following figures show:—

Lengths of timber (in kens)	2, 3, 2.5, 4, 3.5, 4.5, 5, 6
Percentage number.	50, 20, 1.0, 5, 1.0, 5, per cent.

Thus one-half of the whole timber in the pond is of 2 kens in length, one-fifth is of 3 kens in length, &c. (1 ken = 2 yards.)

At ordinary times, only three or four men are employed, whose daily wage is 35 to 45 ksu (?), but at the washing season fifteen men are employed daily for a period of about half a month.

SOME WORKMEN'S GARDENS.

AMONG the many beneficent schemes with which the honoured name of the Baroness Burdett Coutts is associated there is none more useful and productive of solid advantage to workmen and their families than cottage garden allotments. The boon is not the less appreciated because the recipient is conscious that he will owe whatever profit may accrue mainly to his own well-directed and persistent efforts, while leaving untouched the feelings of self-respect and independence which are the honest Englishman's backbone. What is provided by the Baroness Coutts' considerate kindness at Highbury Rise is the opportunity for profitable employment of spare time, and not a mere charitable dole. It is an admirable example of what may be done by helping working men to help themselves. There is a consequent advantage—moral, physical, and pecuniary—in the growth and encouragement of industrious, thrifty, order-loving, and property-respecting habits. Such institutions, moreover, when well-managed, as both this and the older society at Highgate undoubtedly are, are eminently calculated to foster a love and attachment to the home and its surroundings, and to encourage the desire of ownership and possession in the soil—a feeling of the highest value and importance to the working classes. A pleasing feature in the case is the interest taken by the wives and children in the management of the gardens, and their eagerness to give assistance in weeding and watering, especially in carrying home the produce. When country and town children are taught systematically something of plant life and gardening by means of small plots attached to, or conveniently accessible from, the school premises, such

allotments as these will form an admirable supplement to the school-teaching by affording opportunity for study and experiment, as well as employment healthful, profitable, and pleasant.

Holly Lodge (fig. 48, p. 237), the charming old-fashioned residence of the Baroness and Mr. W. L. A. Burdett-Coutts, M.P., occupies, as our readers are no doubt aware, a picturesque and elevated site near the summit of Highgate Hill. Within less than five miles of Charing Cross, embowered among rugged Elms, Oaks, and Chestnuts, with huge banks of evergreens and Rhododendrons, beds of Roses, arches festooned with fragrant Honeysuckle and Clematis, brilliant parterres, borders of sweet old-fashioned flowers, the softest and smoothest of green turf, the song of the blackbird and thrush, and the plaintive cooing of the wood-pigeon, so pleasantly suggestive of woodland solitudes,—one might fancy that great London, with its din and turmoil, were a hundred miles distant. But walk a few yards down that shady path and the illusion is dispelled. From the little terrace by the gardener's, "Mr. Willard's," cosy cottage the great panorama opens before us as in a dream. Behind is a semicircle of tall trees, green meadows slope in front—a cricket-match is going on in the field below—then another belt of trees, surrounding the picturesque cottages of Holly Village, and beyond, stretching upwards to the horizon, with just grey haze enough to lend mystery and suggestiveness to the picture, the houses, towers, and steeples of mighty London.

Near to Holly Lodge are the allotment gardens, adjoining the St. Anne's Schools. They contain, at present, an area of 3 acres, but it is hoped that the great success which attends their cultivation, and the urgent desire for further extension from a numerous and increasing population, will be met by an addition of 2 acres, the remaining portion of the enclosure, originally a brickfield. The land is let to the committee of the Society at £1 an acre only. It is the property of the Baroness Coutts, and would be of great value, of course, as a building site. There are forty-eight tenants, each holding a plot of 9 poles. A cart-road traverses the ground, enabling any tenant to bring manure to his garden without crossing the land of another. There is a large iron tank in the centre, with an unlimited supply of water laid on. For the use of this a uniform charge of 1s. 6d. each tenant is made. The rent is 1s. per pole; and, with the exception of the small payment for water, there are no other charges whatever. The tenants comprise labourers, mechanics, and policemen—the latter, as we were informed by a facetious visitor, are better pleased to "take up" Potatoes than wrongdoers. One great inducement to the cultivation of an allotment is a change of occupation; but the secret lies most probably in freedom from restraint, and the satisfaction arising from successful labour, combined with the sense of ownership so aptly described by Crabbe:—

"It is his own he sees—his master's eye
Peers not about some secret fault to spy,
Nor voice severe is there, nor censure known;
Hope, pleasure, profit—they are all his own."

The allotment gardens at Highgate Rise are among the best cultivated in England, and they reflect the highest credit on both the tenants and those immediately concerned in their management. This result is probably owing to the healthy rivalry induced by a judiciously-arranged prize scheme, carried out persistently, and with the strictest impartiality, under the guidance and help of Mr. Willard and Mr. F. H. Bartlett, the Hon. Secretary.

In addition to informal visits, the allotments are inspected officially three times in the year, and the condition on each occasion is carefully registered. The total number of marks awarded determines the prize. As a general rule from eight to ten kinds of vegetables are grown, with small fruits and flowers. The same careful system of inspection is applied in awarding the prizes for window-gardening. The entries are duly made, and three personal visits paid to each competitor, in order to determine the average degree of merit. The blue ribbon of the Brookfield cottage allotments was won on Saturday, July 24, for the third time, by Mr. Charles Parling, a bricklayer's labourer. His pretty garden was in admirable order and high cultivation. It contained no less than fifteen kinds of vegetables and a delightful little flower border. It must have been an arduous task for the judges to decide between the merits of Par-

ling's garden and those of the second best, Messrs. Williams and Parsons, both of which were in a highly creditable condition.

There is one great advantage in these open plots; each tenant can watch his neighbour at work, and see the results of his labours. It is owing, no doubt, to the intelligence and industry bestowed upon their plots by the aforesaid successful competitors that such a high degree of average excellence is attained. There are two other circumstances, however, which contribute to the result—the abundance and cheapness of manure (which at present may be purchased and delivered at 1s. a load), and a constant supply of water conveniently situated in the centre of the field.

Be-keeping has lately been started among the tenants. Last year six stocks, with suitable hives and supers, were presented by the Baroness, the only condition being that each owner of a stock should give one swarm, the first, to the tenant having priority of claim.

The annual exhibition of garden produce was held in a tent on the cricket-field near the gardens. The vegetables shown were unusually fine, and there were also creditable specimens of window plants, designs for garden window-boxes, and nosegays. During the afternoon the fine band of the Y Division of the Metropolitan Police performed at intervals, and the show and gardens were personally inspected by the Baroness Coutts. *Echo*, July 29.

TREES AND SHRUBS.

RUBUS PHENICOLASUS.

THIS is a very handsome Bramble, striking at first sight from the shaggy crimson glandular hairs with which it is so plentifully beset, and from which it derives its name (*phenix*, red, *lasios*, shaggy). The leaves resemble those of the Raspberry, but are of a silvery white on the under surface. The flowers are in terminal panicles, the pedicels and elongated calyx-lobes densely clothed with long crimson hairs, each tipped with a small globular gland. The fruit is about the size of a small Cherry, clear orange-red, shorter than the persistent calyx-lobes. It is noteworthy that while the fruit is unripe and green the calyx-lobes fold over it, and thus protect it from the incursions of birds, while the viscid hairs keep off undesirable insect visitors, but when the fruit ripens the sepals unfold, spreading horizontally, forming a flat dish, on which the fruit is presented for the attraction and appreciation of birds, who after regaling themselves, secure unwittingly the perpetuation of the species by ejecting the seeds. The plant is a native of Japan, and for a specimen of it we are indebted to the Rev. Canon Eliacombe, in whose garden near Bristol it proves to be quite hardy.

PICEA GLEHNII.

We are indebted to Mr. Boehmer, of Yokohama, for a few cones of this Japanese and North-East Asiatic Spruce. The tree was described and figured in these columns in 1880, March 6, from specimens received from Mr. Maries, but is at present not widely known. We should not suppose it to be a very ornamental species, but as a timber tree it might thrive in cold, wet localities, where the Spruce would not grow. At any rate, it would be worth trying.

GENISTA ANDREANA.

Under this name is described and figured in the *Revue Horticole*, a variety of the common Broom in which the side petals or wings are of a rich golden-brown, which contrasts well with the rich yellow of the standard. Judging from the figure this will make a very handsome addition to our shrubberies. As this is only a variety of the common Broom, *Cytisus scoparius*, we should prefer, for garden purposes, to call it *André's Cytisus*, for the purer vernacular, *André's Broom*, might be objectionable to our friend's feelings!

SAMBUCUS CALIFORNICA.

Our old friend and colleague, Mr. Thomas Moore, sends us from the Chelsea Botanic Garden a specimen of this Californian Elder, a hardy deciduous shrub, or low tree, of great beauty. The leaflets are narrower, more truly lance-shaped than those of the common Elder, and have a milky appearance, probably due to the profusion of very minute white

scales with which the upper surface is beset. The lower surface of the leaves, like the shoots, is covered with soft hairs, which give a velvety feel to the plant. The flowers are like those of the common Elder, but cream-coloured or pale sulphur-coloured, and are succeeded by black berries, so covered with glaucous bloom as to appear quite blue.

THE BLUE DOUGLAS FIR.

This is the Colorado form of the noble Douglas Spruce, and when well developed is as blue as the Blue Spruce (*P. pungens glauca*), the Picea, or Abies Farryana glauca of gardens. It is a form well worth cultivating for its ornamental character.

FINE TREES AT MESSRS. LUCOMBE, PINCE & CO.'S NURSERIES.

At these nurseries, near Exeter, the following trees were noted this year:—

Cupressus sempervirens, 26 feet high.
Taxus baccata Dovastonii, 25 feet high; girth of trunk near base, 42 inches; 30 feet wide.
Araucaria imbricata, 32 feet high; girth of trunk near base, 5 feet 4 inches; 30 feet wide.
Cupressus torulosa, 25 feet high; girth of trunk near base, 29 inches.
Quercus Fordii, 20 feet high; two perfect pyramids, each about 40 feet around.
Cephalotaxus Fortunei, 15 feet high; girth of trunk near base, 28 inches; 15 feet wide.

This plant was given to the late Mr. Pince by Mr. Robert Fortune, and is reputed to be one of the largest, if not the largest, specimens in Britain.

Pinus parviflora, 18 feet high; girth of trunk near base, 38 inches; 21 feet wide.
P. insignis, 50 feet high; girth of trunk near base, 7 feet; 25 feet wide.

Thuja gigantea, 32 feet high; girth of trunk near base, 4 feet; 15 feet wide.

Picea excelsa monstrosa, 30 feet high; girth of trunk near base, 21 inches.

Juniperus pendula, 15 feet high; girth of trunk near base, 25 inches.

Cupressus Lambertiana, 40 feet high; girth of trunk near base, 7 feet; 40 feet wide.

Taxus baccata foliis variegatus (the golden English Yew), 15 feet high.

Two magnificent specimens, noteworthy from the fact of being the very plants which won the 1st prize at the great Exhibition at Manchester in 1874, when also Messrs. Lucombe, Pince & Co. were awarded the premier prize for their unique collection of splendid Conifers.

Juniperus drupacea, 20 feet high; girth of trunk near base, 19 inches.

Thuipinus borealis pendula, 30 feet high; girth of trunk near base, 36 inches.

Athrotaxis selaginoides, 10 feet high.

Chamaecyparis excelsa, 12 feet high; girth of trunk near base, 15 inches; 10 feet wide.

This fine Palm enjoys a prominent position in the rock garden here, and braved the inclement weather of the past severe winter without protection, save that afforded by neighbouring trees and shrubs and rocks. *W. Napper, Alington Cross.*

BOCHYM.

In that distant part of West Cornwall—the stony district of the Lizard—in the parish of Cury, stands the picturesque and historical house and manor of Bochym. A place distinguished for its antiquity and romantic history, moreover, Bochym is often spoken of as “The first and last gentleman’s house in England.” As seen from the coach as it rolls along the road to or from the Lizard, this grand old mansion is a familiar object, surrounded by great numbers of noble trees and shrubs—glimpses of its quaint gables continually arrest the gaze wherever the luxuriant foliage permits it. The landscape at Bochym is lovely—so distinct from the desolate barrenness of the adjoining downs, that the contrast, makes the place all the more beautiful. It was my good fortune to visit this place during the leafy month of June, just past; and I shall not forget the kindness of the owner (Sydney Davey, Esq.), and Mrs. Davey in showing me the gardens and grounds of their ancestral home. The entrance lodge is a pretty feature and from this point the winding carriage drive for a long distance is bordered on one side with a series of fish ponds, shaded by the overhanging trees of the

adjoining woods, their banks effectively planted with marsh plants and *Osmundas*. These ponds have been formed by making dams of huge rocks, hemming in the silvery stream which rushes down from the rocky hills hard by. A stretch of land on the other side of the drive is planted with Pines and Firs and other coniferous trees, and deserves the appellation—a Pinetum. There are fine specimens of *Thuja Lobbi*, *Pinus excelsa*, *Abies Nordmanniana*, *Pinus insignis*, *Cryptomeria japonica*, *Cupressus macrocarpa*, *Taxodium*, and others. Adjoining the house is a commodious conservatory of such an imposing appearance that it becomes in reality a wing of the building. It was furnished at the period of my visit with a variety of flowering plants, Palms, Ferns, and at the further end is a miniature rocky well designed and planted, the jutting crags and boulders affording effective positions for choice Ferns and other plants. Water of course is a feature that has been made much of by the designer. Almost directly in front of the mansion, but some distance off, are the kitchen gardens, plant-houses, and forcing-pits, hidden more or less from the house by a number of remarkable terraces and flower gardens dating from a past age. One of these Mrs. Davey was pleased to call her own garden, and which to my mind is the best of a lady’s garden, there being no attempt whatever at formal planting or strict training, simply a garden with grassy plots and gracefully serpentine borders, where you could ramble about among Sun-flowers, Poppies, Dahlias, Roses, Salvias, Anemones, and scores of herbaceous plants, and where at most seasons of the year flowers are to be found. Mr. Thomas Dorothy the head gardener, is a persevering and obliging young man, under whose management the gardens of Bochym are likely to be kept in good order. *W. Napper, Alington Cross.*

ARDISIA JAPONICA.

ONE of the prettiest berried plants for greenhouses is one which is made much use of at Kew for decorative purposes. As our illustration (fig. 44), taken from a plant in No. 4 house at Kew, shows, the plant as grown in a small pot forms a dwarf compact shrub with whorled leaves, which are lanceolate, serrulate, evergreen, tapering at both ends. The flowers are white and succeeded by globular red berries, which are produced freely, and form a nice contrast to the dark green foliage. It has the appearance of being nearly, if not quite, hardy.



FRUIT NOTES.

EARLY PEACHES (p. 210).

I CONSIDER Alexander, Waterloo, and Amsden almost identical and possibly quite so; if there is any difference Amsden is inferior in flavour. They are all earlier than Hale’s Early. I gathered Alexander, on July 12, and Hale’s Early, on July 31, from a cold house. Waterloo and Early Beatrice were ripe here outside on July 12 on a south wall. One large tree of Waterloo, 18 feet by 13, was moved out of the early Peach-house last autumn without any soil attached, and has perfected twelve dozen fruit, some of them very fine. This proves beyond a doubt that large Peach trees may be moved with perfect safety, and I consider they are benefited by it.

We were compelled to move every tree in our 180 feet range last autumn in order to put drainage in the borders, which from some unaccountable reason had been omitted when the borders were first made.

These trees have borne much more fruit this year than they did before; one large tree of Early Beatrice was brought from the 100 feet span-house; this measured 20 feet by 13; it was planted on October 13, and has borne fourteen dozen fruit, much finer than this variety generally is. The first one was ripe April 17. *W. H. Divers, Kelton Hall.*

APPLE LEYDEN PIPPIN.

This Apple was exhibited once or twice at the Con-

gress, and in the report is “damned with faint praise.” Here in Scilly, it is one of the most popular Apples, both for eating and cooking, and one of the most enduring of sea winds, is a variety called Box Apple, which appears very like the said Leyden Pippin. It ripens very early in the season, and has a very pleasant spicy flavour and sweet withal. The fruit varies much in bulk, but would be classed as medium-sized. The tree is vigorous and hardly ever fails to bear a respectable yield. It seems a suitable Apple to be planted in gardens by the sea, which are exposed to winds laden with salt spray. Perhaps the light sandy soil of these islands improves the flavour, indeed for early Apples, like Mr. Gladstone and Irish Peach, I am convinced it is especially favourable. *Il Vagabondo.*

GATHERING FRUIT.

Our contemporary, the *Revue Horticole*, calls attention to the desirability under certain circumstances of gathering fruit before it is ripe (*entre cueillage*). By this means, in the case of Apples and Pears, the fermentation and chemical changes go on more slowly and regularly, with the result that the flavour is superior and longer preserved. Winter fruits, on the other hand, should be allowed to hang as long as possible. Even in the case of Peaches and Nectarines our colleagues prefer to gather the fruits before they are ripe, and to allow them to mature in a dark, cool, well ventilated room. The fruits may be covered with thin canvas or even paper; their duration may thus be advantageously prolonged.

BEURRÉ HARDY PEAR.

This is one of the best autumn Pears, of middle size, regular pyriform shape, short stalk, obliquely set, shallow eye, reddish-brown skin, and white juicy flesh, pervaded with a delicate musky taste. It originated as a seedling with M. Bonnet, of Boulogne-sur-Mer. It succeeds best on the Quince. It is well figured in a recent number of the *Bulletin d’Arboriculture*.

COUNT OF FLANDERS PEAR.

This is one of those few Pears in which the seeds or pits are not developed. It is of large size, elongate pyriform, with a short stalk, green or yellowish skin, and white melting sugary flesh. The fruit is in season in December—January, and is of excellent quality. A good figure is given in a recent number of the *Bulletin d’Arboriculture*.

ROSES AT CHESHUNT.

THE name of the old nursery at Cheshunt naturally turns one’s thoughts to Roses, and though the times these scattered notes were taken—at the latter end of July—was late for the tide of exhibition flowers, yet, to see these was not the object I had in view, but rather to have a look at some varieties that have appeared during the last two or three years, and see how they are likely to meet the wants of Rose growers who, in addition to the kinds they cultivate, require them to be vigorous growers, free bloomers, and, as regards the hybrid perpetual varieties, that will give a succession of bloom such as to make them deserving of the name. The ability of new Roses to come up to this standard is not proved until a year or two has elapsed after their first appearance, and they have had time to get over the ordeal that now attends new varieties in the forcing and subdivision that they are subjected to with a view to get up the required stock in the shortest time.

Grandeur of Cheshunt.—One of Messrs. Paul & Son’s new Roses of 1883; it is an excellent variety, blooming early, and keeping on up to November. The flowers are large, colour vivid shaded crimson—in the way of Charles Lefebvre.

Marshall P. Wilder.—Amongst the new varieties that came in 1884, this was in fine condition; the flowers very large, of good form, the colour being cherry-carmine; a free bloomer, and vigorous in growth. So striking is this variety, that at a distance from the quarter in which it was growing the long rows of colour stood out distinctly from the others growing with it. It is an American variety, sent out by Elwanger, and, independent of its merits as a show Rose, is likely to become as popular as a garden variety as A. K. Williams. Evidently the Americans are not disposed to leave all the plums to the Old World in the raising of new Roses.

Eclair.—This is another telling Rose, in shape somewhat globular, petals reflexed; the colour is

vivid scarlet suffused with crimson. Keeps on blooming until stopped by cold weather.

Ella Gordon (W. Paul & Son).—A really fine Rose, globular in shape, and very full; colour cherry-red. Habit of growth free and vigorous.

Comte Benoit.—This Rose was in fine condition. The colour is a peculiar shade of red, brighter at the outer edge of the petals. Growth free and vigorous,

distinct appearance. It is likely to become a favourite, the form of the flowers being good.

Clara Souper.—A pretty flower, salmon-pink in colour. A free grower, keeping on flowering until the autumn.

American Beauty.—A new American H.P., with a high character. The flowers, which are large, are of a pink colour and fragrant. Evidently it is a

identical in form with Catherine Mermet, having plenty of petals in it.

Sunset is another new Tea Rose of American origin, sent out by Henderson of New York. This also is a sport, I understand, from *Perle des Jardins*; colour orange tinged with red. It differs from all other varieties, and is a profuse bloomer. A number of plants in one of the houses were covered with bud



FIG. 44.—ARDISIA JAPONICA: BERRIES RED. (SEE P. 232.)

Of last year's Roses:—

Victor Hugo is a fine variety, crimson shaded with purple, the flowers full. It beats that fine coloured but somewhat miffy-growing variety, *Xavier Olibo*. The growth is not quite so strong as desirable.

Pride of Reigate.—This sport seems to retain the character of the flowers as it first appeared, whilst the successional habit of the variety from which it sprang (*Countess of Oxford*) also remains. The colour, white stripes on a pale crimson ground, gives it a

ree bloomer, as small plants on their own roots, received in December, flowered last March.

Grace Darling, H.P.,—one of Bennett's Tea-scented seedlings—is likely to be a useful variety for cutting in the bud state; the colour is creamy-white, the petals edged with rose. It is a very free bloomer.

The Pearl.—The new Tea Rose, a white sport from Catherine Mermet, is much liked by Mr. Paul. There is little doubt that it will become a favourite variety for cutting in the bud state. It is all but

to an extent I have not before seen in any Tea Rose. It is an excellent forcer.

Comtesse de Frigneuse, one of this year's new Tea varieties, is evidently a good yellow Rose.

Several promising seedlings raised here have bloomed for the first time this season; they are distinct in colour and general character, and will probably be seen when they have undergone the usual trials here.

CLIMBING ROSES.

Waltham Climber, No. 3.—This seems to have

more Tea blood in it than *Reine Marie Henriette*. The colour is rosy-crimson; it is very fragrant, and is fitted for a climbing or pillar Rose, having plenty of vigour.

Paul's Single White.—An effective variety, adapted for scrambling over old walls, buildings, and the like. The flowers are single, 2½ inches in diameter, and quite white. Its habit of keeping on blooming is in its favour.

Reine Olga de Wurtemberg.—an insufficiently known H.P.—is another remarkable climbing Rose that makes immense growth. The flowers are semi-double, of a bright crimson colour.

Of *Polyantha* Roses, one of the very best, if not the best, is *Anna Maria Montpelier*; the flowers are very full, imbricated, pure white in colour, and produced in such profusion as to all but hide the leaves.

Those who require a Rose that will cover the greatest possible space in a short time should procure *R. Brunonis*, the Nepaulese Brier; when once established in fair soil it will make shoots 20 feet or more in length in a season. The flowers are white, single, and produced in bunches. In its way it is very effective. Amongst other Roses that are not so much grown as they deserve to be, is the North American species *R. lucida*; the flowers are single, rosy-pink in colour. It has beautiful toothed leaves which set off the flowers well.

R. macrantha is another single Rose with a distinct habit. The growth is compact, and it is a free bloomer. The flowers are 3 inches across, white, shaded with blush.

R. anomalaeflora.—A Chinese species; flowers bluish, and, as its name implies, confused in the centre. A profuse bloomer.

R. clinophylla plena.—This is another desirable climbing sort, distinct in appearance. Of the numerous varieties of double Roses we now possess, which are the outcome of many years of care and attention in seedling raising to say anything in their praise is like painting the Lily, but when people have learnt to see the beauty of the single and semi-double species and varieties of which the above-named are a few there will be a chance of Rose gardens having more beauty and interest attached to them than at present.

PLANTS UNDER GLASS.

Amongst numbers of other things in the houses is *Passiflora Constance* Elliott, a white form of *P. corollæa*. It seems likely to be a desirable plant. *Solanum jasminoides* grows luxuriantly here. It is singular that this beautiful climber is not oftener met with; the plants are bearing quantities of flowers, and have been in bloom continuously ever since last November. The form and pure white colour of the flower are such as are very desirable in bouquet flowers.

Amaryllis are largely cultivated; some of the best named sorts are grown, and from them have been raised several thousand seedlings, the bulbs of which are large and strong. There is here a cross between *Valloia purpurea*, and one of the seedling *Amaryllis*; the character of the foliage and form of the bulbs partake of those of both the parents in a way that leaves no doubt as to the origin of the plant.

Calceyone cristata.—There is a fine stock of this. The plants are grown in full light, as they are kept within 6 inches of the roof of the house.

SHRUBS AND TREES.

Hybrid Rhododendrons.—Mr. Paul is trying to break fresh ground in this direction, having crossed a number of the best hardy hybrid kinds with some of the greenhouse varieties. The plants are covered with seed-pods, and in them may be seen the singular effect that the pollen parent sometimes has in causing an increase in the size of the seed-vessels of the plants with which it is crossed. In the case of the *Rhododendrons* in question, the seed-vessels are double the size I ever saw any of the hardy sorts bear where a cross of the ordinary kind has been effected.

Amongst hardy evergreen shrubs raised here is a distinct and beautiful variety of American *Arbutus*; it differs in habit from the parent species, being of low compact growth, not unlike *Thuja aurea*. It is covered with dense foliage of a deep green colour, and is one of the best of all low growing evergreens for specimens.

Of *Berberis* there are numbers of distinct and beautiful varieties. They are seedlings raised from *B. aquifolia*, but differ so much from it, and from each other, that in the case of some the parentage is scarcely recognisable; in some the foliage is quite

glaucous, and in others different shades of green. The plants from which the seed was gathered were growing in company with other species, amongst which were *B. japonica*, and in all probability it is the pollen of this that has had something to do with the appearance of the plants.

In Junipers, of which there are a number planted, with a view to prove the best, the varieties *J. plumosa alba spicata* and *J. plumosa argentea*, are both fine distinct sorts.

Trees with self-coloured foliage, apart from those of the normal green colour, are now receiving a good deal of attention, and deservedly so, the contrast they afford to the green-leaved kinds forms an acceptable feature in the landscape when they are introduced to the right positions. They are free from the objections attached to some of the variegated trees and shrubs of which we have more than enough, as these latter are many of them very unsatisfactory, either from the effect they produce, or from the unhealthy look of the leaves. So far as can be judged, one of the best picture trees that has appeared is *Van Houttei's Elm*, *Ulmus Van Houttei aurea*; it is a paler shade of yellow than *U. plumosa aurea*, and a better grower. *Prunus Pissardi*, which is of the *P. myrobalana* section, is now getting well known. It improves with acquaintance, and as the tree attains size shows more of its character. It promises to be one of the most distinct purple-leaved half-trees we have. *Acer Reichenbachiana* is a variety of Norway Maple that is as yet but little known. It is an acquisition among purple-leaved trees, and has a beautiful effect in spring; it likewise retains its colour well through the summer. *Acer purpureum* is another of the Norway Maples that is well worth growing, as, like the preceding, its foliage is not only fine-coloured during spring, but remains effective through the season.

Another comparatively new tree, *Populus Boleana*, is in beautiful condition here, thriving as freely as any of the proverbial free-growing family to which it belongs. It has the fastigate habit of the Lombardy Poplar, and in addition has large foliage, white on the under side. So far it would seem as if this tree would in the future take the place of the Lombardy. The new Golden Privet is an acceptable addition to yellow-leaved shrubs, the leaves of which are wholly yellow, retaining their colour well, and it seems a good grower.

The comparatively new *Phillyrea decora* or *Vilmoriniana* is a handsome evergreen shrub, a dense growing sort that when it becomes better known will be preferred to the other varieties. It seems to be hardy.

Eulalia japonica variegata, much grown in pots for decorative use, is also a hardy example that has stood out in the borders here several years, is healthy as can be. It is an effective variegated plant for a front position in shrubby borders, where its pretty foliage backed up by green-leaved plants, is seen to advantage. The new *Clematis Jackmanni alba* was in bloom out-of-doors. Promising as this fine variety was when it first appeared, it seems as if on further acquaintance it would turn out even better than was expected. It is evidently a good grower, and a free bloomer. The trace of blue in the flower seems to bring out the purity of the white clearer.

ROCK PLANTS AT BROXBOURNE.

THE middle of summer is not the time to expect much in the way of bloom on alpine and rock plants generally, but the collection has made good progress this season; most of the plants are now covering the surface allotted to them. Amongst those in flower may be named the following:—*Mesembryanthemum uncinatum*, which was dotted over with its purplish flowers; *Campanula pelviformis*, one of the pale blue sorts, and a good many others of the genus; *Linum narbonne*, one of the most distinct of the blue *Flaxes*; *L. flavum*. The lovely *Cistus florentinus* was covered with white flowers spotted with red. *Tropeolum polyphyllum* was also in bloom. The *Zebra Rush* and the *Corkscrew Rush* are both growing in the artificial swamp here, and are proved to be hardy.

Sarracenia Drummondii is at home in the swamp, and though its horn-like leaves are small in comparison to what they are when well managed in warmth under glass, still they are perfect in shape, and of a high colour. *Lilium pardalinum* thrives here in the bog garden.

The old double yellow *Provence Rose* grows and flowers freely in a corner of the mound where chalk

debris has been mixed with the soil for the growth of such plants as require it.

There are quantities of beautiful and interesting plants thriving here in a happy-family kind of way, in the nooks and corners that have been duly prepared for them. T. B.

PRESENTATION TO MR. W. INGRAM.

VERY many of our readers have ere this made the acquaintance of the spring garden at Belvoir, which Canon Hole has on more than one occasion styled "the most beautiful garden in all England."

About 5 o'clock on Thursday afternoon, August 5, a numerous company of ladies and gentlemen assembled in one of the most picturesque parts of the garden, not far from Blackberry Hill where the Volunteer encampment was in full swing, to witness the interesting ceremony of presentation. Canon Hole, in a letter regretting his inability to be present, wrote—"No one admires and appreciates more than I do the taste and the labour which have made Belvoir in its vernal glory the most beautiful garden in England; and I need not tell you that I greatly regret my inability to be present on Thursday, when the victorious general will receive on the field of triumph some token from those who have watched, with a delightful wonder, his complete success."

The Rev. Canon Twells, in making the presentation, after some preliminary observations, said, addressing Mr. Ingram:—You sir, would be the first to admit that the grounds of Belvoir Castle have great natural attractions; but those attractions have been increased from time to time by the thoughtful care and attention of those in charge of these gardens, and this has been most conspicuously the case since you yourself have been their responsible head. God has showed us how He can rob the Lilies of the field without human assistance; but God has also showed us how human study and human labour can at once develop and diversify His natural gifts. If all who have experienced pleasure from looking over the Belvoir gardens had given a single penny to this testimonial—as I feel certain they would have done if they could only have been asked—what a present would have been forthcoming! I often think that the beauties of Belvoir are practically maintained by the Duke of Rutland for the public rather than for himself; but while we feel grateful to the Duke for not shutting his gates against us, we are all aware how much of our enjoyment of the place is dependent upon the efficiency, and not only so, upon the kindness of the officials. I have now, sir, to request your acceptance of this testimonial, consisting of certain pieces of plate and a cheque for upwards of £90. May you long have health and strength for the performance of your responsible duties here! To the lover of Nature and of scientific enquiry, we believe that those duties bring with them their own reward; but we are sure they will be sweetened by the knowledge, of which this testimonial is a proof, of the hearty recognition of a large circle of friends.

The inscription engraved on the principal article ran as follows:—"Presented, with a purse of money, to Mr. W. Ingram, by his friends and neighbours, in appreciation of the manner in which he originated and developed the Spring Gardens at Belvoir Castle."

Mr. Ingram, in reply, said:—Canon Twells, ladies and gentlemen,—I need not tell you how gratefully I receive the handsome gift which you have been so good as to convey to me. I may say that it has been my happy privilege to originate and develop in this place a style of gardening which was not much thought of previously; and I notice, from the inscription on one of the pieces of plate now before me, that this testimonial is intended as a special recognition of the fact that I have originated "spring gardening." Beautiful as this garden may be in the summer, it is, as you are well aware, much more beautiful in the spring of the year. We have gathered together here plants and flowers from distant regions, and I conceive that a garden may be made, not only exceedingly brilliant and beautiful, but also interesting and instructive. It has been one of my aims in gardening not only to make a pretty picture, but also to make a garden tell a story. Even the Cedar on the hill over there, from Mount Lebanon, has a story to tell; and we have only to look round about, and on every side are trees brought from other parts of the world in which we

are interested. Just as England may be regarded as an epitome of the world at large, so our gardens can be made to tell an instructive tale of what we possess and of what we are interested in abroad, by means of those plants and trees which travellers in other countries have discovered and sent home to us. You have made an allusion to gardening being the result of refinement. Travelling everywhere, I have observed that where people are savage and degraded, so we find their country without flowers, and their gardens devoid of a single shrub, or anything beautiful, and in proportion as people are refined and educated, and appreciate beautiful things, so you will see that they cultivate their gardens. I can only express the hope that my poor efforts here may be the means of spreading a taste—a proper and catholic taste—for all kinds of plants and trees. Canon Twells, the gift which you have so gracefully conveyed to me has added value from the eloquent words which you have spoken; and I trust that I shall always retain a grateful sense of your kindness, and of that of all those who have contributed to this testimonial. Canon Twells, ladies and gentlemen, I thank you very sincerely. Condensed from "*Grantham Journal*," August 7.

ROOTS AND THEIR WORK.

(Continued from p. 199.)

ROOT STRUCTURE.

The Root-Cap.—In addition to the compound cell structure of *Lemna* and *Pontederia crassipes* we notice a cap at the extremity. The same cap, though not so evident, exists in roots of most plants as a yellowish hard covering, in some cases, especially among aerial roots (of *Musa*, e.g.) there is a fluffy growth. (See also microscopic section of *Strelitzia*, fig. 47.) This growth is harder in some Palms, but it is always present.

We notice the root-cap of *Pontederia* magnified, but it is not easy to get sections of the growing point; we see the cells are denser near the extremity, however.

In the roots of seedlings we notice a central darker series of cells, and a more transparent outer part. In the *Wallflower* this central portion is more abundant, and the outer series of cells, also hardened, may be pulled away from it. Where root branches are given off, however, little branches from the harder central tissue remain attached.

This branching of all rootlets from the central more woody tissue is to be noticed throughout [nearly] all roots. In *Pontederia* (see diagram, fig. 45), we notice this branching from the centre in all its stages.

Root-Hairs.—We noticed among the external features of roots that more or less delicate root hairs were nearly always present. The microscope shows these hairs to be projections from the outer layer of cells. They, or the thin-walled surface cells, may be looked upon, then, as the essentials of every absorbing root. A cluster of hairs is present at first just at the neck of [very many] seedlings.

In *Primula Sieboldii*, we see them entirely absent from the very tip, where the root cap is. They are thickest towards the extremity, however, and gradually lessen in number to the upper part of the root.

In plants where hardening of the surface of the root goes on, they of course disappear entirely.

Further examination of the small roots of seedlings shows thin-walled cells at the outside, more thickened cells in the centre; the thickened cells, which among older roots look nearly black through the microscope, have broken rings upon their surfaces. This holds good of every root when seen in section in a young condition, but, as before noticed, there may be a thickened series of cells—a kind of bark, in fact—just at the outside.

Cross (transverse) sections of older roots show as in the diagram of *Strelitzia*, fig. 47, among the harder and denser cells to the centre, several larger spaces or circular [globular] cells. It is through these cells that the fluids most pass, and we may judge from the great amount of central harder tissue, in the *Wallflower*, for instance, that the function of this kind of tissue is to carry the fluids necessary for the growth of the leaves.

If the outer series of cells be damaged, for instance in a *Rhododendron* stem or *Pelargonium*, we know that there is no (great) interference with the passage of sap upwards; and this I think proves to us the uses

of the different layers—1, the inner being to give strength and to convey fluids; 2, the outer, where thin-walled, to absorb the watery food.

We must notice how evidently in the diagram of *Strelitzia*, fig. 47, the root-branch grows from the central tissue, and also the softer tissue of it springs from about the same cells, and not, as we might suppose, from the outer softer layer.

We notice no softer pith [meristem] cells in the centre of our older roots; there are exceptions, as for example in *Ruscus*, where the woody tissue is in the form of a ring around, in, and also on very young roots there is pith perhaps because the cells have not thickened up enough.

USES OF ROOTS TO PLANTS.

Special Uses.—We have in considering the various forms of roots spoken of the probable uses for which many of them would be suitable—the strong root for the tall growing plant, the much branched fibrous root for the grossly feeding plant, the wedge-like root for such as need support and grow in crevices, &c.

Some plants require long roots to reach to considerable depths, as in many alpine plants where a stem and leaves 1 inch above-ground may have "40 inches below." This is to ensure that the plant gets a supply of water when the soil and surface of the ground are deeply frozen, and which the sun's heat would not affect, whilst the leaves of the plant would soon wither under its heat, no fresh supply of water coming into the tissues.

A *Statice incana* measuring some 9 inches to the top of its leaves actually measured 7½ feet from the neck to the extreme end of the roots. Six of these plants were grown round the edge of a pot, their roots had coiled round and round at the bottom, squeezing the corks into the "ball." Here, doubtless, the length of the root might be abnormal—it might have grown at the expense of the plant, but evidently the root attains great lengths in its natural home, perhaps enabling it to penetrate among rocks to a fairly depth.

FUNCTIONS OF THE ROOTS.

But we have other than mere variations in the size of roots likely to be of aid in meeting special ends; we have general uses which roots fulfil, which we will briefly mention here:—

1. They support or fix the plants, as we have elsewhere alluded to, and as it is so evident a fact we will not further consider it here.

2. They are the means of supplying most of the [liquid] food necessary to the growth of the plant.

We notice that the leaves wither and dry up if they are severed from the root; they may last for a considerable time if placed in water; but it is evident by this that roots are the means by which plants obtain the large amount of water required by them.

If we take a leaf of *Eucharis amazonica* and place it between dry pressing papers we find, after drying it, that instead of being about one-eighth of an inch in thickness, it will now be less than one-hundredth of an inch. This shows how large a part of most plants is water alone. The solid part left after drying might be burnt to an ash, and we could learn what chemical substance it was composed of. It is very evident that these solid ashes could never travel up the plant or enter into it in a solid form, and they must have either got there [in solution] from the air or from the earth.

ACTION OF LEAVES.

We learn that there is not enough of the substances required for the plant's food in the air, even were the plant capable of taking it in. Carbonic acid gas, however, is plentifully taken up by the leaves, a very large amount of the ash being carbon. The greater part of the other constituent matter is dissolved in water, and so passes from the roots through the cells of the plant, and is so carried up to the leaves, &c.

Water may also be taken in by the leaves, as we know is the case when they are cut off and placed on the surface of water; also one use of a very damp atmosphere in some of our houses for young plants is to supply them with water, or at least not to allow the water already in the leaves to drain away by evaporation.

We might just note here that roots seem to have the power of turning towards moisture or to substances they seem to like to grow in, where also they are generally found emitting more root branches.

We learn also that roots have the power to secrete fluids [when in contact with particles of] the soil; at

times these secreted fluids are said to aid in dissolving solid matter (as marble even) which may be taken into their tissues when so dissolved.

Some roots store up starchy or other matter for the future use of the plant. We may see the swollen growth of the preceding year decaying away as the leaves form, and another reservoir for such starchy matter is built up. There are good examples of this to be met with among biennials, as many *Campanulas* with a thickly developed "first-root" or tap-root.

Dahlia also is a good example, and I expect that *Oxalis hirta* has its root developed for a similar purpose.

Potatoes are about the best example one knows, however, and it is a really marvellous sight to see the innumerable starch granules when exuded from a cut piece, under a powerful microscope; but we have considered Potatoes as branching from (underground) stems, though capable of emitting root fibres as well as buds; they also absorb fluid matter through their exterior which bulbs and corms of *Hyacinth* and *Gladiolus* are, I should imagine, unable to do, by reason of their "coat."

We might by "stretching a point" consider that roots, as the word is understood by horticulturists, of *Drosera*, *Primula* (and *Dodecatheon*?), had another use to perform, that is, to continue the species by budding.

THE MANNER IN WHICH ROOTS PERFORM THEIR WORK.

Bearing in mind the remarks made as to the structure especially, but also of the external features of roots, let us discuss how they perform their varied works in aiding the life of the plant.

1. It is not difficult to see how they act as anchors or supports. The few fibrous roots noticed in the *Pinguicula* and *Drosera*, the swollen tap-roots of *Astragalus* or *Hippocrepis*, the huge branching roots of the Oak or Elm, all plainly tell us by their construction and direction that they support or fix the growths above them. Often the roots of a tree will extend underground as far as the branches do above. There seems a mutual dependence of one upon the other, causing them to grow more profusely, or stretch for further distances as required.

2. As to the absorbing of food by roots.

We have seen that the external tissue of all young roots is soft, and that this young tissue, either of cells alone, or of hairs and cells, is present everywhere in roots, from the moss to the highest tree.

As any soft substance will absorb water when placed in it, so we might assume the soft tissue of the root would do so. We can indeed see coloured water entering into the root-hairs when these are placed in it.

Most plants are not surrounded by very evident supplies of water, and it is here that the longer root-hairs become most useful. They stretch among the particles of soil, and abstract the watery films which we learn enclose all but the very driest particles.

All the solid food elements needed, if dissolved in water, would thus be able to enter into the plant.

We have next to see how such are taken from the root to the leaves, where we know the fluids undergo the necessary changes upon their distribution throughout the plant.

If we consider—1st, the action of a sponge or piece of sugar when placed in water; and 2d, the effect produced by sucking the air from a straw held in water, we shall have a partial clue to the *modus operandi*.

Capillary Action and Pressure of the Air.—We know that in both the cases referred to water will rise above its level in the dish in which sugar and straw were placed. This rising of fluid is due to simple physical laws, depending in one case on the closeness of the particles of sugar for its effect, the water rising up the thread-like openings between the particles, and in the other on the partial vacuum which would be caused by suction necessitating that the water should rise [by atmospheric pressure].

Osmosis.—The cells of a plant, as we saw, are so arranged that watery fluids would rise in or between them as in the sugar, and would be much helped by the evaporation going on from the leaves, compelling its rise, as the suction of water up a straw does. But we often have, as in winter-pruned Ivy, a great surface to be supplied with nutriment, and no leaves to aid in drawing fluids up

the stem. Clearly we have great need for another process by which it shall rise, and this has been found by botanists to be identical with a well-known physical process termed *osmosis*. Roughly, this process of osmosis takes place wherever a denser fluid is separated from a lighter one by any thin-walled substance, such as parchment, when a current will be set up from one to the other until the densities of the fluid on either side are similar.

With the cell wall instead of parchment the cell's denser contents might pass out into the earth, whilst water would be taken in were it not that the evaporation from the surfaces of the plant keeps up a continual inflowing, whilst the currents from one part of the plant to the other are stimulated by the denser contents of cells from evaporation takes place, drawing lighter fluids towards them. This ascent of sap is naturally much more vigorous and *vice versa* in summer, and nearly ceases in winter. Experiments have shown its force to be very considerable.

STEM CUTTINGS AND THEIR ROOTS.

These are mostly fibrous. At times, however, some are specially developed, and grow much in length, and harden very considerably.

If we place a suitable piece of stem in the earth, so that it produces roots, various changes take place at the cut end, as follows:—

1. The pith cells shrink slightly and become discoloured, owing to the decay of the damaged cells.
2. The cells forming the ring around the pith cells



FIG. 45.—ROOT OF PONTEDERIA, SHOWING LATERAL ROOTLETS, WITH THEIR CAPS.

grow so as to produce "a ring of warty structure. This is called "the callus."

3. From below this ring or series of warty growths are given off in an ordinary manner a greater or less number of roots. In some cases these roots penetrate through the warty cells, but generally I have observed that they spring from below them.

PROBABLE REASONS FOR THESE CHANGES OF TISSUE.

1. We can understand that the pith cells should decay back where broken—possibly they harden a little—in some cases where a stem is cut at both ends one end may dry.

2. We see the necessity for the woody and fibro-vascular cells to be sealed up by some means—as they are by the callus—or else the sap in them would not be properly subjected to the influence which would cause it to spread through the cutting.

3. We have seen that in all root-branches or roots such as these are that there is necessity for some of the denser central tissue entering into their structure. We should then expect that they would (as we saw in *Streptozia*) start from the thickened layer of cells. These roots push through the surrounding cells in the ordinary manner.

I believe that before much or any root-growth takes place there must be some pressure of the fluid causing tension in the cells of the plant, and this state cannot well be if they are open in the ground or "bleeding."

A knowledge of the preceding facts will, I think, show us why in many cases we should not expect cuttings to strike.

WHAT WILL STRIKE.

1. We should not expect any stem destitute of a fair band of the harder (fibro vascular) cells, either to "callus" or subsequently to emit roots.
2. We should not expect plants having a very

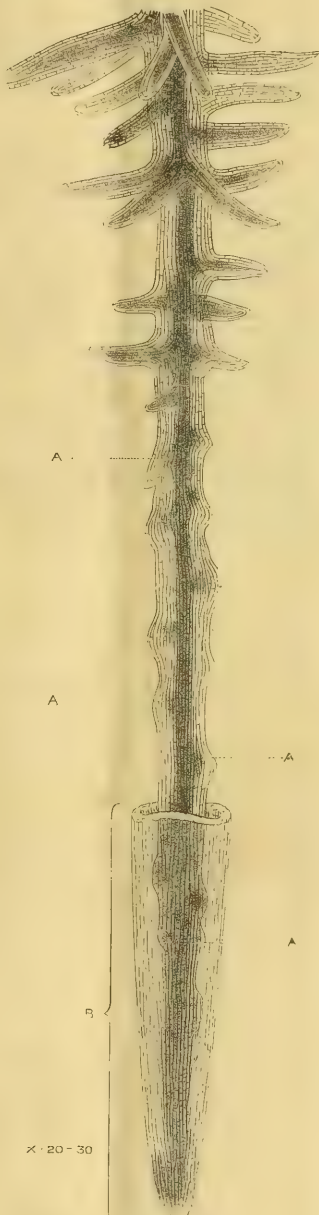


FIG. 46.—ROOT OF PONTEDERIA, HIGHLY MAGNIFIED, SHOWING THE ROOT-CAP, B, AND THE ORIGIN OF LATERAL ROOTS FROM THE DEEPER TISSUES, A, A, A.

thick or hard epidermis to root, as the necessary absorption through thin-walled cells could not take place. Nor would the root branches be well able to pierce the epidermis did they commence to bud.

3. We should not expect portions of the stem in

which there was a great amount of woody or thickened tissue (in addition to little outer absorbing tissue) to callus readily enough to allow much change of growth before the cutting decayed.

Naturally we ask ourselves, Can we formulate any rules which will be fairly correct in regard to the chances of cuttings of roots "striking"?

We require the formation of leaf-buds here in addition to the formation of feeding roots. The giving off of fibrous roots we may consider even more likely as were they in a slightly undeveloped state I believe they might grow without callusing of the cutting.

But it will be considerably more difficult for stems or leaves to be given off.

1. A stem requires a pith or central medullary tissue as well as woody tissue. This we have seen is generally absent from roots.

Could the stem-buds, if present or dormant, find enough woody tissue, and also obtain pith perhaps from the outer layer, as they do when branching off from a root-stock, as in *Lysimachia*, we might fairly consider that our root cuttings would generally succeed. That they sometimes callus without producing leaves is a known fact.

LEAF BUDS FROM ROOTS.

An examination of *Primula cashmiriana* and *Drosera* has led me to think that the reason why these roots [stocks] give off leaves so readily, is be-



FIG. 47.—CROSS SECTION OF THE STOCK OF STREPTOZIA, SHOWING ORIGIN OF ROOT FROM THE INNER TISSUES.

cause there is no central pith required; the growths are "stemless."

Dodecatheon will produce little rosettes of leaves from every root stock if once the crown has decayed away after flowering. This may not be a fair example of root-propagation, as it may be thought that some portion of a very slightly developed stem would be attached to the upper part of each root and from this leaves were given off.

RHIZOMES.

Wherever there are dormant leaf-buds, as on the rhizomes of *Helleborus* and *Dracena*, there is no difficulty in getting plants from small cuttings, but these are not true "root-cuttings." There are cases, as in *Ipecacuanha*, where stems are produced from annulated root-cuttings, where also there is no pith. It seems rather that we may take it as a fairly correct rule, that where stems are required from our root-cuttings there must be pith. In *Dandelion* and *Dock* when cut across we know there is the power to give off leaves.

We might consider here how universal in the vegetable kingdom is the readiness of certain tissues to emit roots. There must be a trace of a harder tissue than that which exists as an absorbing agent at the exterior of all roots. They are given off:—1, from scales, as in the *Lilium auratum*, *Pinguicula caudata*, and many others; 2, from bulbils borne among the flowers (in *Allium*) from the axils of the leaves, in *Lily* or *Ranunculus Ficaria*; 3, from soft

leaves, as Begonia or Bryophyllum : from succulent leaves, as in some species of Echeveria, &c. ; 4, from almost any part of the stems and branches if treated carefully, from the end of Fern fronds, as in Adiantum Edgeworthi ; these organs, developed especially to feed the plant, are very freely given off from the other organs of vegetable growth.

PLACES FROM WHENCE ROOTS GROW OUT.

We are not surprised to see, then, that from many lower parts of stems roots and stems (the latter either ascending or creeping) are given off one above the other very indiscriminately. This can be seen in hosts of examples, from Palm (Phoenix) to bog-loving creeper.

Roots prefer to grow out from places, as in the swollen nodes in stems, where there is more fibro-vascular tissue, and as in the Philodendron, where, though having most of its bundles scattered through

relation to the differing functions of the two organs—stem and root. The one bears flowers and leaves spread out to all the influences of air and light—the other as a general thing chiefly developed to absorb water and food which may pass into the whole plant.

2. As to whether there is any difference in external or internal structure I believe is an undecided point. Internally the cells are, to all less thorough investigation at least, just the same. We certainly find that pith is oftenest present in stems and absent from almost all roots, except as in some trees where they branch from the trunk, the pith being present because growing as continuation of that in stem. This pith (though useful in giving more bulk to the stem, from which the leaves may more readily pass off) is needless to the root.

We can all see that the root is colourless generally, though when growing in the air at times, as in Chlo-

having similar rudimentary structures (in the thin-walled cell), although these may be developed differently according to their functions.

(To be continued.)

BARONHILL.

AMONGST the numerous quaint old country seats in the Isle of Anglesey, perhaps no other, whether for beauty of situation, extent of well-wooded, gently undulating grounds, or salubrity of climate, can compare with Baronhill, the residence of Sir Richard Williams-Bulteley, Bart. This estate may be said to occupy the entire eastern end of the isle, being bounded on two sides by the Irish Sea and Menai Straits, while a straight line drawn from Garth Ferry to almost the very point where that ill-fated vessel, the *Royal Charter*, was wrecked, some

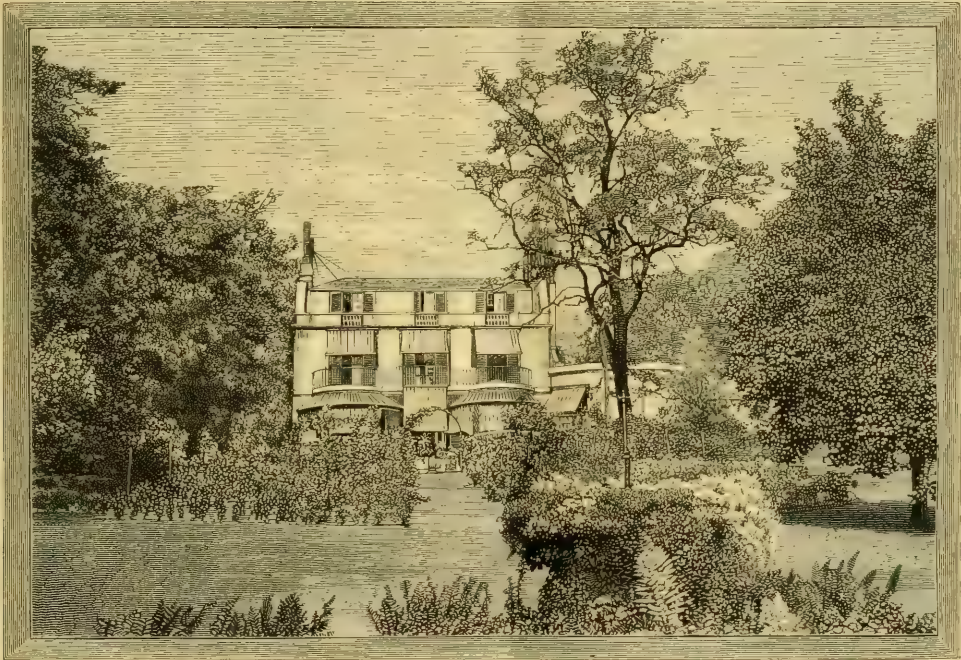


FIG. 48.—HOLLY LODGE, HIGHGATE, THE RESIDENCE OF THE BARONESS BURDETT-COUTTS. (SEE P. 231.)

the softer tissue of the stem, there is yet a concentric layer below the epidermis of more substance, therefore more readily giving off roots.

I may mention that *Lysimachia verticillata* is an excellent example, showing the roots growing from the dense woody ring in the lower part of the stem if cut across, whilst the branching stems have a growth from the seemingly much-coloured pith (resin in the pith?) passing into them in the centre of the woody tissue.

THE DISTINCTIONS BETWEEN STEM AND ROOT.

Lastly, before passing on to consider the bearing of these facts upon cultivation, we will roughly try and note whether we find any distinction between stem and root, so nearly, as we have seen, do they resemble each other.

1. The growth of the stem upwards away from the more damp earth towards the light, stands out in great contrast with the tendency in all roots to grow towards moisture, and as a necessary consequence towards shady or dark places.

This growth in different directions is in direct

rophyton, it becomes green, or hard, brown, and stem-like, with bark on it. The epidermis in many stems whilst green has also breathing places, or "stomata." It is sufficiently evident that there would be no need for these in terrestrial roots, although botanists point out among aerial roots, as in some Orchids and in Mangrove, the marks of similar stomata.

3. As to the power in stems, and the absence of this power among roots, to give off leaf-buds, which we have already referred to somewhat fully, I may add that according to the functions of a root we do not need the presence of leaf-buds, and they are never present in true absorbing roots as we should perhaps restrict the term though whether present in storage roots at all frequently I cannot yet make out.

It is certainly difficult to draw a hard and fast line between these two organs, especially when in so many of our best text-books of systematic botany we read of "roots," and find such able to produce leaf-buds plentifully under certain favourable conditions. I think, however, that the greater number of botanists will look upon roots and stems both as complex structures

years ago, would define pretty accurately the western boundary.

Entering the park from Beaumaris, and almost alongside the once famous castle of the same name, the main drive, which is planted in a most artistic manner with numerous specimens of the rarer trees and shrubs, leads along past the great fountain, flower garden, and roseroy, to the capacious and well-built baronial mansion. *En route* many rare Conifers may be seen, amongst which we took particular note of fine healthy specimens of *Abies magnifica*, *A. nobilis robusta*, and *A. nobilis glauca*, the latter in particular being a very desirable form, which for contrast and beauty should find a place in every well-arranged collection. *Podocarpus macrophylla* (wrongly named *P. aurea*) rather surprised us, for a 6 or 7 feet high specimen, abundantly covered with flowers, which contrasted strangely with the long dishevelled foliage, was rather more than we had expected. It seemed in perfect health—which we were glad to see—planted in a semi-shady and semi-sheltered part of the grounds, and in company with numerous fine trees of the Hemlock

Spruce (*Abies canadensis*). This latter is a grand tree for ornamental grounds, and nowhere (Eaton Hall excepted) have we seen it in such fine form or with such a sweep of healthy foliage as in the sheltered spots of this sea-park. With its gracefully irregular manner in which the fine cut-leaved forms of our various hardwoods are intermixed with the Conifers, thus imparting a remarkably pleasing effect from the toned-down appearance given to the otherwise somewhat stiff outlines of the Pines and Firs. Large, well-balanced trees of the cut-leaved Oak, Beech, Hornbeam, and Maple clearly show that at one time these had been particular favourites, for numerous are the examples of which, and the healthy, well-furnished appearance of which give unmistakable evidence of their having received that care and attention which, unfortunately, is too often neglected in trees of the kind. In many instances trees of 30 feet and 40 feet in height were the same in diameter of spread of branches, with the latter almost resting on the ground—the result of judicious management, but particularly the allowing of ample room at all times for their perfect development.

What a lovely tree is that rarely seen *Catalpa bignonioides*, with its large Lilac-like leaves and terminal panicles of violet-white flowers! Of course every place will not produce trees of the size to be seen here; the largest has a spread of branches covering 42 feet in diameter, and is about 30 feet in height; but from its deep green leaves and abundance of peculiarly shaped flowers an attempt had best be made wherever a warm corner can be found to establish so distinct and desirable a hard-wood. *Buxus balearica*, with its large, glossy leaves and gigantic stature, stands out in bold relief from the lighter-foliated shrubs near which it grows, and offers a particularly pleasing interest to the myriads of pure white flowers and light green foliage of a 12 feet wide specimen of that rare and beautiful shrub—*Fabiana imbricata*. There is a notion abroad, and unfortunately it has gained too much footing, that this plant is too tender for ordinary culture; but I believe such is not the case, for all through Cananach and Anglesey, where frosts nip hard enough during the past long winter, this pretty shrub thrives well and never was seen in finer form than during the present summer. In planting choose a rather dry, sunny corner, and all will be right, and you will soon have one of the most ornamental flowering plants imaginable, for its culture is simple and requirements few indeed. The Escallonias are fine shrubs for large grounds, the beautiful evergreen foliage of any of the half-dozen cultivated kinds rendering them of great value for water decoration. For seaside planting they are likewise invaluable, some specimens within a couple of hundred yards of the coast looking the picture of health and happiness, with wide-spreading branches that in one instance covered a diameter of fully 20 feet. *Thuopsis dolabrata* does well here, a couple of fine bushy trees having attained to heights of fully 16 feet, and with an abundance of bright healthy foliage regularly placed around the stems. Rarely, if ever, have we seen larger or more healthy-looking plants of this desirable and, as yet, somewhat rare Conifer, and we were not a little surprised to notice a fair quantity of cones on the upper branches of at least one of the specimens.

Amongst the Pine tribe the gaunt-looking *P. ponderosa* thrives well, one specimen of which we took particular notice being from 50 to 60 feet in height, with a diameter of spread of branches almost equaling the height. The branches are placed far apart—sure indication of luxuriant growth, and hang downwards, while the old leafy stems, which are covered with roughish brown bark, have a gradual taper from base to apex. This fine tree was, at the time we saw it, rendered peculiarly distinct and interesting from the large number of pollen catkins that were visible all over the branches, even the tips of the branchlets were literally loaded with the bright yellow catkins, which were set off to advantage by the intense green of the foliage. We could not help noticing how persistent the old male flower was on this Pine, those for four or five years back still adhering thickly to the branches, a tuft of the long leaves marking off with great distinctness the division between each year's growth.

Near to this Pine numerous large specimens of *Libocedrus decurrens*—trees of 30 feet high and more—are interspersed with far-spreading Lebanon Cedars and upright-growing Cypresses, some of the latter (*C. horizontalis*) having reached heights of fully 30 feet, with well furnished stems, the whole outline, as is common in this tree, being strictly fastigate. *Pinus excelsa* and the nearly allied *P. Strobus* looked well, their light silvery foliage being rather a pleasant change from the deep greens and bluey-greens of the tribe generally.

That rather uncommon tree, the Atlantic Cedar, is here in all its grandeur—indeed, we cannot remember having seen larger or more healthy looking specimens anywhere, some of the individual trees

measuring fully 50 feet in height, with a wide and easy sweep of the lower branches, these covering a spread in some instances of upwards of 40 feet. A remarkable difference in the colour of foliage is visible in these trees, some being of an almost Yew-green, while others were light in the extreme, almost as much so as in the Indian species; but even this tree, again, is subject to great variation in tint of leaf.

Of truly gigantic proportions were some half a dozen trees of *Wellingtonia gigantea*, the produce of seeds sent from California some thirty years ago. Having been allowed plenty of room, the lower branches are thick and spreading, and the stems with a gradual taper throughout. Cones were unusually abundant on these trees, some of the lower branches being weighed down by their numbers and solidity.

When speaking of the Abies tribe we omitted making mention of *A. lasiocarpa*, a good specimen of which was growing to the leeward of a handsome cut-leaved form of the Hornbeam. Not often has one the pleasure of seeing anything like a fine plant of this Fir, and certainly the one in question was by far the biggest we have yet seen, with bright glossy foliage that indicated the most robust state of health

and contentment with its surroundings. Trained against the flower garden wall were several rare shrubs, notably the Oleander (*Nerium Oleander*) and *Cytisus nigricans*. The former is rarely seen planted out-of-doors in Britain, but the plant just referred to has been in its present position for many years, and has repeatedly during severe winters been cut to the ground, yet flourish it will, and judging from the myriads of pretty flowers with which it was adorned clearly proves that it was but little the worse for the trying weather with which it has successfully battled. The *Cytisus* was, in truth, a mass of bloom, about 6 feet square, and well it looked, few plants having a more ornamental appearance when trained against a warm sunny wall. *A. D. Webster.*

AGRICULTURAL RETURNS OF GREAT BRITAIN FOR 1886.

FROM the Agricultural Department, Privy Council Office, we have received the following summary. The returns were collected on June 4 in the years 1884, 1885, and 1886:—

ACREAGE OF LAND IN GREAT BRITAIN UNDER									
		Wheat.	Barley.	Oats.	Potatoes.	Hops.			
1884	.. .. .	2,677,038	2,168,820	2,915,363	565,048	69,453			
1885	.. .. .	2,471,318	2,257,346	2,940,420	548,731	71,377			
1886	.. .. .	2,256,094	2,244,665	3,081,701	553,970	69,967			
Increase or Decrease .. {									
1886 compared with 1885	.. {	205,224 or 8.3 per cent.	106,555 or 4.7 per cent.	141,211 or 4.8 per cent.	5,259 or 1 per cent.	700 or 1.0 per cent.			
1886 compared with 1884	.. {	421,944 or 15.6 per cent.	912,676 or 42.1 per cent.	166,338 or 5.7 per cent.	11,058 or 2 per cent.	700 or 1.0 per cent.			
TOTAL NUMBER OF LIVE STOCK IN GREAT BRITAIN.									
		Cattle.	Sheep and Lambs.	Pigs.					
		Sheep.	Lambs.	Total.					
1884	.. .. .	6,260,111	16,384,863	9,683,491	26,068,354	2,584,391			
1885	.. .. .	6,597,094	16,337,667	9,907,008	26,534,635	2,403,380			
1886	.. .. .	6,646,785	16,126,479	9,344,924	25,521,334	2,221,357			
Increase or Decrease .. {									
1886 compared with 1884	.. {	386,674 or 6.2 per cent.	208,453 or 1.3 per cent.	338,567 or 3.5 per cent.	517,020 or 2.1 per cent.	362,831 or 14 per cent.			

The Apiary.

LAZY BEES.—Much as I respect Dr. Watts, I have at times had grave doubts of the truth of some of his sacred poetry. In my earliest years, when I read about "darkness, fire, and chains," I thought the good old doctor was rather stretching the matter, and under certain circumstances I have found the following true:—"How do the little *lazy bee*," &c.; and here again, you see, I differ in opinion from the same learned doctor. I have this year had a stock of bees which have been simply idle. They would not swarm, and they would not go into a super. The hive held nine frames. Last winter, being generously disposed—as of course I always am—I left these same bees the nine frames full of honey, thinking that by this act of generosity they would breed early, and would either send forth a fine swarm, or fill for me a good super. I did not want a swarm, but being very loyal, I thought I would have a gigantic jubilee super, and I intended sending this jubilee super as a present in a certain direction, being ambitious enough to wish it to stand on the dinner-table of Windsor Castle itself. But man proposes. I got me a terrible glass super, 20 inches in diameter, and fixed it over the bees. I got holes drilled in the glass so that the bees should not be suffocated, and put some thin foundation for them to have less labour. When the weather was cool I covered them up warm, and when it was hot I ventilated them. But these stifle-necked bees played me horrible pranks. Sometimes they would go up into the super in shoals, and take

honey up there too. Then would they see fit to take it down. This went on all the summer, and roused my indignation to such a pitch that I vowed summary vengeance.

Therefore about a week ago I went to this hive and dealt them a fearful volume of smoke. Then I took off the huge unfeathered super, removed the hive on one side, stood the super in its place, and after dealing smoke still more fearful in quantity than before I took out every scrap of honey (nine frames completely filled), and I put the bees into the super, which now formed the stock hive. I just gave them a bottle or two of syrup by means of a special contrivance, and they have done more in one week than in all the summer before. The bees are bringing in pollen and honey, and the queen is very busy also. As I did this in good time there is little doubt but that the bees will get enough food for winter even now. Some may say that the bees will not live in glass hives. I would refer them to a previous article of mine on glass hives. I think I have cured these lazy bees of their bad habits, and got, say, 32 lb. of honey out of them. Go thou and do likewise, *Walter Chitty, Pewsey.*

PUBLICATIONS RECEIVED.—Vick's *Monthly Magazine and Floral Guide*.—*Southern Planter and Dixie Farmer*.—*Exposition Universelle d'Anvers, 1885. Expositions Permanentes et Temporaires d'Horticulture. Resultat des Concours.*

The Herbaceous Border.

CAMPANULA MACROSTYLIA.

MR. MOORE sends us from the Botanic Garden, Chelsea, specimens of this remarkable annual *Campanula*. The plant is 1-2 feet high, of rather straggling habit, from the distance between the long spreading branches. The upper leaves are sessile and lanceolate; the flowers are borne in loose terminal cymes, each flower measuring about 2½ inches across, and provided with a leafy calyx of five lance-shaped segments, with ear-like processes at the base, as in the Canterbury Bell. The corolla-tube is broadly bell-shaped, as long as the sepals, the limb spreading into five deltoid or broadly triangular segments of a bluish lilac colour, while the interior of the tube is white, with a network of violet veins. The stamens are shorter than the corolla, with long-pointed purplish anthers, which ripen off and disperse the pollen before the stigma of the same flower is ripe for impregnation (protandrous). The style protrudes beyond the corolla in the form of a stoutish column, dividing at the end into three broad, strap-shaped divisions as long as the style itself, but of a dull purple colour. The upper or inner surface is smooth and shining, the lower or outer surface being the true stigmata. These stigmatic lobes are usually erect, and applied one against the other, forming a spindle-shaped termination to the style, but sometimes the three stigmas separate more or less widely.

Those interested in the ways of flowers and their "goings on" with insect visitors, will probably find this flower worthy of their attention. The plant is an annual, and is strikingly handsome, quite apart from the peculiarities of its floral structure and the interest attaching to its habits of life. There is a pink variety called *rosea*, which does not seem to differ, except in the colour of the flowers.

The plant was introduced in 1877, and was noticed in our columns, October 26, 1878, as requiring a warm, light, and rich soil, in a sunny position.

petals are shed, as they blow a considerable distance over the surface of a smooth lawn or gravel walk and impart an untidy appearance. *Wm. M. Baillie, Luton Hoo Gardens.*

THE ORCHID HOUSES.

EAST INDIAN HOUSE.

THE *Aerides* and *Saccolabium* in this house are best potted in the spring, and those grown on stages should be arranged so as not to be obliged to interfere with them during the growing season. If we can endure the sight of a few dirty pots it is all in favour of these plants, with such rambling roots, not to be turning them about every week, as the tips of the roots are sure to get injured. Should the sphagnum in which they are potted be getting bad on the surface it should be taken away, and the pot top-dressed lightly with some which has been freshly gathered. In potting *Aerides* and *Saccolabium* it is not good practice to bury all the roots. Some growers might do so for appearance's sake, but the plants pass much safer through the winter if the roots are left exposed, as the plants are then not so likely to get spot or to lose the bottom leaves. Now flowering in this house is *Pachystoma Thomsonianum*, a very pretty little Orchid not often met with; it grows very well on the north side suspended near the roof, and should be supplied with plenty of water whilst growing, but very little after the leaves drop off. *Angraecum Kotschy* is a very slow growing plant. The best place we can find for this at present is at the dry warm end of this house, grown in a hanging cylinder; it delights to root on the dry wood, and refuses to grow in damp moss or peat. *Vanda Sanderiana* is growing suspended at the coolest end of an East Indian house which stands north and south; it is now sending out spikes freely. Several plants of this species are as interesting as *V. tricolor*, varying like this variety in their shades of colour and markings.

CYPRIPEDIUMS.

Those that are well rooted might be improved by putting them into pots a little larger than those in which they stand. In the compost for these, I like to add a few lumps of light yellow loam, choosing that which has but little fibre, and not breaking the lumps too small; this keeps the plants sweeter at the roots than when so much peat is used.

DENDROBIUMS.

Many of these will now begin to finish up this season's growth. It is not necessary with us to place *Dendrobium* in fruit-houses to mature their pseudobulbs, as the house they are grown in is about 40 feet long, and we can vary their treatment in this house. Those plants that have made their growth are placed at the cooler end here, giving plenty of top ventilation, also at the bottom; and in the other half of the house we keep the top ventilators closed, with plenty of moisture about when the weather is bright. Where *Dendrobium* are grown in the East Indian and Cattleya house, it is necessary to place some species in an atmosphere that will induce them to ripen, and not start a second growth, and a very good place for this purpose is a lateinery where the Grapes are colouring, in which the season is past for shutting up and damping down. If the laterals on the Vines are thinned it will suit the Orchids better, and care should be taken not to remove the plants too early from their growing quarters when they appear to have finished, but rather place them where they will receive more sunlight for a time. It must not be forgotten that *Dendrobium* are very active in making root at this time of year, so that a sudden change of treatment will give them a severe check that may cause the pseudobulbs to shrivel, and when taken back into the warm house again they start to grow, instead of flowering. If the plants are placed in ainery they should be watered once or twice a week to prevent their roots from perishing, using the same kind of water the plants have been accustomed to.

GENERAL DIRECTIONS.

Now that *Cyclopogon cristata* is beginning to form its new bulbs it will take plenty of water; but be careful not to let any fall into the growths. This Orchid is growing here in different houses, but those in the Cattleya-house do best. During the present month the temperature in the East Indian-house should not fall

lower than 70° at night, and the intermediate-house be kept at about 65°, keeping a little bottom ventilation on for the *Cattleyas*. *C. Woolford, Devonisle.*

PLANTS AND THEIR CULTURE.

PLANT HOUSES.

THERE is no time in the whole year so suitable for these structures to be thoroughly examined and repaired as the present, as the inmates can be temporarily placed either out-of-doors or in pits and frames. Cut off blooms of *Everlastings* as they approach their full size, for if left on beyond that period the flowers lose colour and the petals drop. The best of the ornamental grasses must not be overlooked; these will be found useful in house decorations, as the flower-heads when tastefully arranged, give an elegant finish to the design. *Stipa pinnata* and *S. elegantissima*, *Paspalum elegans*, *Gymothrix latifolia*, *Coix lachryma*, *Eragrostis elegans* and *E. papposa*, *Eulalia japonica zebrina*, *Brija* in variety, and *Bromus briziformis*—if none of these have been grown for the purpose there are numerous sorts that are common in our woods and on roadsides that almost equal them for elegance. They should be gathered when dry, placing them in an upright position in an airy room, using for the purpose of holding them together large glasses or flower-pots. If the common *Bryonia* be looked after now, and the shoots pulled out straight, there is little difficulty in getting long useful berried lines for festooning at Christmas time when decorations with berries are very appropriate. *Physalis Alkekengi* is another hardy berried plant that can be used with good effect.

PROPAGATING.

Cuttings should now be put in of such stove plants as are required. I refer to such subjects as *Franciscas*, *Ixoras*, *Dipladenias*, *Toxicophlea spectabilis*, *Vincas*, *Clerodendrons*, *Allamandas*, *Rondeletias*, *Aphelandras*, *Hoyas*, *Hibiscus*, &c. The cuttings should be put into small pots singly, using peat with plenty of sand, and the more robust sorts should have a soil that is somewhat nutritious put at the bottom of the pots, as they will have to stand the whole of the winter in them. The advantage of striking the above in the autumn instead of the spring is, that they have a good start, and will bloom much earlier and freer than later struck plants. Of fine-foliage plants, which may with advantage be put in now, are *Cissus*, *Pothos*, *Crotons*, *Sonerilas*, *Peperomias*, *Spherozygnes*, &c. The different varieties of *Nerium* should be seen to; these require to be kept very moist; they may also be struck in bottles of water, in which they root freely. The sweet-scented *Verbena* (*Aloysia citrodora*) strikes more freely now if the cuttings taken off are not too much matured; get in all the cuttings procurable of *Poinsettia* and *Euphorbia jacinquiflora*, Fern fronds should be laid on pots or pans of soil with a glass over them. *A. Evans, Lytke Hill.*

FRUITS UNDER GLASS.

POT STRAWBERRIES.

THE young plants which were layered into the fruiting pots early in July should be detached forthwith from the parents, and the pots be stood on brick walls enclosing Vine borders, or other similar place, or on coal-ashes, in any situation well exposed to the south and west, so that the plants have the benefit of the sun-beat to ripen their crowns, without which a satisfactory crop next spring cannot be ensured. Continue to give the plants, when established, liberal daily supplies of weak liquid manure until they have completed their growth, towards the end of next month, and with the object of concentrating the energies of the plants to the formation of large and, as already stated, well-ripened crowns, remove all runners, and any small crowns that may spring from the principal ones as soon as they appear.

VINES.

These, in every stage of growth, should have abundance of air admitted during sunny weather, and a dry rather than a humid atmosphere should be aimed at day and night. Keep the water in the pipes sufficiently warm at night to prevent the temperature from falling below 65°, and at 75° by day in houses containing thick-skinned varieties of Grapes, such as *Lady Downe's*, *Black Alicante*, *Mrs. Pinck's Black Muscat*, *Gros Colmar*, *Gros Guillaume*, *Gros Maroc*, and *Chiswick Seedling*, so as to get them well ripened by the middle or end of next month, otherwise they will not keep well. *H. W. Ward, Longford Castle.*

The Flower Garden.

CUTTINGS OF EVERGREEN SHRUBS.

CUTTINGS of evergreen shrubs may now be put in, beds being prepared for them in a shady situation. A little river or other sand and leaf-mould should be worked into the natural soil. Cuttings of the younger wood should be chosen; these may be from 4 inches to 1 foot in length. They should have the leaves removed from that portion of the wood which is inserted in the mould only; the tops should not be removed. The soil should be kept moderately moist and shaded sufficiently to keep them from becoming flaccid. A few rods stuck in the ground and bent over the beds to support a mat or evergreen boughs will serve the purpose. The shading should only be allowed to remain on when the sun is shining, but at all other times the beds should be exposed to light. When Conifers are raised from leading shoots, or the tops of seedlings, they will make, in most instances, handsome plants, in some cases, as in *Araucaria*, better furnished plants than seedlings, and which, in the young state especially, are useful for many purposes.

PERENNIALS AND SEEDS.

Advantage should be taken of wet days for planting out hardy perennials, such as *Wallflowers*, *Sweet Williams*, *Sweet Rockets*, *Campanulas*, *Lunarias*, &c., but if the weather should prove dry the operation had better be deferred a little longer.

Flower seeds, whether of annuals, biennials, or perennials, should be speedily gathered after they become fit, and ere they are shaken out of the seed vessels by the wind. Unless the species be rare or curious, seed saving is scarcely worth the trouble, as most perennials propagate freely from cuttings or subdivision. Any ordinary species of any of the above can be purchased much cheaper than they can be saved.

ROSES.

Roses will require constant attention with manure-water. Fading flowers should be removed ere the

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Aug. 23	Special Trade Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Sale of First-class Dutch Bulbs, in lots to suit all buyers, at Stevens' Rooms. Royal Horticultural Society: Meetings of the Fruit and Floral Committees, at 21 A.M.; also Cottagers' and Artizans' Show.
TUESDAY, Aug. 24	Shows at Reading, Battle, and Harpenden. Clearance Sale of Stove and Greenhouse Plants, at Clarence House, Clapham Park, by Protheroe & Morris. Sale of First-class Dutch Bulbs, in lots, at Stevens' Rooms. Show, Royal Horticultural of Ireland.
WEDNESDAY, Aug. 25	Show at Stoke-on-Avon. Special Trade Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Show at Sand, Bedfordshire.
THURSDAY, Aug. 26	Sale of Imported Orchids, at Protheroe & Morris' Rooms. Special Trade Sale of Dutch Bulbs at Protheroe & Morris' Rooms.
FRIDAY, Aug. 27	Sale of First-class Dutch Bulbs, in lots, at Stevens' Rooms.
SATURDAY, Aug. 28	

STERN utilitarians of the GRADGRIND school have been known to scoff at the fancies of the florists, or at best to look with an eye of pity on the labours of the rosarians, the tulipomaniacs, and other members of the floral fraternity. "Very pretty," is about all they can express when brought into contact with the tuberous Begonias of the present day, which did not even exist ten years ago! "Ah, very nice!" is all they can say about the Pelargoniums, which SWEET himself would not recognise now-a-days could he but see them. And so with most of the productions of the florist.

Not only the members of the GRADGRIND school, but even the public in general, have little or no idea of what they owe now, still less of what they will owe in the future, to the patient labours of the experimentalist. An apology is sometimes made for horse-racing on the score that it encourages the breeding of horses, and secures the progressive improvement of the race to which the noble animal belongs. Perhaps it does; we are willing to admit that it may do so, for in this particular we have a tellow feeling with the horsey ones. We know for our own parts that the fancies of the experimentalists have led in the past, do now, and will increasingly in the future, lead to results which must in their consequences materially benefit the whole race of mankind, even though now they seem only to satisfy the whims and caprices of the specialists. Whatever the utilitarian may think of Pansies and Auriculas he will not refuse his sympathies to the labours of the agriculturist. He can appreciate their present and prospective value, and he has been known even to quote, without, however, knowing much about it, the advantages of combining science with practice—the good easy man being unaware that good practice and good science are really inseparable—necessary components of one whole. Possibly our friend may have heard the adage that "Horticulture is the parent of agriculture," and remembering the Garden of Eden and the pastoral and agricultural results that followed upon the expulsion of our first parents from that paradisaical retreat, he may be inclined to admit its truth, but it has scarcely occurred to him that the adage is as true now in this nineteenth century as ever it was. It has not come home to him that the labours of the physiologist and of the gardener, of such men as DARWIN and KNIGHT, and the host of experimenters and raisers of new Peas, new Strawberries, new Pears, and so forth, are of any importance to him as a man of practice. The gardener knows better; he knows it so well indeed that he takes it as a matter of course. To him hybridisation, cross-breeding, selection, are things of everyday occurrence. He knows that he owes his best Broccolis, his choicest Potatos, his most esteemed Grapes, to one or other, or both, of these practices; he adopts the results as they come to him, and as they suit his purpose, and he is eagerly on the look-out for future improvements from the same sources. Once get the practical man (as he calls himself, but with

scant reason) to see this, and he will no longer be disposed to scoff at practices from which so much has been done in the past, from which so much may be expected in the future.

Up till lately selection and hybridisation have been chiefly practised by the florist, with what results our exhibitions testify. The seedsmen have followed suit, as their "improved selections" and "new strains" of garden vegetables show; now, at last, the agriculturists are beginning to find out that it is worth their while to ascertain whether the same procedures which have wrought such marvellous results with the florist may not be of use to them also. It is, however, hardly just to the seedsmen to give agriculturists the credit for this, as it is really mainly to the seedsmen that the advance is due.

Two special illustrations occur to us as we write, but they are only two among many, of the tendency to employ the methods of experimental science to the furtherance of agriculture. We allude to the experiments carried out at Reading by Messrs. SUTTON in the case of the POTATO, and to those of Messrs. CARTER, at Forest Hill, in the case of WHEAT. Space does not permit us now to enter into detail as to either of these interesting series of experiments, but we may find another opportunity of alluding to them. In the meantime we may refer to our article, October 25, 1885, for a general account of the numerous experiments undertaken by Messrs. SUTTON. In that article—to cite only one case—we narrated what the "magicians of Reading" had been enabled to do with the *Solanum Maglia*, or the DARWIN Potato, and we pointed out that even at that time the *Solanum Maglia* was much more nearly related to the ordinary cultivated Potato than the plant figured as *S. tuberosum* by Mr. BAKER. The question has been taken up also by the veteran botanist, M. ALPHONSE DE CANDOLLE as we had recently occasion to remark (p. 176). After another year's cultivation Messrs. SUTTON have been able to show experimentally a further advance. The distinctions between ordinary *tuberosum* and the so-called *Maglia* have been, not wholly but in great measure obliterated, and at any rate the presumption that the *Maglia* form was the parent of our cultivated Potatos has been greatly strengthened. *S. Maglia*, to speak broadly, has been converted in a great measure into *S. tuberosum*. Botanically it comes to this, that there is but one species, of which there are several forms, differing according to climatal and other considerations. These forms not only interbreed but their characteristics are more or less interchangeable, and may be made to interchange by the art of the cultivator to his own advantage.

"Well, what if all this be true?" says the practical man. "Of what use is all this to us? Very interesting to men of science, no doubt, but of no value to us." Here we join issue. We believe every fact, proved to be such, is or is capable of being either directly or indirectly beneficial to those who know how to apply it aright. At any rate, in the present instance the practical interest lies in this, that the *Maglia* from Chili is harder than the forms derived from the Andes, and in all probability better adapted to our climate.

Traces of the wildness of *Maglia* may be recognised in the statement of Sir JOSEPH HOOKER, that for some years after its introduction to Kew it produced no tubers at all, though it does so now; and similar evidence is forthcoming at Reading in the fact that the tubers are not produced "at home," as the phrase goes, *i.e.*, that the stolons are not short but long, and produce their tubers at a relatively long distance from the centre of the haulm; and, moreover, these same stolons, instead of confining themselves to producing tubers, end in long shoots

like suckers, which throw up new haulms like Strawberry runners. We are not sure that Messrs. SUTTON will thank us for revealing this rather undesirable peculiarity of their *Maglias*, but as they are not likely to "send them out" before they have been civilised into good behaviour there is no indiscretion, in the interests of science, in mentioning the fact. In the meantime it is certain that Messrs. SUTTON have very materially broken down the barriers between the so-called *S. Maglia* and *S. tuberosum*, and at present we cannot fully appreciate what the precise consequences of such iconoclasm may be; suffice it to say, from the experiments in general, that the constructive elements promise to outweigh the destructive ones, and induce us to look forward with firm confidence to results of much future practical value.

Adverting now to Messrs. CARTER's experiments on CROSS-BRED WHEATS which are being carried out under the superintendence of Mr. SHARMAN, at Forest Hill, we may point to them as affording excellent and hopeful illustrations of the benefits which will accrue to the agriculturist from the adoption of methods long familiar to the florist and raiser of new plants. Why agriculturists have been so slow to see the advantages of the plans followed by their gardening friends, and so chary of adopting them, is a mystery to us. Be this as it may, however, farmers and those interested in physiological questions connected with cross-breeding, may find much to interest them just now at Forest Hill. Those who know the structure of the Wheat flower, and its tendency to self-fertilisation, will appreciate the care and nicety required in effecting cross-fertilisation. The glumes have to be separated at a very early stage, the anthers cut away, and the pollen applied to the stigma—a procedure that occupies at least an hour for each ear operated on. One main object of Messrs. CARTER has been to raise a variety of Wheat which, while possessing other desirable characteristics, shall ripen its grain more quickly than the ordinary kinds. How important this may be in our climate no one will fail to see.

It was obvious also how destructive birds are, and it was curious to observe that, in addition to the use of muslin bags and nets to keep the marauders off, attempts were being made, and, as it seemed, successfully, to breed varieties with close-set, sharply-pointed glumes, sufficient to keep intruders at bay. Attempts are also made to secure short, thick, well-set ears, rather than long ones, in order that there should be proportionately greater produce in less space, so that, amongst other advantages, there should be less tendency in the straw to become laid by wind or wet.

Messrs. CARTER have so arranged that rows of the hybrid Wheats are placed between similar rows of the parent forms—male on this, female on that side; hence, the visitor may see for himself, and contrast the characters of both the parents and of the offspring. Moreover, they have collected the grains (berries the corn factors call them) from both parents and from the cross, and kept each apart, so that the visitor has all the facts before him. It is interesting to note that while all the varieties show flower about the same time (all the 120 varieties were sown on the same day, October 20), yet that there is very great difference in the time of ripening, and that while the male parent seems generally to influence the colour and the form of the grain, the female parent governs the general form of the plant and of the ear. We do not profess to be able to assess the probable practical value of the results, but we can testify to the very remarkable results which speedily make themselves apparent, in stature, earliness or lateness of ripening, size, shape, colour of ear and



grain, smoothness or hairiness of chaff, and many other points. Two things especially struck us in these cross-bred Wheats—one the increased robustness of the hybrid offspring, thus amply confirming DARWIN'S views as to the advantage of at least an occasional cross; and next the look of superior refinement and improved caste, if we may so say, in the hybrid grains. On the ground we were told that these appearances were not deceitful, but that Mark Lane factors, daily accustomed to inspect and handle samples, recognise superior quality, and detect better milling properties in some of these cross-bred productions of fine outward appearance.

We may then conclude, as we began, by urging our great seedmen to continue to follow the practices of the gardener and of the florist, confident, from our own daily experience, that the procedures that have wrought such wonders in the one case will be no less productive in the other.

—INJURIOUS INSECTS.—MR. JAMES FLETCHER has addressed to the Secretary of the Canadian Department of Agriculture, Ottawa, an interesting and valuable report on the insects injurious to crops of various kinds, with the remedies appropriate in each case, following thus in the lines of Miss ORMEROD and of Mr. WHITEHEAD in this country. The difficulty now-a-days is not so much in supplying trustworthy information, but in getting people to avail themselves of it.

—THE FEDERATION OF BELGIAN HORTICULTURAL SOCIETIES.—Many of us know well the zeal and energy our late friend, Professor MORREN, bestowed on this Association, as on so many others of a similar character. The Federation has also lost the services of M. AMERSE VERCHEFFELT. These are very serious losses, but we congratulate the Federation on filling up the vacancies by two such competent men as Count KERCHOVE, of Denterghem (Vice-President), and M. LUBBERS, of the Brussels Botanic Garden, as Secretary.

—FRUNUS PISARDI.—MR. FOSTER, of the Nurseries, Stanmore, sends us some branches of this fine hardy ornamental tree laden with fruit. The leaves are of a deep reddish-purple, and the globular fruit is of a similar but lighter colour, and of an agreeably acid flavour. The tree evidently takes rank not only as a first-rate ornamental tree for the sake of its foliage, but is by no means despicable as a fruit tree.

—VEGETABLES.—M. VAN HULLE counsels us if we would preserve the flavour of our vegetables not to wash them before cooking, if it can be avoided. The vegetables, whether leaves, beans, or roots, should have the dirt removed with a brush or a cloth, or if washing be indispensable, it should be done rapidly immediately before placing them in the saucepan.

—THE "BOTANICAL MAGAZINE."—The plants figured in the last number of the *Botanical Magazine* are:—

Ranunculus Lyallii, t. 6888.—The stately New Zealand species, with bold peltate leaves and panicles of large flat white flowers, figured in *Gardeners' Chronicle*, 1885, vol. xxiii., p. 351, fig. 67.

Iris Milati, FOSTER, t. 6899.—A north-west Himalayan species, originally described in our columns by Professor FOSTER, 1883, vol. xx., p. 231. It has lilac flowers, the keel on the sepals or falls being deeply serrated, so as to form a link between the fibrillated and the bearded Irises (Cambridge Botanic Garden).

Cerinthe minor, t. 6890.—A hardy Boraginaceous plant, with sessile cordate leaves, and arching clusters of yellow bell-shaped flowers intermixed with the leaves.

Disa atropurpurea, t. 6891.—No fewer than 100 species of *Disa* are, it is said, described. The present has narrow linear pointed leaves and solitary rose-lilac flowers on the ends of erect flower-stalks. Each flower is about 1½ inch in greatest length.

Ribes oxycanthoides, t. 6892.—An American Goose-

berry, and one which Sir JOSEPH HOOKER recommends as well worth cultivating for the sake of its fruit. The clustered berries are globular, lilac, and of the size of small Cherries. It is described as an unfailing cropper, flourishing when the ordinary Gooseberry flags for want of moisture.

—FROUDE'S "OCRANA."—Many readers of this attractive book will be interested in the accounts incidentally given as to the vegetation, especially of New Zealand. The author is no botanist, and he indulges in popular or rather vernacular names, which are exasperating, as they convey to the lover of plants no indication of what plants are really meant. Enquiries have reached us as to some of these, such as the *Ti*, which is none other than *Cordylina* (or *Dracæna*) *indivisa*, and *C. australis*, so well known in our greenhouses. The *Pohutukawa* trees, of which so remarkable an illustration and description is given, is *Metrosideros tomentosa*. A reference to HOOKER'S *New Zealand Flora* would have enabled the author to furnish the botanical as well as the vernacular names, to the satisfaction of botanical readers. If in literary matters an author were to follow on the same lines as Mr. FROUDE has done in matters botanical, what would that very censorious critic say? We do not expect literary men to be botanists or gardeners, but when they profess to give information on topics interesting to those classes of the community they should take pains to make it correct by reference to easily accessible books, or by availing themselves of the services of some specialist.

—ILLUSTRATIONS OF THE FODDER GRASSES OF THE PLAINS OF NORTH-WESTERN INDIA.—This is a series of forty "Nature-printed impressions" of grasses, produced by Mr. T. D. BONA, of Rourkhe, and issued under the superintendence of Dr. DUTHIE. The botanical analyses have of course to be drawn in the ordinary way. The illustrations suffice to give a rough general impression of the plant, which is supplemented by botanical details drawn in the ordinary manner. The "habit" of the plant is well preserved. The descriptive text will be issued subsequently.

—BAILLON'S "HISTOIRE DES PLANTES."—The last part of this useful publication contains an account of the order Aristolochiaceæ, which includes Nepenthesaceæ, a collection which will surprise many, though they may not be so startled to find *Rafflesias* and *Cytinus* under the same heading. Cactaceæ, Mesembryanthemaceæ, and Portulacaceæ are also treated of with, we fancy, rather less than M. BAILLON'S usual elaboration, perhaps from the necessity of bringing the work to an earlier conclusion.

—"ILLUSTRATIONS OF THE FLORA OF THE PACIFIC ISLANDS."—M. E. DRAKE DEL CASTILLO has recently published the second fascicle of his *Illustrations* containing twenty lithographic plates, with accompanying descriptions of the plants of the Pacific Islands, Tahiti, the Society Islands, the Sandwich Islands, &c. The work will thus supplement the information already collected by SEMANN, HEMSLEY, and others.

—"A PRACTICAL TREATISE ON THE GROWING AND CURING OF TOBACCO IN IRELAND" (Dublin: M. H. GILL & SON).—Our readers will remember the discussion that took place in our columns at the beginning of the year on the culture of Tobacco in these islands, and those interested will find further details in the little pamphlet above cited. The objection raised, that it is an exhausting crop, is met by a proper system of rotation, and by the circumstance that the plant does not occupy the ground for more than four months. The difficulties of the curing process seem to us, however, more formidable. It is doubtful if the Irish growers would give an equal amount of care as the Americans do. The pamphlet before us contains a large amount of very useful information on both culture and curing.

—TOBACCO CULTIVATION AS A FIELD CROP IN ENGLAND.—MESSRS. JAMES CARTER & CO. desire us to announce that their acreage crop of Tobacco (growing within 10 miles of London) in seventeen kinds, is now ready for inspection, and cards to view can be obtained without charge from them, with particulars of the locality in which it is being grown. They are also prepared to make

special appointments to accompany any one interested in the subject who may wish them to do so.

—GHENT HORTICULTURAL SOCIETY.—At the usual monthly meeting the following plants received the Certificate of Merit:—*Pothos nigricans* and *Labiella Malouana*, shown by M. Linden, of the Compagnie Continentale; *Begonia Madame Louis Desmet*, shown by M. Louis Desmet; *Pescatorea Lehmanni*, shown by MM. Vervæet & Co.; *Cienkowski Kiki*, shown by M. L. Van Houtte; *Begonia Arthur Malet*, shown by M. Godefroy-Leboucq, of Argenteuil. Commendations for merit or novelty were given to the following plants:—*Miltonia Regnelli var.*, shown by MM. Boilens Frères; *Begonia*, tuberosa, *Le Flambeau*, shown by M. Arthur Desmet, of Leidebourg; *Cypripedium oënanthem*, shown by M. Van Geert, père; *Caraguata Andreana*, shown by MM. Jacob Makoy & Co.; and *Cypripedium Roebelinii*, shown by MM. Vervæet & Co.

—CHINESE PLANTS.—MESSRS. F. B. FORBES and HEMSLEY have published in the *Journal of the Linnean Society* the second part of their "Enumeration of Chinese Plants." The list will be most serviceable, and will be the more useful, as when complete it will form a separate volume. The present part brings the enumeration down to Leguminosæ. The introduction will doubtless contain a bibliographical summary of what has been written on the Flora of China.

—"NAMENLOSE ROSE."—What is in a name? Here is a Rose specifically distinguished as the "nameless Rose." We suppose that a Rose without a name at all might smell as sweet as if it were called by some other name than Rose.

—NEW TERRORS FOR ORCHID GROWERS.—Herr WAHRLEICH has lately described in the *Botanische Zeitung* (July 16, 23) various fungi affecting the roots of Orchids. We hope on a future occasion to give further particulars as to these new pests. It would be interesting if it should prove that some of the forms of spot on the leaves were connected with the presence of fungus in the roots.

—ALOCASIA (?) LINDENI, *Illustration Horticult.*, t. 603.—A very handsome stove Aroid from the South Sea Islands, whence it was introduced by M. AUGUSTE LINDEN to the Compagnie Continentale d'Horticulture. The erect leaf-stalks are glabrous, ivory-white, the cordate-acute leaf-blades green, with golden veins. We anticipate for this plant, of which at present we have only seen a small specimen, a distinguished position among ornamental foliage plants.

—CRYPTOGAMIC SOCIETY OF SCOTLAND.—The twelfth annual conference will be held in Aberdeen, under the presidency of Professor J. W. H. TRAIL, on September 29 and 30, and October 1 next. Should the season prove favourable there will be a show of cryptogamic plants. It is requested that those who have papers to read will communicate with the secretary. The Rev. Dr. STEVENSON, of Glamis, Forfarshire, is the Honorary Secretary.

—THE LIVERPOOL EXHIBITION.—M. JOLY has published a pamphlet in which he narrates his impressions of the Colonial Exhibition, of the "Ship-peries" at Liverpool, and of the late Provincial Show in that city. Those who feel ruffled at the amusing criticisms of M. MAX O'RELL on England, will have their equanimity restored by the perusal of M. JOLY'S somewhat caustic criticisms of his own country, and will welcome what he has to say about ourselves as the verdict of a highly competent critic of great and varied knowledge of men and things in many countries, and one moreover gifted with a fluent graphic style. What M. JOLY says of Mr. BARRON will be cordially endorsed as correct. There is at the Royal Horticultural Society, says M. JOLY, an excellent man—one of few words, but of great energy, accessible to all, indispensable either as an organiser of flower shows, or as superintendent at Chiswick. Commenting on the boiler trials, M. JOLY describes the measures taken and the awards made, but adds, slyly, that all this was done without advancing the matter one step. He considers that his countrymen have nothing to learn from us in the matter of boilers or pumps. Hestigmatizes our summer-houses as heavy and tasteless, our glass-houses as good for cultural purposes, but monotonous

in appearance and inelegant. Here in England the substance goes for more than the form—the reverse of what happens in France. To sum up, he says that we are admirable cultivators, but deficient in the art of grouping, and generally crowd our plants unduly. He comments on the deficiency of Palms, Cycads, and Tree Ferns, which figure so prominently in the Belgian shows, and condemns our bouquets and floral decorations as too crowded. Hardy fruits and vegetables did not commend themselves to this critic, who, however, has a word of high commendation for our Grapes and forced fruits generally, all of which (as applying specially to the Liverpool show) we must admit to be on the whole a correct judgment.

— **GYMNOGRAMMA FARINIFERUM.**—This singular and elegant Fern, figured in the *Illustration Horticole*, t. 504, is said to be a seedling variety of *G. schizophyllum*. Two seedlings among a whole batch were observed to be covered with mealy pubescence, and were specially cared for. In time they produced spores from which the young plants have been raised, with the same characters. The elegantly cut foliage, dusted over with white meal, forms a striking contrast with the shining brown leaf-stalks. M. DE NOBLE has analysed the mealy powder, which he finds to be composed of a substance allied to wax. There appears to be no special glandular structure, so that the "ceroylin" must be exuded from the whole epidermal surface.

— **A GIGANTIC OAK.**—One of the sights of Paris at this moment consists in the trunk of a gigantic Oak placed in an iron boat especially constructed for the purpose, and moored in the Seine near the Pont de la Concorde. According to M. CH. THAVES, in the *Revue Horticole*, this trunk was found accidentally in the bed of the Rhone at La Balme as long ago as 1874, when, during a period when the water was low, a branch was observed sticking out above the surface. On closer examination this was found to proceed from a huge trunk embedded in the bed of the river. Not till ten years later—1883—was the level of the water again sufficiently lowered to enable the tree to be exhumed. Five months were occupied in the task of removing it from the bed of the river, some 10 meters of sand and gravel having had to be removed in order to liberate it. Ultimately on March 25, 1884, it was brought to shore, when the huge dimensions of the trunk were ascertained as follows:—Length, 31 metres = 101.7 feet; circumference at the origin of the roots, 9 metres; circumference at the level of the soil, 6 metres. The actual weight of the tree is 55,000 kilograms. The age of the tree is estimated at from 400 to 450 years. The boat, called the *Dryphore*, or Oak bearer, is intended to transport the tree from river to river, and we may perhaps see it moored alongside Cleopatra's Needle, whose adventures in a similar boat will be remembered by our readers.

— **AGAVE AMERICANA.**—A noble specimen in flower of the American Aloe (*Agave americana*) may be seen at the present time in the conservatory of the Royal Horticultural Society at South Kensington. The stem is about 15 feet in height, and is crowded at the top with yellowish-green flowers. The specimen in question came from the princely gardens of his Grace the Duke of Devonshire, at Chatsworth, and proved a conspicuous feature with other Chatsworthian contributions in the garden way at the last Indian reception at the Colonial Exhibition.

— **TUBEROUS BEGONIAS AT STANSTEAD PARK NURSERY.**—The number of Begonias at this establishment keeps on increasing, larger breadths than ever being planted with them. Both single-flowered and double varieties are getting better able to pose their flowers in an erect fashion. So far they fill the place of "bedders," for being below the eye they look upwards, and display their colours better than drooping kinds. Mr. LAING is keen in pursuit of a good white of this pattern, but as yet the desirable form has eluded him, and so likewise has the purity of the colour, for the whites hitherto are on the outside of the petals pinkish, a bluish tinge detracts from their usefulness as bedding plants. The yellows, scarlets, and crimsons are of many shades, and are very well suited for outside uses or for the adornment of the greenhouse in summer time. If tuberous Begonias were employed instead of Pelargoniums and

the like for some of the uses these plants are put to in the flower garden and conservatory, there would be a lessening of labour, as well as a gain in space in the houses during the winter months.

— **LAPAGERIA ROSEA.**—Mr. McLEAN, the gardener at Vinter's Park, Maidstone, sends us blooms and foliage of this plant, grown in the open air, which in perfect development equal those grown under the protection of a greenhouse. The aspect is west, and the wall to which they are attached is that of a Cucumber-house. The plant withstood 21° of frost last winter—a fact to be attributed to the warmth afforded by the wall of the forcing-house.

— **INULA GLANDULOSA.**—Notwithstanding its introduction in 1804 this noble species is comparatively a stranger in British gardens. It is a native of Georgia and the Caucasian Alps, and is really a prince among its kind. A fairly good representation is given in the *Botanical Magazine*, t. 1907, but it fails to give an adequate idea of the living plant, at all events of a form that has been flowering for a considerable period in the herbaceous department at Kew. The species is to some extent variable, and a form has been introduced and described under the name of *I. grandiflora*. The distinction lies in the leaves being serrated in the latter form with gland-tipped serratures, while those of *I. glandulosa* are obsoletely serrate and glandular. These characters, however, vary even on the same plant in different seasons. The form at Kew has distinctly serrated leaves, and conspicuously glandular serratures. The solitary flower-head terminating a leafy flower-stem measures quite 6 inches in diameter, and amply compensates for the more numerous heads possessed by commoner but less effective species. The whole head is of a bright yellow colour, and the numerous narrowly linear rays resemble in no mean degree some of the finer Japanese *Chrysanthemums* of that colour. Were its flowering period a little earlier, when flowers are less abundant, it would doubtless receive a fuller meed of praise.

— **CYPRIPEDIUM ARIETINUM.**—This species, heretofore only known in Canada and the North-eastern United States, has lately been found on the mountains of Yun-nan, which may be looked on as continuations of the Himalaya in South-western China. As at present, the plant is not known to occur anywhere else, the fact is one of great interest. M. FRANCHET, to whom the publication of the fact is due, suggests as an inference, that this plant is one of the last existing evidences of the common origin of the Himalayan flora and those of the colder parts of North America. But if this be so, asks M. FRANCHET, is not the complete resemblance between the Canadian and the Chinese plant, separated by so vast a lapse of time and space, an argument in favour of the fixity of specific characters? It is worth notice that in this plant the three sepals are all distinct, as if it were an older type from which the present *Cypripediums* are modified descendants.

— **A LUNAR RAINBOW.**—It may interest some of our readers to learn that a magnificent lunar rainbow was seen in Staffordshire on Monday night last; it appeared at 8.55, and lasted until about 9.30. The bow hung in the west, and nearly the whole time the arc was perfect, and the prismatic colours very clearly defined.

— **RUBUS LEUCODERMIS.**—A striking wall plant is this white barked Bramble. Just now at Chiswick it is in flower and is very conspicuous, the bark giving the idea of its having undergone a process of whitewashing. To all lovers of wall plants, the walls at Chiswick have always some interest. The visitor is arrested by some subject that is captivating in its beauty—one that he looks upon in all its glory for the first time perhaps: to mention only the Cambridge colour of the fine *Ceanothus Gloire de Versailles*, still in grand form, to which brief allusion was made last week.

— **PREPARATION FOR GARDEN HOSE.**—Any principle which will tend to render canvas piping, garden netting, and such-like material more durable is essentially a matter of importance to the gardener. Messrs. MERRYWEATHER & SONS, a firm well known in London, some three years since took out a patent for rendering the above articles proof against rot, and they ask us to state that they are

willing to advise any one desiring information as to its application. It appears that the process is similar to that employed in the dressing of leather, viz., "Oak bark tanning." In a pamphlet issued by the firm are given some particulars, from which the following is an extract:—

"This liability of all canvas hose to deterioration by 'rot' is very well known by all who use it, but we question if the cause is generally understood. In fact, the nature of mould or mildew was for a long time very obscure, and even the ablest scientific men were divided in opinion upon the subject. Some supposed it to be a kind of chemical action or slow combination with oxygen continually going on in the material, while others attributed it to the action of extremely minute insects. Now, however, it is almost universally admitted to be a vegetable growth, originating in invisible spores or cells, constantly floating in the atmosphere, and which, when caught upon a soil congenial to their development, grow into a fungus called mildew. These spores or cells are so infinitesimal as to be invisible even with the aid of microscopes of the highest power; but Professor TYNDALL, in his recent investigations into floating matter in the air, has demonstrated by numerous experiments with a powerful beam of light, that they are always present in large numbers in the ordinary atmosphere."

"Before, however, these spores can actually develop into fungoid growths, they must come into contact with material in which the necessary conditions are present, just as the germ of disease must come into contact with its own nidus before the disease can establish itself in the body of the animal. These conditions notably exist in damp cotton, linen, leather, and other organic substances. If the conditions can be removed, the liability to damage by mildew will be avoided."

"The object we have had in view for some years is to remedy this great defect in canvas hose, by discovering some means of rendering the material sterile to the germs constantly deposited by the atmosphere; and we have at length attained it by means of a treatment which formed the subject of a patent application last month."

"By this process the hose is treated under pressure with solutions of Oak bark and other substances containing large quantities of tannic acid; and the effect is to make the hose absolutely proof against rot or mildew, or any damage from heating when put away wet; it also renders it more impervious to water, more supple, and practically unflammable."

— **GARDENING APPOINTMENTS.**—Mr. JOHN THORNS, late Head Gardener at Swift's Park, Cranbrook, Kent, has been appointed Head Gardener to ARTHUR WHITAKER, Esq., at West Grinstead Park, Horsham, Sussex.—Mr. J. BRYAN, late of Alderbrook, Cranley, has been appointed Gardener, &c., to EDWARD H. PALMER, Esq., Collingwood Lodge, Farnborough Station, Hants.—Mr. HENRY SWIFT, late Foreman at Burghley Gardens, Stamford, has been appointed as Head Gardener to CHR. NICHOLSON, Esq., of Balrath Barry, Kells, Co. Meath.—Mr. W. HARMAN, late Foreman at Possingworth Gardens, has been appointed Head Gardener to the Earl of DENBIGH, Newnham Paddox, Luttrell, Warwickshire.

CYPRIPEDIUM MORGANÆ.

PUZZLING as the results of the hybridist's work may be to botanists, at all events he has the excuse to offer that by cross-fertilisation he produces many beautiful flowers which could not be obtained by any other means. With Orchids especially we have ample proof that Nature is not slow to avail herself of cross-fertilisation as a means of improving or renovating a genus, but in a wild state, as a rule, only those which grow near together can cross, whereas in gardens the most beautiful products of widely distant regions are available, and hence the importance and usefulness of the hybridist's patient work. There is also another strong plea in favour of home-raised varieties, viz., that in most cases they are much easier to cultivate than imported species. If we want proof of this we have only to run over in our minds the numerous *Cypripediums* raised at the establishment of Messrs. Jas. Veitch & Son of Chelsea, and confirming facts are soon supplied. *C. Fairreanum* is a well-known stubborn plant, and yet its offspring, *C. vexillarium* and *C. Arthurlanum*, are very free growing; *C. Schlumii* is a plant which but few grow successfully, yet *C. Sedeni*, which was raised out of it as well as the whole line of grand *Sedeniform Cypripediums*, which resulted, are weeds to grow and flower perpetually. Again, who would ever have imagined that a union of *C. Rozellii* and *C.*

caudatum, which latter is not a good doer in many places, would result in the giant *C. grande*, which is noble in flower and in growth, the habit being more like a *Phoridium* than a *Cypripedium*.

C. Morgan, also, the subject of our illustration (fig. 49, p. 241), which was prepared from a plant which recently flowered with Mr. Ballantine, in Baron Schroder's collection, gives a fine example of the beauty and vigour of growth to be obtained by judicious unions. The plant was raised by Messrs. Jas. Veitch & Son a few years ago, by crossing C. Veitchii with C. Stoei, with what happy results a glance at our illustration will serve to show. The broad petals which much resemble those of the rare C. Stoei platytenium, are white, slightly tinged with sulphur, and profusely blotched with purplish brown, the dorsal sepal white, tinged with rose and veined with red, lip white, tinged and veined with rose. The foliage is broad and handsome, green, very slightly tessellate, and altogether the plant is a grand production. It was named in honour of Mrs. C. Morgan, of New York, and requires to be grown in the warmest house with the Bornean species.

DISEASES OF CARNATIONS.

HELMINTHOSPORIUM ECHINULATUM, B.

DURING the last few years a destructive mould has been very common on Carnations. In bad cases whole collections have been destroyed. The name of the fungus which causes the mischief is *Helminthosporium echinulatum*, and its external appearance is shown natural size on the upper part of the accompanying illustration, fig. 50, p. 245.

The fungus was first described, with a small illustration, by the Rev. M. J. Berkeley in the *Gardeners' Chronicle* for March 19, 1879, since which time the attacks of the parasite have greatly increased both in frequency and intensity. The superficial appearance of the fungus as it grows on both sides of the leaf is very distinct, and may be immediately recognised by its correspondence with the accompanying figure.

The mycelium or spaw of the fungus, the threads of which are comparatively very thick, creeps in a radiating fashion inside the leaf immediately below the leaf epidermis. From the inside of the leaf the fruiting threads burst through to the outside in a series of black concentric circles like minute *Fairy-rings*. The appearance of one series of small black circles within another, each circle consisting of fruiting threads, is shown natural size on the leaf illustrated in the upper part of fig. 50.

When a fragment of one of the miniature *Fairy-rings* is removed with the point of a lancet, and examined under a microscope with a power of 400 diameters, the fungus is seen as in the lower part of the illustration. The mycelium is very thick and lumpy, and the supporting stems of the spores are also very irregular in shape, and jointed. The spores themselves, which are borne on the top of, or at the sides of the fruiting threads, are very handsome, and are either without articulations, or have from one to five joints or septa, as illustrated. The spores are very finely and beautifully echinulate; they are slightly constricted at the joints, and each spore is furnished with a very minute but perfectly distinct footstalk, as shown. When spores are jointed, as in the examples before us, each joint is capable of reproducing the fungus on germination.

As the fungus vegetates between the two membranes of the leaf it cannot be reached by any sulphuring process without destroying the leaves; the only mode of action, that can be taken therefore, against the fungus is to very carefully pick and destroy every infected leaf.

Dr. Cooke has described, under the name of *Helminthosporium variabile*, a fungus not to be distinguished from *H. echinulatum*. *H. echinulatum* sometimes leaves Carnations, Sweet Williams, &c., amongst the *Caryophyllaceae*, and infests *Ornithogalum*; when on *Ornithogalum* the fungus is named (for a change) *Heterosporium ornithogali*. Three years after Mr. Berkeley had published the plant before us under the name of *Helminthosporium echinulatum*, he republished it in the *Annals and Magazine of Natural History*, May, 1879, under the name of *H. exasperatum*! The fungus, therefore, has four names—two given by the same author, and two which must be regarded as synonyms.

The worst part of the study of mycology is the

names. Two dozen long and uncouth names for one fungus is nothing uncommon. The families of fungi sometimes have diverting names, as the *Clenkowskizaceae* of Rostafinski. Non-professionals are apt to smile when no one is looking. When synonyms are not given an earnest beginner is likely to find himself in a dense mental fog, if not in a madhouse. Nature has been badly treated by some botanists, especially by young mycologists with a *penchant* for inventing new, long, meaningless or misleading names. *Worthington G. Smith, Dunstable.*

HOME CORRESPONDENCE.

FIGS.—I venture to ask a question. The Vicar of St. Peter's, of this place, who is a great amateur, has two Fig plants in his garden, which he thinks came from seed dropped by birds. There is a large Fig tree in this garden, but it is about 20 yards from where these young plants are. I told him I had read in the *Gardeners' Chronicle* some months back that the Fig did not ripen seeds in this country, and that in order to do so the presence of the Caprifig, which I understood to be the male plant, was necessary. The leaves on the supposed seedling plants are exactly similar to those on the Fig existing in the same garden. I can hardly think the plants can be seedlings. It is possible they may have been suckers which have been pulled up and thrown accidentally where they now are. A. P. [Never, within our knowledge, have seedlings been raised from English Figs. We have never found male flowers in English Figs, and we do not know of any duly authenticated record of any person having found any such. We have received seedling Figs "supposed" to have been raised from seed borne in English fruit; but our appeal for careful observation and experiment to remove this question from the region of doubt has apparently met with no response. It has, however, been asserted or stated generally that Fig trees have been raised from English ground seed, and we are not prepared to deny this, although no properly authenticated instance has been brought before us. As was suggested in the abstract of Count Solm's essay in these columns (n.s., xix., p. 530) the production of seedling Figs in the absence of the pollen of the Caprifig may be due to parthenogenesis, or what has been so named by some botanists, while others describe it as something analogous to the formation of bulblets in the ovary. Another possible explanation of the circumstance is that individual Fig trees, like some other dicecious plants, may sometimes bear crops of male flowers. Evidence bearing on this subject was summarised in n.s., xx., p. 22, and we have really nothing more at present to add. We can only recommend it as an interesting subject of inquiry for those who have the means of investigating the matter. Ed.]

SINGLE DAHLIAS at the Botanical Gardens, Chelsea.—It is said that the single Dahlia is rapidly declining in the popular estimation. Having been elevated into the front rank of floral pets, it has ceased to be so fascinating as it formerly was; and it is now suffering the usual fate of favourites, and experiencing that fickleness is a characteristic of Flora's as of other courts. But the fall of the favourite is not so much its own fault as that of the raisers of new varieties; they, in their haste to produce them for an indulgent public, selected very tall and coarse-growing types, spare of bloom, and producing large saucer-shaped flowers that had in great measure lost the charms of elegance and simplicity which marked the earliest flowers that gained the notice of the public. If the single Dahlia is to remain a floral favourite, there must be something like a new departure in the selection of varieties, and the sooner the path is entered upon the better. Ever since the single Dahlia appeared as a candidate for public favour, Mr. Thomas Moore, of the Chelsea Botanic Gardens, recognising the capacities of the flower to suit the public taste, set himself to work to raise new varieties after a type set up for his ideal, and he succeeded to a large extent. He accepted the type of *D. gracilis*, with its dwarf free growth and elegantly cut leaves, as furnishing an approximate model of habit, and combining with this varieties intermediate between *D. gracilis* and the older type of growth, he has produced, and has now in bloom in the Chelsea Gardens, a batch of varieties that seem to me to sum up the chief requirements in the way of single Dahlias. They are of dwarf growth, generally averaging 2 to 2½ feet, of free branching and yet compact growth, and singularly floriferous, with medium sized flowers of good shape, and distinct colours. A few of the leading varieties are as follows:—Edna, white, flushed with bright lilac; Figaro, a bright yellow variety of the *gracilis* type; Uriel, rosy-violet, very fine in all respects; Buffalo, buff, tinted with red;

Imogene, blood-crimson, very free, and good habit; Angelo, purple-crimson, with white centre, novel and distinct, a little tall, about 3½ feet; Fido, deep magenta-crimson; *gracilis rubra nana*, about 18 inches in height; good colour, very free and excellent; Pyro, bright crimson-scarlet; Juno, pale lilac-pink; Venus, light orange-scarlet; Oberon, shaded rosy-magenta; Sancho, vivid crimson, extra fine for its rare shape and rich colour; Thomas Moore, deep maroon, shaded with crimson at the base of the petals, very good; and Phyllis, brilliant pale crimson. R. D.

White-flowered Forms of British Plants.—

During the present season I have noted large patches of the white-flowered Ajuga in a woodland here; *Pedicularis palustris*, with pure white flowers, in a mountain swamp; and the *Harebell*, *White Betony*, *Orchis latifolia*, and *O. maculata* of the same sort. In a high-lying woodland, and over a space of perhaps 20 acres, a variegated-leaved form of the Wood Sorrel almost carpeted the ground, nearly every leaf having at least one of the lobes pure white, and occasionally one of the others mottled or spotted. Such a quantity had an appearance as pleasing as it was uncommon. A. D. W.

Pea Telephone.—This variety has behaved here this season in a similar way to Mr. Rust's sorts (p. 215). Prodigy and an unnamed variety of the same type are also identically affected; but in our case the injury is caused by an attack of mildew just before the majority of the flowers opened. We have had only a very few good pods on these varieties, while others of the smaller podded class, such as Standard, Marvel, Goldfinder, President Garfield, &c., have done remarkably well; in fact, my employers tell me they never had such good Peas in any previous season. I consider, therefore, that Telephone and others with large inflated pods are more susceptible of injury by mildew than the compact podded varieties. W. H. D.

Peach Alexander.—Mr. Ward at p. 210, is reported to say he intends removing this Peach into an early Peach-house. I would say don't! Both Alexander and Waterloo don't appear to relish either tropical climes or glass skies. At the great Peach place, Ketton Hall, they have had fair trials, under the best of management, and both have failed to bear satisfactorily. Two large trees were taken out of glass houses—one of each kind—planted on a south wall, and have borne very good crops this season. I quite agree with Mr. Ward as to the favour of Alexander being perhaps the best of the early section, although I like Amsten Peach, taking it all round. R. Gilbert.

The Sweet William.—Sometimes written of as a florist's flower, but more often referred to simply as a border flower, the Sweet William may well claim to higher attraction than it now obtains. It ought to be difficult to find a bad strain of these anywhere; it is probable, however, that the inferior strains are yet too plentiful, hence myriads of those who cherish fancies for old-fashioned flowers, have so far had little experience of the great beauty now found in Sweet Williams. In the old types the blooms were small, lacking form, quality, and distinctiveness of hues and marking; now the flowers of the best strains almost rival in size and richness of colouring the beautiful annual Dianthus, and probably excel these even in variety of markings; then not only are the individual flowers so fine, but the trusses are large also, and if florists have tastes for form, smooth edges, and defined markings, they may find them to their heart's content. It does not seem as if florists had created for the Sweet William any special points, although what are not inaptly termed ringed flowers seem to find much favour in some quarters, these too, being usually smooth-edged. Generally, at exhibitions, where sometimes good Sweet William may still be found the largest and most attractive blooms gain the honours. Without doubt, ringed flowers are very charming, but in lacking variety seem to lose one of the chief charms found in this fine old border flower. The most attractive forms now are found in the flaked and matted flowers, and these are indeed, both varied and beautiful, and indeed indescribable. Very striking also are the dark self hues, especially crimsons, scarlets, and purples, and these not the poor small things with which many are conversant, but huge flowers fully 1 inch across and of fine form. There are sometimes found very good whites or shaded hues, but these are less common, and amidst so much rich colour are hard to preserve. A really pure white Sweet William is a good thing if the blooms be as correspondingly large as are those of the dark hues ones. Not so long since there were special strains such as *H. elegans*, whose distinguishing chiefly the smooth-edged ringed flowers; Articulæ, having white eyes with rich coloured grounds and serrated edges; and Barlow's, a good general strain. Now we may find all the best of these forms

through care and attention rolled into one, and any good strain of to-day should possess all kinds and forms in hue and marking finely developed. General evenness in habit is also desirable, but less easy to obtain. Some plants will break more freely and produce many stems or trusses of bloom, and of course do not get so tall. Others produce fewer stems and taller ones. Very much may, however, depend upon the time of sowing, and those who would have good plants for next year should have their seedlings almost ready to plant out now. Really seed should be sown out-of-doors in April if strong plants that will carry from six to twelve heads of bloom are to be secured the following year. The seedling stems will result. When planted up in beds and in rows a foot apart the effect is good indeed, if all the plants stand well, as they should, for they are very hardy. A really good even mass of mixed Sweet Williams is something to be proud of. *A. D.*

Crinum Powellii.—My clump of this handsome hardy border plant, with eight spikes of its large bright rose-coloured flowers on flower-stalks 4 feet high, is now very beautiful, if only I could find some means of preventing the voracious and night-crawling slug or snail from eating the petals of the young flowers just as they are about to open. *W. E. Gambelton.*

Xanthoceras sorbifolia.—Referring to this plant I may mention that the fruits attain a larger size than those figured at p. 205. The late Dr. Hance told me when I was at Whampoa in 1874 that the fruit was sold as an edible fruit in the markets of Northern China. The racemes of flowers are erect, between the fruit hangs from its weight. The flowers are white with a yellowish eye, which turns to a lovely pink. The figure you gave in the *Gardeners' Chronicle*, August 14, is perfectly correct, as also that in Van Houtte's *Flore des Serres*. The shrub is hardy in Belgium, but its weak point is at the collar. My plant has been twice killed to the ground through decay there. It may be easily propagated by root cuttings. *J. Van V., Brussels.*

The Boiler Competition at Liverpool.—In your publication of the 7th inst. a letter appeared signed "J. B. Jun." (and which has only just come under my notice) on the above-named contest. I thank him for his compliment to my boiler, and as his letter purports to be a reply to a communication of mine, previously inserted in your journal, I ask the favour of commenting on "J. B. Jun.'s" remarks, who seems to be of opinion that rules may be evaded, as Rules Nos. 5 and 6 were, and not adhered to by my competitors. I admit the contest was between the boilers, but on equal footing as to rules. It was to discover which boiler could obtain the greatest heat in cases of emergency. I take it a little extra fuel should be of no consequence to produce immediate or prompt heat during severe frost, and the fire kept up to maintain the same. Is it feasible to make readers interested in the question believe that a boiler with 4½ inch rise (as mine only had) is not at a disadvantage in the contest with one of 1½ inch rise and the same length of pipe? Mine also was the smallest boiler, and yet attained the greatest heat. Had I had the same rise as my competitors I could have obtained a far greater heat. Every competitor was supplied with rules a considerable time previous to the contest, and each should have complied with them, as I did, or have been disqualified. In reference to water-bars, which "J. B." alludes to, I maintain they should in all cases be connected with the boilers, and have only one flow, the same as I had, as specified in the rules. Another point he alludes to is the levels which he credits me with being highest in temperature. I consider this no compliment, as I won the points fairly, although I burnt about a bushel of coke extra, and had the best fire after twelve hours' banking, and it would have lasted seventeen hours altogether, and had no recourse to improper means. I have no doubt it would be interesting to the interested if all that transpired at the contest was reported as it came under the judges' notice. I would suggest at any other boiler contest, that if valves are inserted they ought to be locked or sealed, and no competitor should have control of them, and that all fuel not supplied by the judges' during the contest should be removed or not combustible. As the rules laid down were allowed to be infringed on, notwithstanding that I strictly adhered to them, I leave those interested to judge if I have had justice done me, and to find a reason why the rules were allowed to be broken. *T. Wood, Rudgeway House, Eastville, Bristol.*

Lilium formosanum.—I have sent a spike of the beautiful *Lilium formosanum*, which succeeds well in the open border, being perfectly hardy—in fact, much more so than the common longiflorum, from which it differs in several respects, the stems being purplish-brown, extending along the three outer segments of the perianth, which are not so

widely revolute as in any other variety of longiflorum. Its fragrance, too, is different, reminding one more of *Lilium odorum*, which it resembles more than any other Lily; and I think that when better known it will become a great favourite. It was introduced by Mr. Maries from the island of Formosa, and flowered in the nursery of Messrs. Veitch in the autumn of 1880, and received a First-class Certificate from the Royal Horticultural Society. *Taylor Shiers.* [The flowers sent resembled *L. longiflorum* var. *Takesima*. Ed.]

Carnation Lady Agnes.—I enclose a few blooms as cut off my seedling, Lady Agnes, which is a favourite here; being of a salmon-pink it is very telling, and is a profuse bloomer, averaging over 250 blooms and buds on each plant. It is one of the earliest to open, and continues until the frost cuts the buds, and withstands the sun and rain without the colour running. It has proved itself a hardy sort. I have two borders, each 3½ yards long, of mixed varieties, including the old Clove, which have succumbed to the severeness of the past winter, but this variety survived the cold and wet. *A. Evans.* [Apparently a useful sort for cutting, but apt to burst its calyx. Ed.]

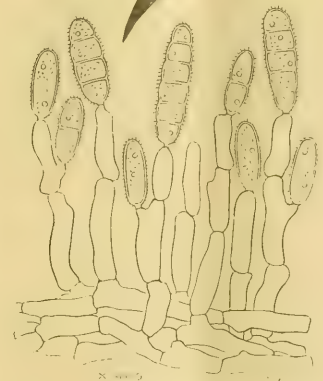


FIG. 50.—FUNGUS DESTRUCTIVE TO CARNATIONS: HELMINTHOSPORIUM SCHINULATUM.

Double Flowers (p. 208).—We have this season a plant of the wild Poppy, *Papaver rhæas*, which came up by chance in the herbaceous border, and has produced flowers, beautifully double. This seems likely to be a valuable plant for cutting from and also for the garden decoration, if prejudice is not too much against it in a garden. Has a double variety of this plant ever been noticed before by any one? [plenty]. *W. H. Divers, Ketton Hall.*

"Our Native Flora."—The subject of the preservation of our native flora was ably dealt with by Mr. Shirley Hibberd, who recently read an interesting paper before the Horticultural Club, in London. Evidence was given to show that many of our British Ferns had already become extinct in certain districts, and some flowers were now scarcely to be met with. This is greatly to be deplored, and as a member of the Club, now that the season for botanical rambles and village flower shows is at hand (or rather, the authorities are making their arrangements), will you allow me to bring the matter forward and urge that the directors of these rambles to discourage the ruthless rooting up of specimens, and to take care that species are not entirely destroyed by every specimen being taken.

These spoils of the woods and fields, thus dragged from their native soil in ninety out of one hundred cases fail to grow, and many of the nosegays gathered get no further care on their owners reaching home, and may generally be found in the dust-bin next morning. For all practical purposes, foliage and flower are enough for study and comparison. The case of Fern hunters was specially mentioned; some millions must annually be destroyed by the itinerant hawkers of these beautiful plants, and their ravages soon take effect as they are but slowly reproduced, and when made up for sale with moss and cones, are destined soon to become unsatisfactory. If any of your botanical readers chance to find a rare species, let him or her have the glory of showing the same as a cut specimen to his friends, but the habitat should remain a dead secret, or extinction must inevitably follow. The system of giving prizes for wild flowers at exhibitions is to be commended, as the love of flowers cannot be too much extended—but, alas! frequently the "poies" put up by school children are mere bunches of blossom destitute of tasteful arrangement, and by no means things of beauty. To foster enquiry and research, prizes should be offered for a stated number of varieties, say twenty-four or thirty-six, and a similar class for grasses, limited to three pieces of each; probably some amateur would gladly name them, and thus lead the way to study. The committee should provide small bottles or vases for the purpose, as set stands are costly; and in lieu of money prizes (which to many juveniles mean sweets *ad lib.*) suitable elementary book on wild flowers might be given. While on this subject may I also put in a plea for the moths and butterflies? As an old collector it was my custom to kill any of the rubbishy or damaged specimens, as they could be left for the perpetration of their species, and never to take more than a few of any kind, more especially the rarer ones. It is well known that the avidity of trade collectors has caused certain insects to become all but extinct, and my object in writing these few lines is to aid in the preservation of these interesting and lovely objects for the benefit of posterity. The growth of towns, and the great increase of cultivated land, meaning less woods and fewer open spaces (where sheep feed but flowers flourish, and insects suffer extinction), have left Nature a smaller field for her operations. Let us then do our best to preserve those treasures bequeathed to us, and instruct our children to do the same. *A Lover of Nature, in "Kent County Standard."*

Cycas revoluta.—One would hardly call the Cycas a hardy plant, yet a case which came under my notice, at Blettsheggar Park, Kent, the seat of Lord Northbourne, of one having safely withstood the rigour of the past winter is worthy of mention. The plant in question is a fine specimen. Originally growing in the stove it flowered in 1880, the inflorescence resembling a tuft of woolly pinnate leaves curving inwards, borne in the centre of the crown. The following year it threw up forty new leaves and flowered again in 1882, and was photographed. Ultimately, becoming too large for the stove, it was transferred to a large conservatory, remaining there till the summer of 1885, when it was taken outside, and there left to take its chance during the past winter. Last June, the old leaves being somewhat browned, they were cut off and the plant taken back into heat to ascertain if life still existed. At the present time, judging from the vigorous growth shooting up, the plant is apparently little the worse for the somewhat unnatural treatment to which it has been subjected. *A. Herrington, R.H.S., Chiswick.*

Mice v. Elder.—Not unfrequently one reads of sad destruction amongst young trees, and, indeed, old ones too, by some vermin or other nibbling the bark from around the stems and branches. This has usually been attributed to rats, squirrels, and mice, rarely the latter, when the gnawing is done at a height greater than that to which hares and rabbits can reach. I have always been somewhat sceptical of such condemnations, but as "seeing is believing" I am once and for all convinced of the accuracy of the statements, for twice during the past fortnight have I seen the common field mouse feeding on the leaves and young succulent twigs of the Elder at a height of fully a dozen feet from the ground. *A. D. W.*

Sweet Brier Hedge (*Gardeners' Chronicle*, June 26).—Since my last note on the culture of the Sweet Brier, I have received from a gentleman a wholly different account of the best way to grow it. Mr. Frederick Clowes of Windermere, my correspondent, having kindly given me leave to publish his suggestions, I have now much pleasure in submitting them to your readers. Mr. Clowes writes:—"I have only cultivated Sweet Brier a short time myself, but I learned how to do it from Mr. Swinburne, who lived here, the father of the present Sir John Swinburne, of Capheaton. Mr. Swinburne was long successful with his hedges of Box as well as of Sweet Brier, which were well-known at the time. His plan—and the right plan—is to follow the natural habit

of the plant where it flourishes. Instead of pruning—which should never be done—bend down nearly to the ground all the long one-year's shoots from time to time, securing them by hooked sticks or tying them to other shoots as may be most convenient. These will send up other shoots, and so you get a thick hedge. If this is done from the beginning, it is all that is required. Of course there is in time a lot of dead and some little living wood which, with a little common sense, may easily be removed. Mr. Swinburne, who has been dead many years, practised this plan for some twenty years in two different residences. The hedge should be well exposed to the sun; but the frequent bringing down of the long shoots is the only matter of importance." I thought that a photograph of Mr. Clowes' hedge would supply material for an interesting illustration for these pages; but my correspondent informs me that his hedge is not in a good situation either for growth or photography. It would (he writes) scarcely show any character, because it has been long enough established, and, moreover, has been neglected. *W. H. Sewell, Yaxley Vicarage, Suffolk.*

Sulphide of Potassium.—This remedy for mildew (first recommended in the *Gardeners' Chronicle*) has now been extensively used by a large number of our leading gardeners, and as I have been mainly instrumental in getting its merits tested by some of our best men, I am glad to be able to report that the anticipations of the discoverer of its value as a remedy for mildew have been fully realised. As it is a cheap and efficient, I am anxious to make its merits as widely known as possible among my fellow amateurs and gardeners generally. I shall be glad to receive a line from all who have tried the sulphide detailing their experience, with a view to publishing the results for the benefit of the gardening community. As mildew is very prevalent this season I hope every one who is troubled with this pest will test the sulphide, and report whether it proves successful or not. *Edward W. Badger, Moseley, near Birmingham.*

A Remarkable Lime Tree.—This is to be seen in the grounds of the New Bath Hotel at Matlock Bath; and it is reported to be at least 300 years old, and the local records say, probably with much truth, that it is one of the largest in the kingdom. When, and under what circumstances it was originally planted is not known. The tree measures 300 feet in circumference; the branches sweep down to the ground, and are propped up by strong supports in all directions, and the points of the branches resting on the ground impart to it a very curious appearance. Mr. Thomas Tyack, the proprietor of the New Bath Hotel is very proud of this arboreal wonder; and he informed us that he has frequently dined between 200 and 300 persons under its branches. Visitors to Matlock Bath should not fail to inspect this really wonderful tree, which is carefully preserved by Mr. Tyack, and shares with the petrifying wells, the grand scenery of the Derwent Valley, the veteran carp in the town pond, the trout fishing in the Derwent, the warm springs, &c., the honour of being one of the sights of this charming Derbyshire place. *R. D.*

Bandina Boxwood.—Mr. John R. Jackson, of Kew, has recently forwarded a small slice of this wood cut from a block now being exhibited at the Fijian court of the Colonial Exhibition, with a request that I would try and report on its character as a wood for wood engraving purposes. The wood cuts equally well with good Box, but its colour, a very dark brown, will always prevent its use. It is impossible to get a white surface for drawing, and owing to its dark, and an engraver cannot tell the kind of line he is cutting. Its extraordinary weight is also a great defect. In closeness of grain, density, and toughness, it is perfect. English Yew is, however, quite as good, or even better; Hawthorn next. Mr. Jackson does not know the tree which produces "Bandina Boxwood." *W. G. S.*

The Double White Lily.—I enclose you some spikes of *Lilium candidum*, and would very much like to ascertain the cause of their becoming deformed in the flowers; at least 90 per cent. of them have some of the same as the enclosed. Some of the bulbs have been planted two years, some longer, perhaps for four or five years, on the same ground (not transplanted). I may mention they have come more or less like the enclosed flowers since three or four years. *James Shaw, Gr., The Gardens, Belladrum.* [The specimens sent were those of the so-called double variety cultivated in old-fashioned gardens from time immemorial. No perfect flowers are produced, but in their place the flower-stalk bears towards its upper end a series of whorls, the same coloured spirally at short distances apart. As to the cause of the change we are in the dark; we presume that some check

occurred in a very early stage, preventing development of the flower in the ordinary manner, and causing it to produce these white leaves instead. If, as we infer from our correspondent's letter, the bulbs originally produced flowers in the ordinary way, and they or their direct successors now become double, the case is very interesting. *Ed.]*

The Cyclamen persicum.—Few occupants of the greenhouse are so popular as these, and it follows, as a matter of course, that plants become popular they are also carefully cultivated by those whose interest it is to supply the public with what they require. New and vastly improved forms are also periodically added to those we already possess, and the interest is thereby stimulated and sustained. Those who have to keep up a large supply of Cyclamens for winter flowering cannot very well do so by purchasing plants, at least, not at a reasonable price. The best Cyclamen seeds are rather expensive, but it would be poor policy to save a few shillings by purchasing seeds of inferior quality, when the results of twelve months' labour would be a poor strain of flowers, taking the same house-room and as much valuable labour expended on their culture as the best. One of the first questions asked by the cultivator is, What is the best time to sow the seeds? The best time is when the seeds can be sown to produce flowering plants that will be of the least trouble and expense to grow to a flowering size. Now of all cultivators of plants, on strictly business principles, the growers for Covent Garden Market are the most likely to be right in this important matter of economy. They must do two things. The first, and most important, is to grow the plants well; the next is to grow them cheaply. One of the best cultivators for market, told me he sowed his seeds about the first week in July in pots or pans, and placed them in a cold frame. At that time, at a temperature of 60° to 65° at night, with 10° higher by day, the seeds would vegetate towards the end of July, and could be potted off singly into thumb-pots in August. They make good progress in the cold frame until the middle or end of September, when they are placed in a moderately warm house on a shelf near the glass; from 50° to 55° would be a good night temperature at that time but in winter 45° to 50° is quite high enough. The plants are potted on as they require it, but taking care not to over-pot them as they will flower in 5 and 6-inch pots. About the end of May the plants are again removed into cold frames, and by-and-by, as the summer advances, they are treated to the lights being removed at night, but placed over them by day with plenty of ventilation. A light shading is thrown over the glass to protect them from direct sunshine; exposure to the full sun at midsummer, would check their growth, which must be continuous up to the time the plants are in full bloom. They are required in the winter season, and fine quality specimens with from fifty to sixty flowers all open at once, are very valuable in the market, especially a good strain of white varieties. When looking over Messrs. Sutton's collection of plants in their experimental nursery at Reading recently, I saw a house full of large well grown specimens ripening their seeds, and as the plants were so fine I naturally inquired how they had been grown. The seeds, I was told, were sown in November, and by the next November the plants had produced each of them 150 to 200 flowers. They had been grown in a hothouse temperature except during the summer months—not a very high temperature, as that would draw up the leaves and flower-stems weakly. The object of growing these plants was merely to save seeds from them, and experience had taught the Messrs. Sutton that the above was the best way to obtain the desired end. One of the best collections of Cyclamens I ever succeeded in raising were from seeds sown in January in a heated propagating house. The seeds vegetated in from two to three weeks in a gentle bottom-heat, and as the plants became large enough they were potted on into thumb-pots, and subsequently into 4 and 5 inch pots; but they never were outside the house which was kept at a moderate stove temperature, and always very close to the glass. They produced from twenty to thirty flowers on each plant in November following, and were a beautiful feature in the greenhouse all the winter. The soil in which they were potted was composed of three parts turfy loam, one of peat, one of leaf-mould, some small pieces of charcoal, and a little sharp sand. Cyclamen flowers are very useful in the winter months for decorative purposes, but the stems must not be cut or broken, as the parts of the stem that remain will rot, and injure or quite destroy the plants. The stems with the flowers attached can readily be pulled out by the hand quite from the base, and this is the right way to gather them; doubtless most people are aware of this, but some are ignorant of it. I may add that old specimen plants, if it is intended to grow them again, should be placed in a cold frame facing north, and they should receive but a moderate supply of water at

the roots. If the nights are cold leave the glass lights over the plants, but on warm nights they are better to be left off altogether. Young plants intended to be grown on quickly to a large size will do better over a hotbed than anywhere else. The heat ought not to be violent, as that would be injurious to a very mild, sweet bottom-heat would produce large healthy foliage. Air ought to be rather freely admitted. *J. Douglas.* [It may be mentioned as showing the want of unanimity amongst trade growers as to the best time to sow, that a well-known firm sows its Cyclamen seed in January and February, not crediting the fiction that the seed will not keep till then. *Ed.]*

Reports of Societies.

THE SCOTTISH ARBORICULTURAL.

THE thirty-third annual general meeting of this Society was held on Tuesday, August 3, in the committee-room of the International Exhibition, Edinburgh, Dr. Cleghorn, President, in the chair. In the minutes of the previous year it was recorded that Dr. Cleghorn had intimated his intention of resigning the office of President, and that the Council had expressed their thanks to him for his services to the Society. Sir Herbert Eustace Maxwell, M.P., had been requested to allow himself to be nominated as President, and had agreed to do so. Letters of apology were intimated from Sir Herbert Maxwell (who, as Colonel of the Galloway Militia, is at present with his regiment in Canada), and from Mr. Robert Hutchison, of Carlisle.

NEW MEMBERS AND OFFICE-BEARERS.

Seventeen new members were proposed and were duly admitted. Sir Herbert Eustace Maxwell, Bart., M.P., Monreith, was unanimously elected President, the Chairman observing, in proposing his name, that Sir Herbert, being on the Parliamentary Committee dealing with arboricultural matters, would be of valuable assistance to them in the new Parliament.

THE RETIRING PRESIDENT'S ADDRESS.

Dr. Cleghorn said the first thing that occurred to him was that they should record their thanks to the Executive Council of the Exhibition for their kindness in granting them the use of their room. The usual period of presidency to which their kindness had elevated him having expired, the Society had elected to the vacant chair Sir Herbert Eustace Maxwell, Bart., M.P., a most energetic landed proprietor, well known for his love of arboriculture, and his attainments in arboriculture. He had been an active member of the Parliamentary Committee on forestry two sessions, and would no doubt render valuable service when Parliament met again. They had hoped that he would have been able to favour them with the annual address, but as they had been informed by the Secretary, their new President was unavoidably absent. The Society continued to maintain its important position, and now numbered about 800—viz., honorary members, 18; life members, 120; ordinary members, about 600. Additions to the library had been received from various quarters, and the collection of forest literature was now varied and extensive, including many valuable works, British and Continental. The difficulty of locating their collections remained. They were temporarily stored at St. Andrew Square until matters regarding the Forestry School were arranged. The new part of their *Transactions* had just been published, and he ventured to say that the contents were of special interest to all of them. During the past year several members had been removed from their office by death. In the newspapers of last Saturday was recorded the demise of a very distinguished Scottish forester, an original member of the Society, its President of this Society (1854–57), Mr. James Brown, LL.D., late of Craigmilly, Stirling, who died at Ontario, Canada. He was well known and highly esteemed by many of their older members, and his work, *The Forester*, has passed through several editions. It still was a standard work of reference. One of his sons, Mr. J. E. Brown, was doing excellent work as Conservator of Forests, Adelaide, and was bringing out an illustrated flora of the province which was under his care. Other deceased members were Mr. John Ferguson, late Deputy Conservator of Forests, Madras; Lord Waverley, and Mr. Colquhoun of Luss. The premature dissolution of Parliament having brought the deliberations of the Select Committee appointed to consider whether, by the establishment of a forest school, or otherwise, their woodlands could be rendered more remunerative, to a sudden close—the report issued on July 10 contained the evidence of five witnesses (Colonel Pearson, Dr. Crombie Brown, Dr. Schlich, Inspector-General of Forests, Mr. Julian Rogers, Secretary, Institution of Civil Engineers, and Mr. Alexander Mackenzie).

The subject was pretty well threshed out, and the witnesses were all agreed on the main question, although they differed as to minor details. There was but one opinion, that foresters should be instructed as to the theory of their craft. How this might be best accomplished, and where the convenience in Great Britain in establishing a Forest School capable of imparting the special knowledge acquired in Continental schools existed, was still open to discussion. Dr. Brown and himself (the Chairman) spoke strongly in favour of Edinburgh. Other witnesses advocated the Agricultural College, Cirencester, Gloucester, Downton, and Cooper's Hill Engineering College in Middlesex. When the forest school, or schools, might be established was uncertain; but that the forest school must come there was no doubt. In a time of extraordinary commercial depression there have been unusual obstacles. In conclusion, the Chairman adverted to the splendid collection of forest produce that was to be seen at the Indian and Colonial Exhibition, and remarked that no one could visit the Exhibition without being impressed with the magnitude and resources of the Colonies. The Indian forest trophy was a splendid piece of work, and included no fewer than 3000 specimens of Indian timbers. He specially alluded to the value of the conferences which had been held in connection with the Exhibition, at which as he indicated, much valuable information had been exchanged between experts, which would, he was convinced, be of the greatest importance. He trusted that as many arboriculturists as conveniently could do so would visit it.

Mr. W. M'Corquodale, in moving a vote thanks to Dr. Cleghorn for his address, took occasion to refer to his retirement from the chairmanship. Dr. Cleghorn, he said, had given much valuable time and labour to the interests of the Society. They all regretted his retirement, but they hoped he might be long spared to go in and out among them.

The Chairman said his connection with the Arboricultural Society had been a great pleasure to him. He was spending the later years of his life in retirement at St. Andrews, but he would come over as often as he could to be present at the meetings of the Society.

ACCOUNTS.

The Treasurer reported that the income and expenditure for the year had about squared each other, viz., £245 18s. 10d. The capital of the Society amounts to £328 13s. 5d.

Mr. Dunn, Dalkeith, in moving the approval of the accounts, said he trusted that by another year the Society would be in a flourishing financial state. It was doing a good work in the country, and it deserved to be supported even more than it had been on account of its eclectic character, its membership including landed proprietors, gentlemen interested in arboriculture, foresters, and assistants. He thought that on the whole they had great reason to congratulate themselves.

Mr. D. F. Mackenzie, Morton Hall, seconded the motion, which was unanimously agreed to.

COMPETITIVE ESSAYS.

On a report by the Judges, the following honours were awarded for competitive essays:—

1. The Rearing and Management of Hardwood Plantations—Bronze Medal, A. Macdonald Grant, assistant forester, Hopetoun.

2. Specifications and General Conditions of Contract for Works to be Executed in the Erection of a Forester's Cottage—small Silver Medal, W. McIntosh, 5, Thistle Street. Commended: Alexander Pitcaithley, forester, Kinrossie.

3. Plantations and Trees on the Estate of —, in the county of Ross—small Silver Medal, Alexander Pitcaithley.

4. The Native Trees and Shrubs of Carnarvonshire—small Silver Medal, A. D. Webster, Penryn Castle, North Wales.

5. Hedgerows and Field Timber—Bronze Medal, A. D. Webster.

6. Hedges: Useful and Ornamental—Bronze Medal, A. D. Webster.

7. Old and Remarkable Trees on the Estate of Penryn Castle, North Wales—small Silver Medal, A. D. Webster.

8. The Present State and Future Prospects in Arboriculture in Hampshire—Gold Medal, John Smith, surveyor, Romsey.

9. The Arboricultural Forestry—Gold Medal, to the writer "Deus Nobis," &c., Gold Medal on condition the essay was finished.

10. Best size of Plants, and Method of Planting to produce the best Results in different Soils and Situations—Bronze Medal, L. Ramage, Troon.

11. Best size of Plants and Method of Planting to produce the best Results in different Soils and Situations—small Silver Medal, David A. Glen, assistant forester, Garthcarr.

12. Collection of Conifer Seeds—Silver Medal, James Barry, Stevenson, Devonshire.

In submitting the report, Mr. Dunn said the judges were of opinion that the essays were all very creditable to the authors, and valuable to the Society. He

trusted that the foresters, and especially the young foresters, having now got settled down after the excitement of the Forestry Exhibition, an increasing number of them would be found in the ranks of the competitors. As many of them as possible ought certainly to take the hint of the Chairman and visit the Colonial Exhibition. But they need not despair by what they saw there, for he believed, that so far as circumstances would admit, Scotsmen could grow as good trees, and put them to as good use, as any other people in the world.

AN ARBORICULTURAL JOURNAL.

In connection with the demise of *Forestry*—the magazine which was the recognised arboricultural organ, a discussion, initiated by Mr. Baxter, Dalkeith, took place as to whether or not something should be done to remedy the matter. The meeting seemed to consider that it was a very desirable thing that arboriculturists should have a special journal, and a remit was made to a committee to consider the whole matter and report to a meeting of Council.

SILVER FIR FOR RAILWAY SLEEPERS.

Mr. M'Corquodale said it might be interesting to the members to know that quite recently an expedition had been made of some Silver Fir sleepers which had been put into the railway line at Lunanary, near Perth, nine years ago. He was glad to say that at this date they were still quite sound, and looked as if they would last another three years at least. No creosote or other preserving substance had been used. He believed Silver Fir would yet be acknowledged the best wood for railway sleepers.

The Chairman added that the usual life of a Larch sleeper was eight years, and of a Scots Fir three or four.

MISCELLANEOUS.

Mr. John Methven, Edinburgh, asked an expression of opinion from the members as to a proposal which had been mooted to establish a benefit society for decayed foresters. He knew there were great difficulties in the way; but if there was any general desire for such a society the matter might be further looked into. Mr. Baxter, Dalkeith, in moving that no action be taken in the matter, remarked that as a rule foresters were thrifty, and connected themselves with existing benefit societies. Mr. Dewar seconded the motion, which was agreed to. Mr. Methven being at the same time thanked for the trouble he had taken in the matter.

A number of presentations were intimated to the library, and in formally reporting the housing of the Society's forestry specimens in the Museum of Science and Art Mr. Dunn said he understood that when the new wing of the museum was completed, one of the features of it would be a forestry collection. As the Museum had also got the Highland Society's specimens, the Director had also the nucleus of a first-rate collection.

A letter was read from the Secretary of the proposed mining, &c., exhibition at Newcastle-on-Tyne next year, which is to have a section devoted to woods, asking the Society to bring the exhibition before the members. A remit was made to the Council on the subject, a general feeling prevailing that the Society, as such, should not incur any financial liability in connection with the exhibition.

A conversation having taken place in regard to the place of next year's excursion—Upper D-aside being suggested—the arrangements for the excursion to Bute and Inverary were intimated, after which, on the motion of J. W. Watt, Carlisle, the Executive of the Exhibition were thanked for the use of the committee-room.

THE EXCURSION.

The annual excursion of the members of the Scottish Arboricultural Society was commenced on Wednesday, August 4, under the most favourable circumstances. This year it had been arranged that a visit should be paid to the woodlands of the island of Bute and to the woods and policies of Inverary, permission for this purposes having readily been granted to the Society by the Marquis of Bute and the Duke of Argyll. The company, numbering over forty gentlemen, wearing badges of Scotch Fir, travelled from Edinburgh at 9 o'clock by train to Wemyss Bay, where they took boat for Rothsay.

At Rothsay the party was met by Mr. James Kays wood manager to the Bute estates, and carriages being in waiting, they drove to the "Queen's Hotel," where the Society was hospitably entertained to lunch by the Marquis of Bute. After visiting the ruined castle of Rothsay, and measuring the old Thorne tree near the chapel, the party drove to Mounstaur House, and spent the remainder of the day in inspecting the house, policies, and woods, and in taking measurements of the more remarkable trees. The grounds of Mounstaur have long enjoyed a reputation for great natural beauty, but they were a good deal devastated by storms in December, 1853, and January, 1854. On these occasions no fewer than 2000 trees were blown down, and damage otherwise done which it will take a lifetime fully to

repair. The bulk of the fallen timber, however, has now been removed, and already the signs of the wreck have been greatly altered by a vigorous crop of bracken. Among other trees which were measured, the tape being passed in all cases round the trunk at a height of 5 feet, were a Douglas Fir, 5 feet 3 inches in circumference and 63 feet high; a Menzies Fir, 39½ feet high and 2 feet 7½ inches in girth; a Beech, 14 feet in girth, with a spread of branches of 66 feet; a Cedar of Lebanon, 6 feet 11 inches in circumference, with a straight bole up to 25 feet; a Californian Hemlock Spruce 7½ feet high and 4 feet in girth; a Spanish Chestnut, 8 feet 5 inches in girth; a Pinus insignis, 3 feet 10 inches in girth; four Scotch Firs, from 8 feet to 8 feet 11 inches in girth. The trees seen were, perhaps, not so large as have been measured on other occasions, but one feature about them was the luxuriant way in which they were furnished with foliage. Several beautiful avenues of Limes and Beeches were traversed, and in the gardens the company was very much struck to see plants and shrubs growing in the open air which generally only do so in such climates as that of the South of France or Spain. One feature, which gave great pleasure, was to view the "nursery park," which was laid out from the Marquis of Bute's own designs in 1871, and is in its way a perfect picture. The members of the Society had also an opportunity of seeing the colony of kangaroos which are kept in an enclosed 4 acres of wood; and the beaver wood, where the habits of this wonderful "woodcutter" may be studied. There are only a pair of beavers of a once considerable colony; but on a burn running through one of the woods may be seen an interesting series of dams built by these clever little animals, and signs all round of the manner in which they cut down the trees.

On Thursday morning the excursion party proceeded by the *Lord of the Isles* from Rothsay to Inveraray, where they were met by Mr. W. McEwen, the Librarian to the Duke of Argyll. On the way up Lochfyne rain began to fall, and it was very wet for the rest of the afternoon. The party, however, nothing daunted, had a good four hours' walk through the Castle policies, and in the Duniquich woods, under the direction of Mr. John Stewart, forester. The whole district is beautifully wooded, a feature in the landscape which adds greatly to its effectiveness. Individually, as well as in the mass, the trees were considered by the arboriculturists well worthy of inspection. The policies are heavily timbered, many of the hard woods and Firs alike being handsome trees. A striking character of the trees on the lawn was their foliage, which extended from the topmost twig to the very ground. Many of those examined could not have been less than 300 years old, and were of great height and girth. Some of the measurements were considered worthy of special note.

An old Ash on the Castle lawn girthed 15 feet 2 inches; a Beech, on the side of the river was 18 feet 6 inches in circumference, and upwards of 100 feet high; and a grand Plane at the narrowest part of its bole gave 14 feet 5 inches. So heavy Oaks and Spanish Chestnuts as those examined are not often seen in abundance on this side of the Border. Out of a large number of Oaks around which the tape was passed one measured 12 feet 11 inches in circumference, another 12 feet 10 inches in circumference; while of the Spanish Chestnuts one was 17 feet 8½ inches in girth, a second, near the farm offices, measured 19 feet 9 inches. The stem of this tree was twisted like a rope, and not a few of its gnarled boughs were covered with the common Polydora. The soil, especially on the slopes of Duniquich, seems particularly suited to the growth of coniferous trees, the woods in that respect recalling to mind some of the best timber districts of Perthshire. There is a tradition that the Scotch Fir on Inverary were planted by Atholl men, and it can be said for them that they do credit to themselves and to the estate. They are of the true type of Scotch Fir, with thick scaly bark, and they have grown to a great size. One of the largest which was measured was 13 feet in girth and 116 feet high, and there were many others little inferior in bulk. A Larch which was tapped was 10 feet 5 inches in girth and 136 feet high, the height in all cases being determined by dendrometer measurement. A great many magnificent Silver Firs were met with on Duniquich. One of these turned out to be the tallest tree measured. Its height was 144 feet, and its girth 13 feet 8 inches. One adjoining was 15 feet 3 inches in circumference, but not quite so high. The Spruces in the same locality were growing splendidly. One, which was planted fifty years ago, is now 80 feet in height, and girth 8 feet 4 inches. In the grounds are many memorable trees planted by royal and other distinguished personages. A melancholy interest attached to a Douglas Fir, the label on which told that it had been planted on September 31, 1875, by Prince Leopold. There was a Silver Fir planted by the Queen in 1875, which unfortunately has this year lost its leader, apparently by the depredations of squirrels. Several of the newer Conifers planted beside the old lime-kiln were found injured in the same way, though it were

hard to blame the little nut-crackers for all such damage. It should be mentioned that the Castle itself was thrown open to the party, the members of which greatly enjoyed the sight of the beautifully furnished apartments. The Loch Dhu Beech avenue having been examined, the party returned to Inverary about 7 o'clock, dripping wet; but they found comfortable quarters for the night at the "Argyle Arms" Hotel, and kindly attention on the part of the proprietor, Mr. Clarke.

On Friday the weather had improved from that of Thursday; but rain fell in the forenoon while the members were pursuing their inquiries in the midst of this charmingly-wooded region. By 7 o'clock most of the party were afoot, and, under the direction of Mr. Taylor, visited the Castle gardens, which were found in excellent order. After breakfast, they left the "Argyle Arms" in conveyances, and enjoyed, despite the wet, a three hours' drive through the woods along the northern shore of Loch Fyne, which, like those previously visited, were found richly furnished with splendid trees. Taking their way by the famous Beech avenue which opens into the town, several trees were there tapped. One of the Beeches girthed 18 feet 6 inches, and there were not a few not far short of that measurement. The avenue has suffered a good deal of late by violent storms; but it was noted with satisfaction that the gaps were nearly all filled up with the same kind of trees. In the Kilbride, Clonary, and Barryrack woods the company had frequent occasion to admire the great size and quality of the Silver Fir, growing for the most part on the hillsides upon rocky soil. One of these is quite a historical tree, having been planted by the present Duke's grandfather, who commanded the Argyleshire Highlanders at Culloden. It is now a grand tree, running up 45 or 50 feet as straight as an arrow before forking, and girthing at 5 feet up 16 feet 4 inches. Mr. Kay's very handy dendrometer was tried upon it, and gave it a height of 121 feet. Another great Silver (in the Barryrack wood) girthed 16 feet 10 inches, had a height of 134½ feet, and by the usual calculations was estimated to contain 750 feet of serviceable timber. Among other trees around which the tape was passed in the course of the drive was what is known as the "Marriage Tree" (noted by Loudon, *his dendrology*, vol. iv, p. 2593, 2594), where a curious ingraft between two limbs of a Beech has taken place. At the narrowest part of the bole the girth was 15 feet 4 inches, and at 5 feet up it was 16 feet 2 inches. A very fine Sycamore was also measured, it being less remarkable for its size than for its beautiful head. Its girth, however, was by no means contemptible, the measurement giving 12 feet 8 inches. A fine lot of Oaks and Scots Firs were also met with on the journey, which included a visit to an old Roman bridge on the Douglas Water still in a remarkably good state of preservation. In returning an opportunity was given to the party by Mr. Stewart, the forester, to see a number of young plantations. By violent gales within the last few years the Inverary woods, which extend to about 4000 acres, suffered very severely. Most of the blown timber has been removed, and to supply the gaps made a good deal of Douglas Fir—which seems to thrive here remarkably well—has been planted out. On returning to Inverary the party broke up—some of the members going by coach to Dalmlaly, while the larger portion of it came on by the *Lord of the Isles* to Glasgow and Edinburgh. *Scotsman*.

NATIONAL CARNATION AND PICOTEE (NORTHERN DIVISION): August 14.

UNDER the most favourable circumstances the Northern growers of Carnations and Picotees held their annual show in the Botanical Gardens, Old Trafford, Manchester, on the above date. There was a very good exhibition indeed. It was a large show for the North, and though occasionally a higher average of quality in the blooms might have been seen, at the same time not a few, distinguished by high characteristics of quality, were seen on that occasion, especially in the case of those produced by that well known raiser and cultivator, Mr. Robert Lord, of Todmorden. The Rev. F. D. Horner, the Hon. Secretary and Treasurer, informed us that the Carnation and Picotee had on the whole a generous season in the North, as was shown by many of the flowers being of full substance and very bright. It was also pleasant to note as decidedly satisfactory that five or six new exhibitors had competed for the first time, and that some old ones who had not previously shown for a few years past had again put in an appearance with these flowers. There was a good attendance of those especially interested in the flowers. The day was beautifully fine.

CARNATIONS.

Four stands of twelve Carnations competed in the class, open to all, and Mr. Robert Lord, Hole Bottom, Todmorden—whose absence from ill-health was generally regretted—was 1st, with superb blooms

of the following:—C.B., Master Fred (Hewitt), a bloom of surpassing beauty; S.B., Mesurier (Hewitt); C.B., John Harland (Adams); S.B., Admiral Curzon (Easom), this fine old flower in delightful character; R.F., Sybil (Holmes), perfect in development; C.B., J. D. Hextall (Simontie); P.F., Squire Meynell (Brabbin), a flower that must have been in cultivation nearly half a century; P.P.B., William Skirving (Gorton), a fine flower raised from seed supplied by Mr. E. S. Dodwell; S.B., Edward Adams (Dodwell); S.F., Sportsman (Hedderley), a brilliant sport, from Admiral Curzon, which appears to have become quite fixed in character; C.B., E. S. Dodwell (Hewitt); and R.F., Rob Roy (Gorton), in the finest character. 2d, Mr. B. Simontie, Rough Bank, Sheffield, with his fine P.F., James Douglas, a flower that ranks A1 in this division; S.B., Tom Power, (Dodwell); R.F., Seedling; P.P.B., Seedling; C.B., Master Fred (Hewitt); P.F., Mayor of Nottingham (Taylor); C.B., Mrs. Gorton (Dodwell); S.F., Sportsman (Hedderley); P.P.B., Sarah Payne (Ward); C.B., Seedling; R.F., Seedling; S.B., Robert Lord (Dodwell). 3d, Mr. George Geggie, Waterloo Nursery, Bury, 4th, Mr. F. Laws, Carnation Gardens, Rochdale.

Then came a class for twelve Carnations, nine at least to be dissimilar, open to growers of 500 pairs or less. Here Mr. John Whitman, Bank View, Hebden Bridge, was 1st, with P.B., Master Fred (Hewitt), two blooms; S.F., Henry James (Dodwell); P.F., George Melville (Dodwell); P.P.B., Sir Garret Wolsley (Hewitt); P.F., James Douglas (Simontie); C.B., Edward Adams (Dodwell), two blooms; C.B., Thomas Austiss (Dodwell); P.P.B., E. S. Dodwell (Hewitt); C.B., J. D. Hextall (Simontie); and S.B., Admiral Curzon (Easom). 2d, R. Gorton, Esq., President of the Society, Gildbrook, Eccles, Lancashire, with P.F., Geo. Melville (Dodwell); P.P.B., William Skirving (Gorton), two blooms; S.F., John Ball (Dodwell); P.P.B., Sarah Payne (Ward); S.B., Harrison Weir (Dodwell), two blooms; R.F., Sybil (Holmes); P.F., Squire Whitbourn (Dodwell); S.F., Robert Morris (Dodwell), and the rest unnamed. 3d, Mr. E. Shaw, Moston, near Manchester. 4th, Mr. William Taylor, Middleton, Lancashire. Eight collections competed in this class.

The class for six Carnations was confined to growers of 250 pairs or less, and here Samuel Barlow, Esq., J.P., Stoke Hill House, Castleton, Manchester, was 1st, with excellent blooms of S.B., Robert Houlgrave (Barlow), a fine bright full flower of striking character; S.F., Dan Godfrey (Holmes); R.F., John Keat (Whitehead); S.B., Admiral Curzon (Easom); P.F., Squire Meynell (Brabbin); and P.P.B., Sir Garret Wolsley (Hewitt). 2d, Mr. Thomas Madock, Lofthouse Hall Gardens, Wakefield, with S.B., Seedling; R.F., Sybil (Holmes); C.B., J. D. Hextall (Simontie); P.P.B., Falconbridge (May); S.B., Admiral Curzon (Easom); and S.F., Sportsman (Hedderley). 3d, Mr. J. Blackley, Prestwich, Manchester; 4th, Mr. R. Lord, Healing Hall, Rochdale; 5th, Mr. William Bacon, Derby; 6th, Mr. Kitching. Eight stands competed in this class.

In the various classes for single blooms a large number of flowers were staged. S.B.'s were numerous and brilliant. The best was Admiral Curzon (Easom), from Mr. R. Lord; and he was 2d with Fred (Hewitt); Mr. S. Barlow was 3d and 5th, with Robert Houlgrave; and Mr. R. Lord 4th, with Master Stanley (Dodwell). C.B.'s were very fine. The winning blooms were massive and brilliantly coloured, and Mr. R. Lord was 1st, 2d, 3d, and 5th, with Master Fred (Hewitt), probably one of the richest coloured C.B.'s in cultivation; and Mr. Geggie 4th, with the same. The 1st prize for P.P.B.'s was won by Mr. R. Lord, with a fine bloom of Gorton's William Skirving, Mr. B. Simontie being 2d with William Skirving (Gorton) (Dodwell), and 3d with William Skirving; 4th, Mr. J. Sharp, Wharfedale, Lofthouse, Birmingham, with Sarah Payne (Ward); 5th, Mr. R. Lord, with E. S. Dodwell (Hewitt).

The best P.F. was James Douglas (Simontie), extra fine; Mr. J. Whitman being 2d, with the same; Mr. T. Helliwell, Todmorden, was 3d, with Dr. Foster (Foster); Mr. R. Lord 4th, with Mayor of Nottingham (Taylor); and Mr. Geggie 5th, with James Douglas.

The best S.F. was Clipper (Fletcher), shown by Mr. R. Lord, Mr. Geggie being 2d and 3d, with Anichitoff (Jackson), and 4th with Mr. J. Hextall (Dodwell); Mr. R. Lord being 5th, with Ivanhoe (Lod).

All the five prizes for R.F.'s went to Sybil (Holmes), beautiful flowers being shown, Mr. S. Lord, with 1st and 2d, Mr. R. Lord 3d and 5th, and Mr. T. Helliwell 4th.

The premier Carnation was C.B., Hewitt's Master Fred, shown by Mr. Robert Lord, a grandly developed flower.

There was a class for twelve self or fancy Carnations, and but two prizes were awarded, though three stands competed. Mr. R. Gorton was 1st, with a stand of flowers, all self coloured but very fine in quality; Mr. F. Law 2d, having a few fancy varieties mixed with selfs, but neither lot was named.

PICOTEE.

The next class was for twelve Picotees, nine at least to be dissimilar; open to growers of 500 pairs or less, and here Mr. J. Whitman was 1st out of seven competitors, with a good stand consisting of H.P., Zerlina (Lord); L.P., Clara Penson (Willmer); H.R., John Smith (Bower); H.R., Lady Holmesdale (Schofield); L. R., Miss Wood (Wood); H.R., Edith d'Ombrian (Turner); L.P., Ann Lord (Lord); L.R., Thomas William (Flowdy); H.P., Mr. A. Chancellor (Turner); L.P., Ann Lord (Lord), H.P., J. S. Bryant (Ingram); H.P., Zerlina (Lord). 2d, Mr. E. Shaw, with good blooms of H.P., Mariel (Hewitt); H.P., Mrs. Radcliff (Radd); L.R., Miss Wood (Wood); H.R., John Smith (Bower); H.R., Lady Valentinia (Kirtland); L.P., Clara Penson (Willmer); H.P., Mariel (Hewitt); L.R., Daisy (Dodwell); H.R., Miss Horner (Kirtland); H.R., Mrs. Dodwell (Turner); L.B., Thomas William (Flowdy); H.R., Elise (Kirtland). 3d, R. Gorton, Esq.; 4th Mr. W. Taylor.

There were ten competitors in the class for six Picotees, confined to growers of 250 pairs or less, and here Mr. T. Helliwell was 1st with H.R., Brunette (Kirtland); H.R., Mr. Lord (Lord); L.P., Clara Penson (Willmer); H.P., Alice (Lord); H.R., Fanny Helen (Niven); and L.R., Miss Wood (Wood). 2d, Mr. J. P. Sharp, with H.P., Mariel (Hewitt); H.R., Mrs. Sharp (Sharp); L.R., Thomas William (Flowdy); H.R., Mrs. Payne (Fellows); L.R., Seedling; and H.P., Zerlina. 3d, Mr. J. Blackley; 4th, S. Barlow; 5th, Mr. J. Edwards; 6th, Mr. W. Ramskill, Wakefield.

In the classes for Picotees, single blooms, there were a great number of flowers. In the H.R. class Mr. R. Lord was 1st, 2d, and 3d, with John Smith (Bower), and Mr. Geggie 4th and 5th with Henry (Matthews); L.R.: Flowdy's Thomas William won all the prizes in this class; Mr. B. Simontie was 1st, and Mr. R. Lord 2d, 3d, 4th, and 5th. H.P.: Mr. F. Law was 1st, 2d, and 3d, with Zerlina (Lord); Mr. Geggie 4th, with Mariel (Hewitt); and Mr. F. Law 5th, with Mrs. Niven (Niven). L.P.: Mr. T. Helliwell was 1st, with Clara Penson (Willmer); Mr. J. Whitman 2d, with the same, and Mr. Shaw 3d, with the same; Mr. R. Gorton was 4th and 5th, with Ann Lord (Lord). H.R.: Mr. R. Lord was 1st, with Fanny Helen (Niven); Mr. J. Sharp 2d, with his Mrs. Sharp; Mr. R. Lord 3d, with Lady Louise; 4th, with Mrs. Sharp; and 5th, with Edith d'Ombrian. In the class for L.R. edges, Favourite (Liddington) was 1st and 2d, shown by Mr. R. Lord. 2d and 4th, shown by Mr. B. Simontie; Mr. R. Lord being also 5th with Mrs. Aldcroft.

The Premier Picotee was L.R., Favourite (Liddington), shown by Mr. R. Lord in his stand of twelve blooms.

Four stands of twelve dissimilar Picotees competed for the four prizes open to all, and Mr. Robert Lord was 1st, with very fine blooms of H.R., Master Norman (Norman); L.R., Favourite (Liddington), perhaps the most highly finished flower in the whole show. H.P., Zerlina (Lord); L.R., Thomas William (Flowdy); H.S., Mrs. Sharp (Sharp), a beautiful new variety; H.R., Fanny Helen (Niven); L.P., Mary (Simontie); H.R., John Smith (Bower); H.R., Mrs. Payne (Fellows); L.P., Ann Lord (Lord); L.R., Mrs. Aldcroft (Turner); H.P., Mariel (Hewitt). 2d, Mr. B. Simontie, with L.R., Favourite (Liddington); H.R., Seedling; L.R., Clara (Bower); H.R., Lady Holmesdale (Schofield), H.R., Princess of Wales (Fellows); L.P., Clara Penson (Willmer); H.S., Mrs. Sharp (Sharp); L.R., Mrs. Gorton (Simontie); L.P., Ann Lord (Lord); H.R., Seedling; L.P., Mary (Simontie); H.P., Zerlina (Lord); 3d, Mr. G. Geggie; 4th, Mr. F. Law.

CERTIFICATES.

First-class Certificates of Merit were awarded to S.B. Carnation, Robert Houlgrave (Barlow), shown by S. Barlow, Esq., a very fine and bright flower, regarded as an improvement upon Admiral Curzon; and to H.S.-edged Picotee, Mrs. Sharp (Sharp), shown by Mr. R. Lord, a flower of fine build, pure in the ground, and heavily edged with bright scarlet. A similar award was made to this flower at the meeting of the Oxford Union held at Mr. E. S. Dodwell's in 1885.

Messrs. James Dickson & Sons, the Upton Nurseries, Chester, sent a large collection of Carnations and Picotees nicely set up in bunches, and also various hardy perennials, which attracted a good deal of notice from visitors.

WESTON-SUPER-MARE: August 10.

THIS Society held its annual show in the Grove and Rectory Field on the above date. Rain fell heavily in the morning, but it ceased about 9 o'clock, and the weather during the remainder of the day was every thing that could be desired for the holding of such an exhibition, and the show on the whole was an excellent one. The most noteworthy plant in the exhibition, and perhaps the finest of the kind ever before saged, was *Ixora Duffii*, staged by Mr.

Cypher, of Cheltenham, having thirteen trusses, each 10 inches in diameter, of bright orange-scarlet flowers and luxuriant foliage.

PLANTS.

Mr. Cypher was 1st for twelve stove and greenhouse plants, showing a grand lot of highly-coloured Crotons and grandly flowered *Ericas*, &c. Mr. Lock, gr. to W. B. Cleave, Esq., Newcombe House, Crediton, was a good 2d, and Mr. Wills, gr. to Mrs. Pearce, The Firs, Bassett, 3d—the latter showing a superbly flowered *Statice* profusa in his collection.

Mr. Wills was 1st for six flowering plants, and Mr. Cypher 2d, both showing well. Mr. Hughes, gr. to H. Pethick, Esq., had the best four flowering plants; Mr. Holland, gr. to W. Ash, Esq., the 2d best, and Mr. Lewis the 3d, all three showing well.

Mr. Hughes was 1st for a specimen greenhouse plant, and Mr. Lock was 2d; the last-named exhibitor had the best six ornamental foliage plants, showing an excellent lot, being followed closely by Mr. Cypher. Mr. Wills and Mr. Brooks were 1st and 2d respectively for six exotic *Ferns*. Mr. Lock and Mr. Derryman, gr. to E. Cole, Esq., taking 1st and 2d in that order for eight exotic *Ferns*, clean well grown plants being staged in both collections.

PELAGONIUMS.

These were shown largely and in some classes remarkably well, notably in that for six zonals, which were grandly flowered. 1st, Mr. Adams; 2d, Mr. Brooks. *Fuchsias*, *Begonias*, *Coleus*, &c., were also pretty well represented.

CUT FLOWERS.

Roses were very good for the time of the year, the blooms being fresh and firm in the prize stands. Mr. Campbell, gr. to Dr. Budd, Bath, was 1st for twenty-four trebles; Mr. Matlock, Oxford, being a close 2d; and Mr. Yorkshire a good 3d.

Mr. Hobbs, Bristol, had the best twelve blooms, and Mr. Warden, gr. to Sir F. H. Bathurst, Bart., Clarendon Park, Salisbury, the second best.

Mr. Campbell was 1st for a like number of Teas, being followed closely by Mr. Matlock and Messrs. Cooling & Sons, Bath.

BOUQUETS

were well shown, equal 1st going to Mr. Cypher and Messrs. Perkins & Sons, and the 3d and 4th to Mr. Garraway, Bath, and Mr. Cole in that order.

COLLECTIONS OF FRUIT.

There were four collections of eight kinds put up in competition for the three prizes offered, the three prize winners being very close to each other in point of merit. 1st, Mr. W. Igoulden, gr. to the Earl of Cork, Marston House, Frome; 2d, Mr. W. Nash, gr. to the Duke of Beaufort, Badminton House, Chippingham; 3d, Mr. H. W. Ward, Longford Castle, Salisbury. Mr. Igoulden's collection consisted of good Cayenne Pine, Black Hamburgh and Foster's Seedling Grapes, well-coloured Barrington Peaches, Victoria Nectarines, Hero of Lockinge Melon, Moor Park Apricot and Brown Turkey Figs. Mr. Nash's best dishes were Bellegrape Peaches, large and highly coloured, and Black Tartarian Cherries, very fine; and Mr. Ward's best were a Queen Pine, Muscat Grapes, and Elenheim Orange Melon, 6½ lb., beautifully netted and well coloured.

GRAPES.

These were shown in fairly good condition. Mr. H. W. Ward was easily 1st for three bunches of Muscats; Mr. G. Neton and Mr. Igoulden being 2d and 3d.

Mr. Thomas was 1st for a like number of bunches of any other white variety with good Buckland Sweetwater; Mr. Lloyd, gr. to J. Stuckey, Esq., was 2d, with good Foster's Seedling; and Mr. Nash was 1st for any other black than Hamburgh with three fine well finished bunches of Black Alicante, Mr. Duffern, gr. to Mrs. Walker, and Mr. Lloyd taking 2d and 3d in that order with good bunches of Madresfield Court, but which were wanting in colour.

Mr. W. Yard, gr. to the Rev. Canon Pratt, was 1st for Black Hamburghs, showing rather loose but fairly coloured bunches; Mr. Moss was 2d, and Mr. Edwards 3d, compact, even, well finished though smaller bunches.

There were only two Pines staged, a large Black Prince, 8½ lb., but not in good condition; and a medium-sized Cayenne, for which Mr. Igoulden was awarded a 1st prize.

MISCELLANEOUS.

Twenty fruits of green and scarlet fleshed kinds of Melons were put up. Mr. Goddard was 1st in the latter class with Read's, and Mr. Holland obtained a like award in the former with Sutton's Horticultural Prize. Mr. Ward had the best dish of Pears in Jargonelle, and Mr. Nash the best dish of Cherries with Black Tartarian.

Mr. Duffern had the best Peaches and Nectarines, the latter being large and highly coloured fruits of Elruge; Mr. Lloyd taking 2d with large fruits of Oldenburg.

Mr. Ward exhibited, not for competition, a handsome piece of Hero of Lockinge Melon, weighing 4½ lb., rich in colour and beautifully netted.

VEGETABLES.

These were shown largely and well. There were eight good collections put up. 1st, Mr. Filchey, gr. to Colonel Colgrave; 2d, Mr. J. Hall; 3d, Mr. W. A. Harris, gr. to Colonel J. A. Law.

Mr. Ward was 1st for Cauliflower. Mr. J. Day was the most successful exhibitor in the single dish classes.

Potatoes, Carrots, Marrows, Tomatoes, and saladings were well represented.

HASTINGS AND ST. LEONARDS:

August 11.

The annual exhibition of this Society was held in the Alexandra Park. The entries scarcely equalled those of last year in numbers, but if deficiency in this respect there was no falling off in the quality of the exhibits, which were good throughout, many a deserving collection having to be passed over where the competition was strong: notably was this the case with vegetables, which were among the very best that we have seen this season. A word of praise, too, is due to the superior quality of the vegetables and cut flowers shown by the cottagers of the district, each of which evinced high cultivation.

PLANTS IN FLOWER.

These are always a strong feature at this show, and this occasion was no exception to the rule. In the open classes Mr. Portnell, gr. to Sir A. Lamb, Beauport, was well in advance with eight plants of moderate size, fresh and healthy and in abundant bloom, his most notable examples were *Dipladenia amabilis*, very fine, with flowers of exceptional size; *Isora Fraseri*, *Bougainvillea glabra*, full of flower; *Erica cernitoides* coronata, with examples of *Kalosanthes coccinea* superba *Erica*, *Aitonis turgida*, and *Statice imbricata* var. *Gilbertii*. Mr. Hobden, Clive Vale Nursery, was a good 2d, staging one of the best flowered plants of *Allamanda grandiflora* we have seen, and a well done piece of *Rondeletia speciosa* major, a plant not nearly so much grown as it deserves to be.

For six specimens, Mr. Lucas, gr. to C. Liddle, Esq., Peasmarsh, was 1st, having among others a good example of *Vinca oculata*; in the 2d prize collection, from Mr. Duffern, gr. to S. Green, Esq., was an unusually bright and well flowered plant of *Kalosanthes coccinea* superba.

In the limited classes, Mr. Portnell again came to the front with another good collection of six plants, conspicuous among others being a capital example of *Erica Fairriana*, and also of *Statice pinnata*.

Single specimens in flower were shown in excellent condition, equal 1st prizes being awarded to another well done *Allamanda grandiflora* from Mr. Hobden and an all-round plant of *Bougainvillea glabra* from Mr. Portnell.

Pelargoniums, both single and double zonals, were displayed in capital condition, the plants healthy and floriferous, and, what was equally creditable, not too stiffly trained.

Mr. Hobden took 1st for both sections in six of which Mr. Portnell following closely in each instance.

Gloxinias were shown in first-rate order, full of flower, and in good variety by Mr. Gadd, gr. to P. Eagles, Esq., St. Leonards; and Mr. Gregory, gr. to Admiral Maxse, Eastbourne; the first-named also taking 1st for four *Begonias*, most abundantly flowered.

Fuchsias were shown in considerable numbers, consisting of the best varieties for the season. Mr. Portnell taking two 1sts for six and four respectively.

For six *Fuchsias* the same exhibitor was likewise 1st, with healthy vigorous plants of the best kinds.

Some pretty examples of dinner-table plants were shown, the best coming from Mr. F. Bishop, Croydon.

Foliage plants and Ferns were shown in considerable number, being, with one or two exceptions, of medium size, but in good condition. For eight foliage plants Mr. Jupp, gr. to the Mayor of Eastbourne, was 1st, having among others a very fine plant of *Croton majesticum*, brilliantly coloured; and *Alcacia Thibautiana*, in good condition. Another collection, strong in Palms, came from Mr. Portnell, and took 2d place.

The best specimen foliage plant was a grand piece, in robust health, of *Areca sapida*, from Mr. Dennis.

For eight *Ferns*, Mr. Bolton, of Coombe Bank, Sevenoaks, took the 1st place with a noble plant of *Dicksonia squarrosa* and a good specimen of *Davallia polyantha* in his collection; Mr. Jupp followed, having some well grown *Gymnogrammas* and a fine *Alsophila excelsa*.

In a smaller collection Mr. Morris, gr. to C. J. Ebdon, Esq., came to the front with neat well grown plants.

In a miscellaneous collection of plants the 1st prize again fell to the lot of Mr. Portnell, in whose collection we noticed a healthy specimen of *Rhopala corodensis*.

CUT FLOWERS.

These in their various classes were shown in considerable numbers, and of excellent quality. The central portion of the marquee was devoted to the table decorations, each exhibitor being allowed a separate table, around which there was plenty of room for inspection by the visitors.

In the open class, Mrs. Seale, of Sevenoaks, won the 1st prize with three stands, even beyond her usual degree of excellence; the 2d prize being well won by Mrs. Bishop, of Croydon.

For the prizes restricted to amateurs only, Mrs. Gilmour, of Hawkhurst, took 1st place with three stands, light but free in their arrangement; but was closely followed by a local exhibitor, Miss Stewart, St. Leonards, whose only failing was in not having secured a ground work of moss to start upon, the sand being plainly visible.

Boxes of Roses were exhibited in good numbers, Messrs. Woollard, Cooksbridge Nursery, Lewes, and Mr. Slaughter, of Steyning, taking the premier positions.

Stove and greenhouse cut flowers made a good show, *Lapagerias*, *Ericas*, *Dipladenias*, and *Allamandas*, were prominent features in the 1st prize lot from Mr. Portnell; a capital boxful being also shown by Mr. Nicholls.

Amongst Dahlias, Mrs. Seale and Mr. Robinson, gr. to Mrs. Meryon, Kye, shared the honours with bright fresh flowers.

Mr. Bunyard, of Ashford, won the 1st prize for twelve *Gladioli*, and Mr. Morris that for six, each with good spikes.

Asters and *Phlox Drummondii* were shown in considerable quantity, the latter from Mr. Lavender, gr. to Lieut.-Col. Tubbs, St. Leonards, being very fine.

Bouquets and baskets of flowers produced a lively competition, Mrs. Bishop, Mr. Woollard, and Mr. Freeman, being the most successful exhibitors.

FRUIT.

The Grapes were a prominent feature in this department, Mr. Allen, gr. to Lord Brassey, winning easily with three bunches of Muscat of Alexandria, finely coloured, and taking 2d also for Black Hamburgh, with good bunches and very fine berries; the 1st being awarded to Mr. Gadd with better coloured samples, more compact in the bunch. Amongst Plums, Rivers' Early Prolific was prominent, whilst of Apples the best samples were of Lord Suffield, from Mr. Gilmour; and Red Juneating, from Mr. Blake.

Of Melons, Lord Beaconsfield (green) and Blenheim Orange (scarlet) were prominent, each kind being to the front in each of four classes, and Mr. Egleton the most successful exhibitor.

For a collection of eight dishes of fruit Mr. Portnell again came to the front, winning with a nice even lot of fruit.

Peaches and Nectarines were hardly sufficiently advanced, still some good dishes of each were brought forward—Royal George of the former, and Downton of the latter were the best.

VEGETABLES.

Collections of nine sorts were shown in first-class condition, each of the nine exhibitors staging productions of a high order of merit—Mr. Crossman, of Cogburn Hall, and Mr. Apps, of Ore, taking 1st and 2d prizes respectively; there were among the very best collections that we have seen this season. The vegetable classes throughout were well represented in each respective kind, Celery being remarkably good for the season; so also were the Carrots (Sutton's new Red Intermediate, very fine); some fine bulbs also of Rousham Park Onion were shown Messrs. Sutton, Apps, and Gilmour being the chief prize-takers.

Mr. Gilbert, of Springfield Nursery, Old London Road, Hastings, staged a most effective group, not for honours, of choice flowering and foliage plants, occupying the entire end of one tent.

TAUNTON DEANE HORTICULTURAL SHOW: August 12.

The display of horticultural productions brought together in the Vivary Park is such as to place the exhibition of this Society in the front rank of provincial gatherings. In each department the competitors are usually numerous, whilst the character of the productions is of a description to give conclusive evidence that gardening is well done in this part of the country. The show day is kept as a general holiday in the town, to which the inhabitants of the

surrounding districts flock in large numbers, thronging the six or seven roomy tents in a way that is rarely seen. On the present occasion stove and greenhouse plants, both flowering and fine-foliaged, were, as usual at Taunton, represented in a manner that is not surpassed at any summer exhibition in the kingdom.

OPEN CLASSES.—STOVE AND GREENHOUSE PLANTS.

Mr. Cypher, Cheltenham, took the lead, the group consisting of an *Ixora Dufii*, which bore thirteen heads of bloom, the largest of which was 10½ inches through; the plant was covered with healthy leaves down to the pot; I. Pilgrimii, and I. Fraseri, each bearing from 130 to 140 trusses of their reddish-orange flowers, and a number of other subjects of great merit. Mr. Lock, gr. to B. W. Cleave, Esq., Crediton, who was 2d, had amongst others, an immense plant, well-flowered, of *Erica Eweriana*, and *Eucharis amazonica*, bearing about forty-five spikes; 3d, Mr. Wills, gr. to Mrs. Pearce, Southampton.

Six stove and greenhouse plants.—1st, Mr. Cypher.

FINE-FOLIAGE PLANTS.

These were very well shown, the plants large and in excellent condition; Mr. Lock took 1st honours with eight, his best specimens being *Latania borbonica*, *Encephalartos villosus amplius*, and *Kentia Belmoreana*, each some 15 feet across, with *Croton Warreni* and *C. Williamsi*, large, and beautifully coloured; and *Gleichenia spleunea*, 9 feet in diameter; 2d, Mr. Cypher, in a good group having *Kentia Canterburyana*, and a very fine specimen of *Cordylina indivisa*.

FERNs.

Eight exotic varieties.—Mr. Lock took 1st, with a fine collection, in which was *Davallia polyantha*, D. Mooreana, and the beautiful *D. fijiensis*, with *Cyathea dealbata*, and a very fine specimen of *Marattia Cooperi*; Mr. Wills, who was 2d, staged nicely grown but smaller plants.

ORCHIDS.

Four Orchids.—Mr. Cypher was the only exhibitor of these, taking 1st with *Saccolabium Blumei*, bearing five spikes; *Cypripedium Stonei*, *Cattleya Dowiana*, and *Oncidium Lanceanum*.

RARE OR NEW PLANTS.

One new or rare plant in bloom.—1st, Mr. Lock, with *Dipladenia Elliotti*, a distinct variety, with full-sized flowers, the segments unusually broad; the colour is a rich salmon-red, edged with white; the leaves, deep green, are comparatively small, thick, and leathery.

With a new fine-foliage plant Mr. Lock was also 1st, having *Alocasia Sanderiana*; 2d, Mr. Cypher, with *Croton mortefontaineensis*.

FUCHSIAS.

The best of these came from Mr. Godding, Taunton; 2d, Mr. Henley, gr. to F. Woodland, Esq.

TUBEROUS BEGONIAS

were well shown, Mr. Godding being 1st, with large, well-flowered plants of good varieties; 2d, Mr. S. Tottle, Taunton.

ZONAL PELARGONIUMS.

These were well represented, the plants of medium size, and beautifully flowered. With eight single varieties Mr. Godding took the lead; 2d, Mr. S. Tottle.

Eight Nosegays.—1st, Mr. Godding, who here again staged beautifully flowered examples.

Eight double zonals.—1st, Mr. Henley; 2d, Mr. Lewis, gr. to J. E. Cole, Esq.

Eight tricolors.—1st, Mr. T. Tidbury, Taunton; 2d, Mr. Godding.

COCKSCOMBS.

With four Mr. Cowill, gr. to H. F. Manley, Esq., Taunton, was 1st; 2d, Mr. Reed, gr. to F. J. C. Parsons, Esq., Bridgewater.

AMATEURS.

Twelve stove and greenhouse plants.—Mr. Wills was placed 1st, having a group composed of eight fine-foliage and four flowering specimens; Mr. Lock 2d, his collection consisting of all flowering plants, medium sized examples in nice condition.

Six stove and greenhouse plants.—1st, Mr. W. G. Marshall, Taunton, who with others had a nice specimen of *Rondeletia speciosa* major.

Four stove and greenhouse plants.—1st, Mr. Wills; 2d, Mr. Marshall.

FINE-FOLIAGE PLANTS.

1st honours for six went to Mr. Lock, who in a nice half dozen had a good example of *Alocasia Tibautiana*; 2d, Mr. Wills.

FERNs.

Exotic Ferns.—Here again Mr. Lock was 1st, with medium-growing varieties, amongst which were well-managed examples of *Davallia Tyermanni*, *Gleichenia rupestris*, and *Adiantum trapeziforme*; 2d, Mr. Lewis.

Hardy Ferns were well shown, Mr. Lock taking 1st, with twelve fresh, well-grown plants; 2d, Mr. Wills.

LILIES

were shown in nice condition, Mr. Marshall taking 1st with the white and spotted varieties of *L. speciosum*; 2d, Mr. F. W. Newton, Taunton.

LYCOPODIUMS.

These also were present in beautiful order, Mr. Lock taking 1st, and Mr. F. W. Newton 2d.

ACHIMENES

were better done than we often see them, Mr. Marshall being 1st for four, with *Mauve Perfection*, *St. Margaret*, *Dazzle*, and *Ambrose Verschaffelt*; 2d, Mr. Parish, gr. to Mrs. Eden, Taunton.

BEGONIAS.

Here, as in the open class, these were well shown; Mr. W. B. Hellard taking 1st, and Mr. Woodland 2d.

GLOXINIAs

were in excellent condition, Mr. Cooper, gr. to C. L. Collard, Esq., being 1st with erect flowered varieties; 2d, Mr. Lock.

ZONAL PELARGONIUMS.

In the class for six Mr. Woodland had 1st, with beautifully bloomed plants; 2d, Mr. Hellard.

Double zonals.—1st, Mr. Hellard; 2d, Mr. Woodland.

CUT FLOWERS.

Roses were in good condition, taking into account the advanced season.

Forty-eight varieties, single blooms.—Mr. Mattock was well in front, putting up a clean lot of flowers; 2d, Mr. Campbell, gr. to S. P. Budd, Esq.

Twenty-four varieties, three blooms of each.—1st, Mr. Campbell; 2d Messrs. Cooling, Bath. Mr. Mattock would have been 1st in this class also but for the unfortunate mistake of staging two sets of *Alfred Colomb*; mistake it clearly was, as both trees were labelled correctly. An extra prize was awarded to the stand.

Twenty-four Dahlias.—Messrs. Keynes & Co., Salisbury, scored 1st honours, staging splendid flowers, conspicuous amongst which were *William Bainbridge*, *Joseph Ashley*, *Harry Keith*, *Spitfire* and *Defiance*; the last named is a seedling, a medium sized flower of beautiful form, the colour is a peculiar shade of scarlet; 2d, Mr. Nation, Taunton.

Twelve Dahlias.—1st, Messrs. Keynes, again showing beautiful flowers; 2d, Mr. Nation.

Twelve fancy Dahlias.—1st, Messrs. Keynes; 2d, Mr. Nation.

Twelve single Dahlias.—1st, Mr. Mattock, with a very good dozen, very distinct in colour; 2d, Messrs. Keynes.

Twenty-four Hollyhocks.—1st, Mr. W. Smith, Bristol, with better flowers than we have been in the habit of seeing for some time.

Twelve Hollyhocks.—1st, Mr. Smith; 2d, Mr. Jones, gr. to J. S. Pope, Esq., Bath.

Twenty-four German Asters.—These were very well shown, Mr. Jones taking 1st, with a beautiful stand; 2d, Messrs. Cooling.

Twenty-four French Asters.—1st, Mr. Jones, here also staging a good lot of blooms; 2d, Messrs. Cooling.

Twenty-four Gladioli.—1st, Mr. Godding; 2d, Mr. S. Tottle.

Twelve varieties of stove and greenhouse flowers.—Here Mr. Lock took 1st, with an excellent stand.

TABLE ARRANGEMENTS.

Of a dinner-table arranged in the usual style Miss Cypher was the only exhibitor, and took 1st; Miss Cypher likewise had a well-merited 1st for a stand of flowers, Mrs. E. Blake, Taunton, being 2d.

FRUIT.—COLLECTION OF TEN KINDS.

Fruit was present in quantity, and mostly in good condition. Mr. Iggulden, gr. to the Earl of Cork, Frome, was well in front, showing good examples of Black Hamburgh and Foster's Seedling Grapes, Barrington Peaches, Lord Napier Nectarines, Moor Park Apicots, Brown Turkey Figs, a Smooth Cayenne Pine, Black Tartarian Cherries, Jargonelle Pears, and a Melon; 2d, Mr. Ward, gr. to the Earl of Radnor, Longford Castle, Salisbury, who also had a good collection; 3d, Mr. Crossman, gr. to J. Brutton, Esq.

Eight dishes.—1st, Mr. Lloyd, gr. to V. Stuckey, Esq., who, amongst others, had Foster's Seedling Grapes, good bunches, finely coloured; Oldenburg

Nectarines, Violette Hâtive Peaches, Moor Park Apicots, and a Melon; 2d, Mr. Crossman, whose best dishes were Waterloo Peaches, Madresfield Court Grapes, and Pittaston Orange Nectarines.

Four dishes.—1st, Mrs. Walker, who had Madresfield Court Grapes, Grosse Mignonne Peaches, Elvage Nectarines, and Read's Hybrid Melon, all in nice condition; 2d, Mr. Iggulden, his best examples being Muscat of Alexandria Grapes and Grosse Mignonne Peaches.

Two Pine-apples.—1st, Mr. Brooks, Dillington Park, Ilminster, who showed a pair of Queens; 2d, Mr. Iggulden.

Three bunches of Black Hamburgh Grapes.—1st, Mr. Iggulden, with well-coloured examples a little thin of bloom; 2d, Mr. W. K. Wait, Bristol.

Three bunches of Black Grapes, not Hamburgh.—1st, Mrs. Walker, who had Madresfield Court—nice bunches and good berries, just a shade short of colour; 2d, Mr. Crossman, with Black Alicante.

Three bunches of Muscats.—1st, Mr. Ward, with Muscat of Alexandria; 2d, Mr. W. K. Wait.

Three bunches of white Grapes, not Muscats.—1st, Mr. Westcott, with Duke of Buccleuch—handsome bunches, in beautiful condition; 2d, Mr. Lloyd, who staged good examples of *Black Seedling*.

One Melon.—1st, Mr. T. Pault.

Dish of Peaches.—1st, Mrs. Walker.

Dish of Nectarines.—1st, Mrs. Walker.

Dish of Apicots.—1st, Mr. F. W. Newton.

CERTIFICATES.

Mr. Lock was awarded a First-class Certificate for *Croton Cleavei*, a distinct and very handsome variety; the leaves are much like *C. Disraeli* in shape, but quite three-fourths of the entire surface is bright yellow, the leaf-stalks are deep crimson; altogether it is a very fine kind.

Messrs. Kelway received a First-class Certificate for new *Gladioli* *Gabinus*, a full-sized flower, ground colour pale peach blossom, shaded with pink; *Lady Salisbury*, a fine shaped flower, ground colour white, barred and shaded with crimson, a conspicuous white throat; *Dr. Farrant*, white centre, outer portion of petals shaded with bright crimson.

Messrs. R. Velech, Exeter, staged, not for competition, a good collection of miscellaneous flowering and fine-leaved stove, greenhouse, and other plants, including Orchids.

Messrs. Kelway contributed, not for competition, a very fine dish of *Gladioli*.

NATIONAL GOOSEBERRY SHOW, OLD TRAFFORD: August 2.

We append a list of the exhibitors and the weight of the various fruits shown on this occasion. The meeting took place in the Botanical Gardens, Old Trafford, Manchester:—

DISHES OF TWELVE BERRIES: RED VARIETIES.

Exhibitor.	Name of Berry.
1st, John Knowles	Lord Derby
2d, James Threlfall	Bobby
3d, James Harvey	Speedwell
4th, James Salisbury	Dr. Woolley
5th, John Boot	Seedling, Colliers Lane

YELLOW.

1st, E. Salisbury	Ringer
2d, James Harvey	Lady Haughton
3d, James Salisbury	Levellor
4th, James Bower	Garibaldi
5th, Daniel Bower	High Sheriff

GREEN.

1st, F. Cliff	Surprise
2d, James Salisbury	Stockwell
3d, George Beckett	British Oak
4th, James Threlfall	Telegraph
5th, John Boot	Shiner

WHITE.

1st, E. Salisbury	Careless
2d, J. Salisbury	Antagonist
3d, George Beckett	Princess Royal
4th, James Bower	Hero of the Nile
5th, James Threlfall	Transparent

TWINS (TWO ON ONE STEM).

John Knowles .. Red ..	Lord Derby ..	Dwt. Gr.
James Salisbury .. Yellow ..	Thatcher ..	39 19
John Fisher .. Green ..	Shiner ..	41 10
William Riley .. White ..	Antagonist ..	35 13
		36 0

SINGLE FRUITS.—PREMIER PRIZES.

John Knowles .. Red ..	Lord Derby ..	26 15
E. Salisbury .. Yellow ..	Ringer ..	27 22
G. Beckett .. Green ..	Shiner ..	32 12
F. Cliff .. White ..	Antagonist ..	33 20

STEWARDS' PRIZES.

J. Salisbury .. Red ..	Dr. Woolley ..	25 9
J. Harvey .. Yellow ..	Garibaldi ..	23 14
R. Downes .. Green ..	British Oak ..	23 10
John Torkington .. White ..	Princess Royal ..	23 10
Alfred Tomkinson .. Red ..	London ..	24 9
James Threlfall .. Yellow ..	Monarch Pleasants ..	22 19
John Fisher .. Green ..	Surprise ..	21 19
Robert Parker .. White ..	Postman ..	22 21
B. Cheadle .. Red ..	Bobby ..	22 19
Charles Leicester .. Yellow ..	Lady Haughton ..	20 20
James Warburton .. Green ..	Seedling, Bendigo ..	21 2
W. Riley .. White ..	Overton ..	21 15
John Boot .. Red ..	Colliers Lane ..	22 5
S. Birchenall .. Green ..	Flunder ..	20 14

CLASS PRIZES:—RED.

E. Salisbury	Blucher	25	15
E. Salisbury	Lord Derby	25	6
E. Salisbury	London	24	16
A. Tomkinson	Rover	24	6
J. Salisbury	Robby	23	15
F. Beck	Macaroni	22	16
J. Boot	Seedling, Colles Lane	22	3
J. Knowles	Dr. Woolley	22	2
J. Knowles	Rough One	22	1
W. Riley	Ekander Bey	21	9
J. Fisher	Rough Red	21	6
C. Leicester	Falstaff	21	6

YELLOW.

E. Salisbury	Thatcher	26	4
R. Whitehurst	King	26	2
E. Salisbury	Leveller	24	6
J. Knowles	Lady Haughton	22	18
F. Beck	Gairdall	22	17
J. Threlfall	High Sheriff	22	4
J. Threlfall	Hit or Miss	22	3
J. Harvey	Wakful	22	2
J. Bower	Mount Pleasant	22	0
A. Tomkinson	Drill	19	12
J. Fisher	Favonius	19	10
J. Harvey	Catherina	19	2

GREEN.

J. Threlfall	Stockwell	22	0
W. Riley	Stinner	21	12
E. Salisbury	British Oak	21	6
E. Salisbury	Hoopool	21	22
F. Beck	Surprise	21	5
J. Boot	Italy	20	15
E. Clifton	Sir George Brown	19	9
E. Clifton	Green London	19	9
J. Threlfall	Telegraph	19	1
B. Bradley	Feeding	19	0
J. Harvey	Soutar Johnny	17	17

WHITE.

R. Whitehurst	Antagonist	23	16
E. Salisbury	Princess Royal	23	14
R. Whitehurst	Calceol	23	0
J. Salisbury	Hero of the Nile	22	0
J. Threlfall	Transparent	20	13
G. Beckett	Fascination	20	8
J. Salisbury	Faithful	20	0
W. Riley	King of Trumps	19	1
J. Harvey	Postman	18	21
J. Threlfall	Success	18	20
J. Bower	Peto	17	8
S. Birchenall	Miss Chesters	17	6

James Leicester, Crompton Road Nurseries, Macclesfield, Secretary.

YEOVIL HORTICULTURAL.

THE annual show of this Society was held on Tuesday last, the 17th inst., in unfavourable weather, and under dispiriting circumstances. Last year a little over £100 was taken as gate money, and there was an adverse balance of about £21. It is feared this year that instead of "making up," and "wiping off," the gate money will show a falling-off equal to last year's deficit. This is to be regretted, for the show was very creditable, and a number of influential persons sent contributions from a distance; the Earl of Cork sending fruit from Marston, and Mr. Binsley Sheridan sending from Frampton, in Dorset. Messrs. Keynes sent Dahlias, and Mr. Drax, of the West Park, a variety of garden products. Cellagers sent especially well grown vegetables, avoiding monstrous size Potatoes, showing a preference for Reading Russets.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, AUGUST 18, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DE- DUCTIONS FROM GLAISHER'S TABLES 7th Edition.		WIND.	RAINFALL.
	Mean Reading 3rd Fath.	Departure from 19 years.	Highest.	Lowest.	Range.	Mean for Day.	Mean from Average of 59 years.	Dew Point.		
Aug. 12.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
13.	30.40	+0.01	66.8	50.3	16.5	59.4	59.4	77	S.W.	0.00
14.	30.40	-0.36	68.0	50.1	17.9	60.5	59.7	81	S.W.	0.13
15.	30.70	-0.01	63.1	53.5	9.6	58.3	59.1	78	N.W.	0.00
16.	30.05	+0.18	71.0	55.0	16.0	63.0	59.5	78	S.W.	0.00
17.	30.72	-0.06	66.0	50.0	16.0	58.1	59.1	77	W.S.W.	0.09
18.	30.82	+0.01	64.5	51.4	13.1	57.4	58.7	68	W.S.W.	0.02
19.	30.04	+0.24	63.5	51.4	12.1	57.7	59.1	78	N.W.	0.00
Mean	30.78	0.00	65.5	52.4	13.1	59.0	59.0	76	N.W.	0.22

Aug. 12.—Fine day, frequently dull; fine night.

13.—Rain early in morning and a little before noon, dull till after 5 P.M., then fine.

14.—Very dull till 2 P.M.; fine afternoon, sun shining.

Aug. 15.—A very fine day throughout.

16.—Rain early in morning, a fine day afterwards, but generally dull.

17.—Fine; a slight shower in morning, dull generally.

18.—Fine day, but very little sunshine; maximum temperature took place late in the afternoon; fine night.

LONDON: Atmospheric Pressure.—During the week ending August 14, the reading of the barometer at the level of the sea increased from 29.97 inches at the beginning of the week, to 30.05 inches by 9 A.M. on the 8th, decreased to 29.66 inches by 1 P.M. on the 10th, increased to 30.06 inches by the morning of the 12th, decreased to 29.53 inches by 1 P.M. on the 13th, and was 30.00 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.89 inches, being 0.07 inch lower than last week, and 0.05 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 75° 5' on the 8th; on the 10th the highest was 63°. The mean of the seven high day temperatures was 67° 3'.

The lowest temperatures in the week was 46° 5' on the 12th; on the 8th the lowest was 62° 4'. The mean of the seven low night temperatures was 54° 6'.

The greatest range of temperature in one day was 20° 3' on the 12th; the smallest was 9° 0' on the 10th. The mean of the seven daily ranges was 12° 7'.

The mean daily temperatures were 67° 6' on the 8th; 64° 7' on the 9th; 59° 1' on the 10th; 56° 9' on the 11th; 56° 3' on the 12th; 61° 6' on the 13th; and 58° 1' on the 14th. These were all below their averages, with the exception of 8th and 9th, which were 5° 6' and 2° 6' above, by 3° 0', 5° 3', 5° 9', 0° 6', and 3° 9' respectively.

The mean temperature of the week was 60° 7', being 0° 3' higher than last week, and 1° 7' below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 126° 0' on the 9th. The mean of the seven readings was 115° 4'.

Rain fell on 4 days to the amount of 0.64 inch.

ENGLAND: Temperature.—During the week ending August 14, the highest temperatures were 76° 2 at Bradford, 75° 8 at Cambridge, and 75° 5 at Blackheath; the highest at Newcastle was 67°, at Liverpool 67° 8, and at Bristol 68° 8. The general mean was 71° 8.

The lowest temperatures were 43° at Wolverhampton, 45° 3 at Cambridge, and 46° 5 at Blackheath; the lowest at Preston was 52°, at Liverpool 50° 8, at Bradford, Leeds, and Newcastle 50°. The general mean was 48° 3.

The greatest ranges were at Cambridge 30° 5, at Blackheath 29°, and at Wolverhampton 28°; the least ranges were 17° at Liverpool and Newcastle, 17° 5 at Preston. The general mean was 23° 5.

The mean of the seven high day temperatures was highest at Cambridge 70° 5, at Brighton 69° 7, and at Truro 68° 1; and lowest at Newcastle 63° 5, at Liverpool 65°, and at Sunderland 65° 2. The general mean was 66° 7.

The mean of the seven low night temperatures was highest at Blackheath, 55° 4, at Truro 55° 3, and at Brighton 55° 2; and was lowest at Wolverhampton 49° 1, at Cambridge 52° 1, at Nottingham and Sunderland 52° 5. The general mean was 53° 3.

The mean daily range was greatest at Cambridge, 18° 4, at Wolverhampton 17° 2, and at Nottingham 14° 6; and was least at Newcastle 10° 2, at Bradford 11° 7, at Blackheath and Liverpool, 11° 9. The general mean was 13° 4.

The mean temperature was highest at Blackheath, 60° 9, at Brighton 60° 7, and at Truro 60° 0; and was lowest at Wolverhampton 56° 0, at Newcastle 56° 7, and at Sunderland 55° 2. The general mean was 58° 4.

Rain.—The largest rain fall was 1.93 inch at Nottingham, 1.55 inch at Bristol, 1.22 inch at Truro and Sheffield. The smallest fall was 0.17 inch at Sunderland, 0.36 inch at Newcastle, and 0.50 inch at Preston. The general mean fall was 0.88 inch.

SCOTLAND: Temperature.—During the week ending August 14, the highest temperature was 69° 0 at Perth, the highest at Greenock was 64° 0. The general mean was 66° 9.

The lowest temperature in the week was 41° 5 at Perth; at Leith the lowest was 47° 6. The general mean was 45° 4.

The mean temperature was highest at Paisley, 57° 6; and lowest at Aberdeen 55° 4. The general mean was 56° 5.

Rain.—The largest fall was 0.97 inch at Glasgow, and the smallest fall was 0.45 inch at Dundee. The general mean fall was 0.63 inch.

JAMES GLAISHER, F.R.S.

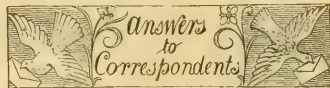
SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, August 16, 1886, issued by the Meteorological Office, 116, Victoria Street, London, S.W.:—The weather has again been cool, changeable, and showery, with heavy thunderstorms over England on the 13th.

The temperature has been uniformly low for the time of year, the deficit from the mean varying from 1° in "England, N.E.," "England, S.," and the Channel Islands, to 3° in "Scotland, N.," "England, E.," and "Ireland, N." Over Scotland and the greater part of Ireland the daily maxima have been continuously below 70°, but over England the thermometer on the 15th and 16th rose to 73° in "England, S.W.," 74° in "England, E.," and the Midland Counties, and 75° in "England, S." The lowest readings which were recorded on different dates in the various districts, ranged from 35° in "Scotland, N." (at Wick) to 45° in "England, S.," and 54° in the "Channel Islands."

The rainfall has been a little less than the mean in "Scotland, E.," and about equal to it in "England, S.," but more in all other districts, the excess being greatest in "Ireland, S."

Bright sunshine.—In Ireland and the southern parts of England bright sunshine has been far more prevalent than it was last week, but elsewhere the values have been lower. The percentages of the possible amount of duration have ranged from 21 in "Scotland, W." to 41 in "England, E.," 43 in "England, S.," and 55 in the "Channel Islands."

Depressions observed.—During this period the highest pressures have been usually found over Spain and France, while three depressions of importance have appeared on our coasts. The first of these was formed over the English Channel on the night of the 9th, and occasioned a good deal of rain over our south-eastern counties. During the ensuing forty-eight hours the system gradually became deeper, and travelled first in a north-easterly direction to Denemark, and finally in a north-north-westerly direction across Norway to the Atlantic. The second disturbance—one of diminishing intensity—advanced slowly to our west coasts on the 12th, and subsequently moved outwards across Ireland and England to the North Sea and the Baltic, where it apparently dispersed. As the system appeared fresh southerly gales and heavy rain were felt on many parts of our western coasts, while its progress across England was attended by thunderstorms. The third depression appeared to the north-westward of our islands on the 15th, and subsequently moved eastward across the north of Scotland. On our western coasts strong winds or gales from south, veering to west and north-west, were experienced, but in the east conditions were not materially affected.



* * OUR TELEGRAPHIC ADDRESS.—Our correspondents are requested to bear in mind that our Registered Telegraphic Address is "GARDENERS' CHRONICLE, LONDON." Telegrams (but not letters) thus addressed will reach the Editor or the Publisher without other address being needed.

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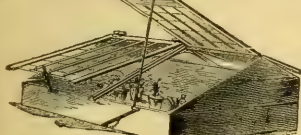
Colonial and Indian Exhibition, 1886.

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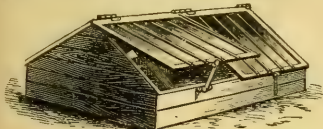
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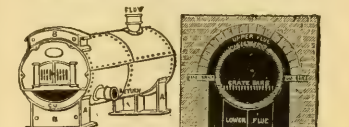
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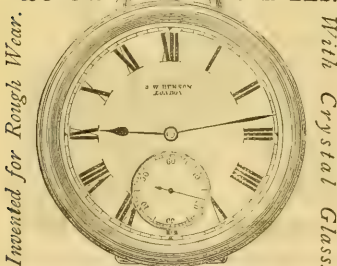
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NEW SOUTH WALES ADVERTISER.

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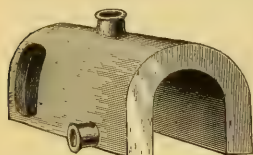
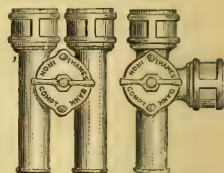
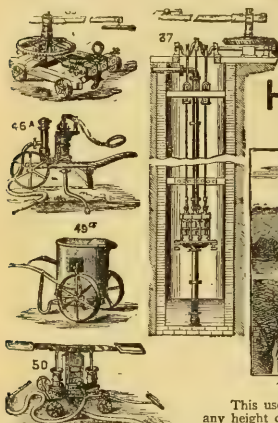
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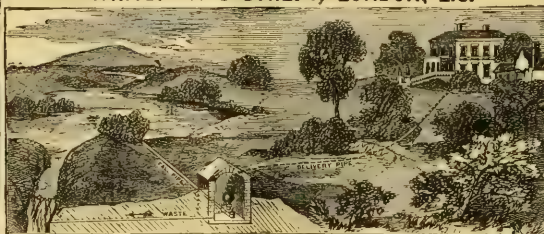
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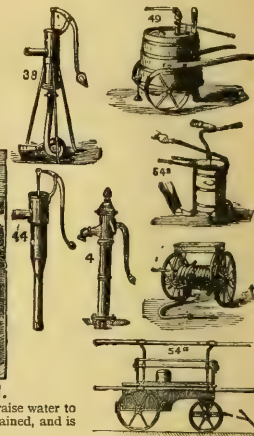
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commencing _____, for which I enclose P.O.O. _____.

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G. C.
Aug. 21, 1886.

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SCOTCH SUBSCRIBERS TO THE GARDENERS' CHRONICLE
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GARDENERS' CHRONICLE OFFICE TELEGRAMS.

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CRYSTAL PALACE ANNUAL FLOWER EXHIBITION and GRAND NATIONAL DILIA SHOW, SEPTEMBER 3 and 4.
Schedules on application to **Mr. W. G. HEAD, Garden Superintendent, Crystal Palace.**

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY.
The AUTUMN FLOWER SHOW will be held within St. Andrew's Halls, Granville Street, Glasgow, on **WEDNESDAY, September 8.** Prize Schedules and Tickets of Admission to be had from the Treasurer, Mr. Glas, Macdonald Williamson, 194, West George Street, any of the Directors, or at my office here. Member's Ticket, 2s. 6d. each.

FRANC GIBB DOUGALL, Secretary.
167, Canning Street, Glasgow.

NATIONAL CHRYSANTHEMUM SOCIETY. Royal Aquarium, Westminster, S.W.
GRAND EXHIBITION OF DARIEN GLADIOLI, Early CHRYSANTHEMUMS, &c., THURSDAY and FRIDAY, September 2 and 3. Schedules for on application to

FRampton Park Nursery, Hockley, E.
Revised Official "**CHRYSANTHEMUM CATALOGUE,**" now ready, 6d. per Copy.

Accidents of Daily Life Insured against by the RAILWAY PASSENGERS' ASSURANCE COMPANY (Established 1849), 64, Cornhill, London.
Capital £1,000,000. Income £246,000.

Compensation paid for 112,000 Accidents, £2,215,000.
Chairman, **HARVEY M. FARQUHAR, Esq.**
Apply to the Clerks at the Railway Stations, the Local Agents, or West-End Office—8, Grand Hotel Buildings, W.C.; or at the Head Office—4, Cornhill, London, E.C.

WILLIAM J. VIAN, Secretary.

OUR SPECIAL LIST OF ORCHIDS, No. 81, with NEW CATTLEYS, NEW EPIDENDRUMS, &c., is now published.
NEW PLANT and BULB COMPANY, Colchester.

CLEMATIS JACKMANNI ALBA (new).—Strong flowering Plants (4 feet bise), of this free-blooming "White Jackmann," now ready, 3s. each, 30s. per dozen. Choice varieties of CLEMATIS, in pots, 1s. 6d., 2s., to 2s. 6d. each. The usual allowance to the Trade.
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ROSES IN POTS.—Her Majesty, the Bennett Rose, and all the best new English and Foreign varieties. All the choicest well tried sorts, in pots, 15s. to 35s. per dozen. Descriptive LIST free on application.
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

NARCISSEUS.—All the best varieties for cutting and for every description of forcing Bulbs. See my Special Trade offer, which may be had upon application.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

JOHN DOWNIE (of the late firm of DOWNIE & LAIRD), 744, Princes Street, Edinburgh, has now issued his **BULB CATALOGUE**, which will be sent Gratis and Post-free on application.
TELEGRAPHIC ADDRESS—"DOWNIE," EDINBURGH.

CAMELLIA STOCKS, fit for immediate working, 15s. per 100, packed free for cash.
E. COOLING, Derby.

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First Quality Only.
CATALOGUES may be obtained from **H. VAN DEN HAAG, 110, Newington Green Road, N.** I have never had better Bulbs, and have been able to use them three years running.—*The Earl of Tankerville's Gardener.*

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Strong healthy plants, in 4-inch pots, each, 5s. and 7s. 6d.; 6 for 2s. and 3s. 6d.
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(Corypha australis, Latania borbonica, Cocos palmasa, &c.)
J. BAGG, Haswell Nursery, Middlesex.

LOVEL'S STRAWBERRY RUNNERS.—Strong, healthy, and well-rooted, from leading varieties. LIST on application.
Sample of Plants, post-free, 3d.
W. LOVELL and SON, Strawberry Growers, Driffield.

STRAWBERRIES.—A Descriptive CATALOGUE forwarded post-free on application.
THOS RIVERS and SON, Nurseries, Sawbridgeworth, Herts.

Strawberry Plants.
JOHN FRASER, of The Nurseries, Lea Bridge Road, Leyton, begs to announce that his Annual Descriptive LIST of Strawberry Plants, with instructions for culture and other important information, is now ready, and may be had on application.

W. UNWIN, FRUIT SALESMAN, has REMOVED to Larger Premises in the Market, and is open to RECEIVE CONSIGNMENTS of PEACHES, GRAPES, and TOMATOS in any quantity.
Address "**PLACIAS,**" Covent Garden Market, W.C.

SQUELCH and BARNHAM, North Kent, Cove Garden, London, W.C., REQUIRE any quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatoes, Cucumbers, choice Flowers, &c.

SQUELCH and BARNHAM, giving personal attention to all consignments, they are thus enabled to obtain the HIGHEST MARKET PRICE.

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Floral Commission Agency.
A. HILL and CO, 52, Hart Street, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity. A. H. & Co., giving personal attention to all consignments, are thus enabled to obtain the highest market prices. All Cheques forwarded weekly. Bankers and good Trade references. Boxes and Labels supplied.

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WILL GEORGE FOSTER kindly Write to **Mrs. JOHN MOWER** as soon as he sees this?

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Clapton Nurseries, London, E.

Dutch and other Bulbs.
CHARLES TURNER'S CATALOGUE is now ready.
The first consignment is to hand, in excellent condition. **THE NEW ROSE, FRUIT TREE, and CONIFERÆ CATALOGUE** is in the Press.
The Royal Nurseries, Slough.

Ferns—Ferns—Ferns.
H. B. MAY now offers an immense stock of these, consisting of all the most useful varieties for ornamental pots, or for growing on; 15s. per 100, cash with order.
Dyson's Lane Nursery, Upper Edmonton.

DOUBLE SOUTH AFRICAN TUBER ROSE BULBS.—First importation this season, and "second to none" ever sent from Natal. Send for quotations, to the Growers' Agents—
PERCY J. POOL and CO., 4, Bishopsgate Street, E.C.
See illustration of our Plantation in this journal of July 10.

Hyacinths, Tulips, Crocus, Lilies, &c.
C. G. VAN TUBERGEN, Jun., Haarlem, Holland.—Wholesale CATALOGUE now ready, and may be had free on application to **Messrs. R. SILBERRA and SON, 25, Savage Gardens, Crutched Friars, London, E.C.**

Roses—Roses—Roses.
THE LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, have a large and fine stock of TEA and other ROSES in all the leading varieties; also a fine stock of **MARÉCHAL MACMahon, GLOIRE DE DIJON**, and other CLIMBING ROSES in pots. Circular with prices on application.
The Vineyard and Nurseries, Garston, Liverpool.

To the Trade Only.
E. H. KRELAGE and SON, Haarlem, Holland, have just Published their Wholesale CATALOGUE for the Season 1886-87 (5th year, No. 385a), of Dutch Flower Roots and Miscellaneous Bulbous and Tuberous rooted Plants.

The Catalogue was sent to all the Correspondents of the establishment who have a right to it, and will be sent as well on prepaid application to Nurserymen, Seedsmen, and Florists only.

KENTIA SEEDS.—For prices of fresh imported Seeds of Kentia belmoreana, Fosteriana, and Canterburyana, write to **H. DAMMANN, Jun., Breslau, Germany.**

BEGONIAS.—From Laing's splendid strain. A few dozen double and single, splendid Plants, in 5 and 6 inch p-ts. Mu't be sold. Each dozen will include six or more distinct varieties.
GARDENER, Ashley House, Ashley Road, Bristol.

BOX EDGING.—For Sale, 1000 yards, of strong growth. Apply to **S. LANDRY, Whiteford Gardens, near Cullington, Cornwall.**

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—Latania borbonica, Seafartha elegans, and Phoenix reclinata, seedlings, 12 inches high, 4s. per doz.; 25s. per 100. Latania borbonica, Seafartha elegans, Arecia lutescens, Euterpe edulis, Phoenix reclinata, and Corypha australis, 20 inches high, 12s. per dozen; less quantity, 12s. 3d. each. Packages and Parcels post-free, with order. A few large Feathery PALMS cheap, to clear.
GARDENER, Holly Lodge, Stam'ord Hill, London, N.

EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become to inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.—**RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.**

To the Trade.
WAITE, NASH and CO. have Posted their Wholesale CATALOGUE of BULBS to all their Customers; if not received, another Copy will be sent on application.
79, Southwark Street, London, S.E.
TELEGRAPH ADDRESS—"WAITE," LONDON."

There is but one
CLEMATIS, WHITE JACKMANNI, and Charles Noble is its Raiser.
The Raiser supplies 2-yr. and 3-yr. old plants at 3s. each. All the finer old kinds at 1s. to 2s. each.
SPIRÆA PALMATA—the finest forcing clusters in the world, and the largest stock.
CHARLES NOBLE, Bagehot.

Camellias, Azaleas, Rhododendrons, Palms, Orchids, &c. Plants grown specially for English use.
C. VUYLSTEKE NURSERYMAN, Locochry, Ghent, Belgium.
Wholesale CATALOGUE now ready, and may be had free on application to **Messrs. R. SILBERRA and SON, 25, Savage Gardens, Crutched Friars, London, E.C.**

SALES BY AUCTION.

Every MONDAY, THURSDAY, and SATURDAY.
GREAT UNRESERVED SALES.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Chesham, E.C., every MONDAY, THURSDAY, and SATURDAY, at half past 12 o'clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other BULBS from Holland, of excellent quality, and lotter to suit the Trade and Private Buyers.

On view morning of Sale, and Catalogues had.

Tuesday Next.

ORCHIDS IN FLOWER.—SPECIAL SALE

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION at their Central Sale Rooms, 67 and 68, Chesham, E.C., on TUESDAY, September 24, at half past 12 o'clock precisely, ORCHIDS in flower, from various collections, including—
Odontoglossum biconvex albidum, very rare, spike of thirty-six flowers.
Pseuderacra grand spotted variety.
" var. virellum rubellum.
Corymbus Massangensis, grand plant, sixteen large bulbs, and six ill waver-spikes.
CATTLEYS, ONCIDIUMS, ODONTOGLOSSUMS, in variety, &c.

On view morning of Sale, and Catalogues had.

Maidenhead.

TUBEROSE BEGONIAS, a fine collection of single and double named varieties and Seedlings, in 12 to 48-pots, chiefly Owen's, and other strains for the growth of Mr. Owen is so well known, having taken many Certificates of Merit; also new CHRYSANTHEMUMS for 1887, and numerous other GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS will sell the above by AUCTION, on the Premises, the Floral Nurseries, Castle Hill, Maidenhead (fifteen minutes' walk from the station), on THURSDAY, September 24, at 12 o'clock precisely, by order of Mr. Robert Owen.

On view the day prior to Sale. Catalogues had on the Premises; and of the Auctioneers, 67 and 68, Chesham, London, E.C.

Friday Next.

IMPORTED ORCHID, comprising, Odontoglossum Alexandræ, Cattleya gigas, C. Sandersonia, C. speciosissima, C. Skinneri, in extra masses; Odontidium Papilio majus, and Odontoglossum grandifolium, each for decorative purposes, and Messrs. Shuttleworth, Garder & Co.; also a few plants of the true AERIDES GODEFROYA, and a few KESTAB LISHED ORCHIDS from a private collection.

MESSRS. PROTHEROE AND MORRIS will sell the above by AUCTION, at their Central Sale Rooms, 67 and 68, Chesham, E.C., on FRIDAY NEXT, September 3, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Ewell.

By order of the executor of the late Mrs. R. C. Price.
MESSRS. PROTHEROE AND MORRIS are instructed to sell by AUCTION, on the Premises, Parkside, Ewell, Surrey, on MONDAY, September 6, at 12 o'clock precisely, the whole of the well-grown STOVE and GREENHOUSE PLANTS, many fit for decorative purposes, and successfully shown at the local shows, including fine Crotons, large Palms, Eucharis, Maidenhair, and other Ferns, a few Orchids, including the fine Pochiniana, and a few roses, Begonias, Chrysanthemums, small GREENHOUSE, garden FRAMES, and UTENSILS, garden ROLLER for pony, POLYTER, and numerous Plants, and other effects, to be sold by the Auctioneers, 67 and 68, Chesham, E.C.

On view morning of Sale, and Catalogues had.

Buckhurst Hill, near the Station.

IMPORTANT SALE OF FLOWER-GROWERS.
MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. R. South, to sell by AUCTION on the Premises, The Nursery, Queens Road, Buckhurst Hill, on TUESDAY, September 7, at 2 o'clock precisely, 150 specimen EUPHURAS AMAZONICA, very fine plants in pots. No 8 and 12 pots, 30 specimen CAMELLIAS, 6 to 8 feet, principally double whites, large white AZALEAS, 300 well furnished Maidenhair FERNS, in 32 and 48 pots, and other PLANTS.

May now be viewed. Catalogues may be had on the premises, or of the Auctioneers, 67 and 68, Chesham, E.C. and Leytonstone.

Chelsea, S.W.

CLEARANCE SALE of unusually well grown STOVE and GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed to sell by AUCTION, on the Premises, The Nursery, Brompton Road, Chelsea (about a mile from Chelsea Station), on WEDNESDAY, September 8, at 12 o'clock precisely, without reserve, the whole of the beautifully grown STOVE and DECORATIVE PLANTS, a large portion of which are admirably fitted for furnishing comprising: Palms in variety; two Araucaria excelsa, 14 feet; large Eucharis fides, magnificent specimen; Aspidistra, one grand plant, measuring 12 feet; two Maidenhair FERNS, 800 Azaleas, 1000 green Eucalyptus, 10,000 flower-pots, and various other items.

On view two days prior to Sale. Catalogues may be had on the Premises, or of the Auctioneers, 67 and 68, Chesham, E.C.

Chigwell.

IMPORTANT TO CUT FLOWER GROWERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. J. W. Steele & Co., to sell by AUCTION, on the Premises, The Exotic Nursery, Chigwell, on THURSDAY, September 10, at 12 o'clock precisely, a large quantity of well-grown STOVE and GREENHOUSE PLANTS, including 14 grand specimen Stephanotis, large named plants, about 1000 plants in 12 inch pots, 300 Roses, all finely grown in large pots; 600 named Chrysanthemums, specimen Azaleas, 80 Eucharis grandifolia, 600 Bouvardias, best sorts, in variety, &c.; also 30 head of POLYTER.

On view two days prior to Sale. Catalogues may be had on the Premises, principal local Inns, and of the Auctioneers, 67 and 68, Chesham, E.C. and Leytonstone.

Lee, Kent, S.E.

GREAT ANNUAL TRADE SALE to commence punctually at 10 o'clock, in consequence of the large number of plants to be sold, and the necessity of commencing early.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. B. Maller & Sons to sell by AUCTION, on the Premises, the Burnt Ash Lane Nurseries, Lee, S.E., adjoining the Railway Station, on TUESDAY, September 14, at 11 o'clock punctually, without reserve, 45,000 WINTER-BLOOMING HEATHS, beautifully grown and remarkably well set with bloom-buds, including 15,000 Erica hyemalis, 10,000 Erica carnea, quantities of Melastoma, Pseuderacra, Persicaria erecta, Cavendishii, and other best kinds; also a large quantity of small Erica hyemalis for growing on; 8000 SOLANUM CAPSICATUM, usually well berried; 6000 BOUARDIAS, including Lemnec's New Doubles; 2000 GENISTAS, very fine; 1000 CYCLAMEN PERSICUM; 2000 ADIANTUM CUNEATUM; 2000 LOMARIA GIBBA, true, compact variety, and other FERNS; 500 EPACRIS, well grown; a quantity of extra strong Marchal Niel and other Tea ROSES; one English Garden, the King of the Niles, GREVILLEA ROBUSTA, PALMS, FICUS ELASTICA, GREENHOUSE PASSIFLORAS, POINSETTIAS, AMPELOPSIS VITICOLA, and other plants; 1000 ARAUCARIA EXCELSA, CUNILABOTIS, and other stock.

May now be viewed. Catalogues may be had on the Premises, or of the Auctioneers and Valuers, 67 and 68, Chesham, E.C.

N.B.—Messrs. P. & M. desire to call the attention of intending Purchasers to the stock to be offered as above. The Plants are remarkably well-grown, fit for immediate sale, and the whole will be found in an equally good condition as in former years.

Siderup, Kent, S.E.

GREAT ANNUAL TRADE SALE of Winter-flowering HEATHS and other PLANTS, forming one of the largest collections ever submitted to the Public. The stock of Heaths is unrivalled (without doubt the finest lot ever offered by Messrs. Gregory & Evans), the plants being particularly well grown, and beautifully set with flower, and well worthy of an inspection by intending purchasers.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Gregory & Evans to sell by AUCTION, on the Longlands Nursery, Siderup (ten minutes' walk from Pope Street Station, South-Eastern Railway), on FRIDAY, September 27, at 11 o'clock precisely (there being upwards of 100,000 plants in the stock of untried well-grown WINTER-BLOOMING HEATHS and other PLANTS, including—

20,000 Erica hyemalis, well	10,000 Cytisus racemosa
2,000 Erica carnea	2,000 Tea Roses, splendid
4,000 Erica gracilis	3,000 Solanums
1,000 melastoma	2,000 Adiantum cuneatum
2,000 Pseuderacra coccinea	

Erica persica erecta, E. Wilmoreana.

Thousands of small HEATHS for growing on, &c.

Further particulars will appear next week. The stock now on view Catalogues may be had on the Premises, or of the Auctioneers, 67 and 68, Chesham, London, E.C., and Leytonstone.

Preliminary.

The Cranston Nursery and Seed Company, Limited. In Liquidation. The King's Acre Nursery, Hereford.

EXTENSIVE CLEARANCE SALE of the whole of the remarkably well-grown NURSERY STOCK, extending over 120 acres of ground, and which is now in splendid condition, particularly the Fruit Trees.

Important to Noblemen, Gentlemen, and the Trade contemplating planting during the coming season.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Liquidator to sell by AUCTION, on the Premises, as above, on OCTOBER 4, and four following days. An inspection is invited of the beautifully grown stock; and to convey an idea of the magnitude of the business to be transacted, we give—

60,000 FRUIT TREES, Standard, Dwarf-trained, and Pyramids.
130,000 CRANBERRIES AND GOOSEBERRIES.
500,000 FOREST TREES.
70,000 CHERRY AND APPLE STOCKS.
100,000 SEEDLING ASH AND OAK.
200,000 BIRCH.
15,000 LAURELS, 400 AUCUBAS, 400 English YEWs, thousands of CONIFERS, &c.

Further particulars will appear in due course.

Preliminary Notice of Forthcoming Sales

OF NURSERY STOCK.

Important to Gentlemen and the Trade intending to Plant during the coming Season.

MESSRS. PROTHEROE AND MORRIS beg to announce that they have fixed the following Sales—

OCTOBER 4 to 8, at CRANSTON'S NURSERIES, King's Acre, Hereford, by order of the Liquidator of the Cranston Nursery, Hereford.
OCTOBER 9, at the UPPER TOOTING PARK NURSERY, Upper Tooting Park, S.W., by order of Mr. C. Young.

OCTOBER 13 and 14, at the ELVASTON NURSERIES, Borrowash, Derby, by order of Messrs. Barron & Son.

OCTOBER 17 and 18.—Two Days' Sale at the AMERICAN NURSERIES, Leytonstone.

OCTOBER 19, at the NURSERIES, Kilburn, by order of Mr. J. B. Gough.

OCTOBER 20 and 21, at the NURSERIES, Brixton, by order of Messrs. Ponsford & Son.

NOVEMBER 1, at the NURSERIES, Groombridge, by order of Mr. E. Holmby.

NOVEMBER 4, at the BOWER and LING NURSERIES, by order of Messrs. Frost & Son.

Other Sales are an course of being fixed, and will be announced in future Advertisements.

Central Auction Rooms and Estate Offices, 67 and 68, Chesham, E.C.

Catalogues—Important Notice.

MESSRS. PROTHEROE AND MORRIS have compiled permanent Lists of those to whom their Catalogues are forwarded regularly, which enables them to bring before the notice of probable Buyers all classes of Sales.

Persons wishing to have their names entered on these Lists are requested to forward their full Addresses with a note of their particular requirements, when Catalogues will be posted free of charge.

Central Auction Rooms and Estate Offices, 67 and 68, Chesham, E.C.

Great Horticultural Sale Week.

ANNUAL TRADE SALE of WINTER-FLOWERING HEATHS and GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS respectfully give notice that they have arranged these Annual Sales to take place as follows—

TUESDAY, September 14, at the BURNT ASH LANE NURSERIES, LEE, by order of Messrs. B. Maller & Sons.

WEDNESDAY, September 15, at the LEA RIDGE NURSERIES, LEYTON, by order of Mr. John Fraser.

THURSDAY, September 16, at the BRUNSWICK NURSERY, TOTENHAM, by order of Mr. John Maller.

FRIDAY, September 17, at the LONGLANDS NURSERY, SIDCUP, by order of Messrs. Gregory & Evans.

SATURDAY, September 18, at the DYSON'S LANE NURSERY, EDMONTON, by order of Mr. H. E. May.

Catalogues may be had, when ready, of the Auctioneers and Valuers, 67 and 68, Chesham, E.C., and Leytonstone.

Bulbs—Bulbs.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, first-class Bulbs from Holland, lotter to suit all Buyers.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7108).

STOVE and GREENHOUSE PLANTS.

MR. J. C. STEVENS will include in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, September 7, 200 fine pots of EUPHURAS AMAZONICA, 100 ADIANTUM CUNEATUM, AZALEAS, AMARYLLIS, and other plants, and other STOVE and GREENHOUSE PLANTS in variety.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7200).

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, September 2, at half past 12 o'clock precisely, by order of Mr. F. Sander, an importation of the curious and beautiful EUPHURAS AMAZONICA, the new C. FORTMEYER, DENDROBIUM HETEROCARPUM, the rare Ceylon variety; CYPRIPEDEUM STONEI (fine lot), C. HOOKER, C. SPECIES, a very beautiful yellow and spotted variety; also fine lot of the lovely SACCOLABUM COELESTE, SPECIES (new), ONCIDIUM SARCODES, and many other Choice and Valuable ORCHIDS.

On view morning of Sale, and Catalogues had.

Thursday Next (Sale No. 7209).

ORCHIDS, STOVE PLANTS, &c.

MR. J. C. STEVENS will include in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, September 2, twenty-five strong plants of CATTLEYA VELUTINA, fine pieces of C. BICOLOR, ONCIDIUM VARIOSUM ROGERI, C. CRISPUM, and other fine ORCHIDS. Also specimen ERICAS in flower, COCOS MEDDELLIANA, ARAUCARIAS, and other STOVE PLANTS, &c.

On view morning of Sale, and Catalogues had.

Orchids in Flower.

MR. J. C. STEVENS begs to announce that his NEXT SALE of ORCHIDS in FLOWER will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, September 3, and he will be glad if gentlemen desirous of ENTERING PLANTS for this SALE will please send particulars of same as soon as possible.

Choice Orchids (upwards of 300 Plants) and the extensive COLLECTION of VALUABLE STOVE and GREENHOUSE PLANTS, and other effects, formed by the late T. B. CUTTS, Esq.

MR. THOS. NEALE is favoured with instructions to sell by AUCTION at Malvern House, Mapperton Road, Nottingham, on FRIDAY, September 1 and 3, the above valuable COLLECTION of Plants.

Catalogues are now ready, and may be had, gratis, on application, by post, to the Auctioneer, Whaler Gate, Nottingham.

Palace Gardens, Armagh.

IMPORTANT SALE by PUBLIC AUCTION of CHOICE STOVE and GREENHOUSE PLANTS, LAWN MOWER, &c.

MR. M. A. BELL has been favoured with instructions from G. D. Beresford, Esq., to sell by PUBLIC AUCTION, at the Palace Gardens, Armagh, on MONDAY, September 6, at 12 o'clock noon, an immense collection of choice STOVE and GREENHOUSE PLANTS, including—Azaleas, Dracenas and Crotons in variety, Hibiscus, Amaryllis, Gloxinias, Begonias, Hoyas, Camellias, Centaurea, Joleys, Coleus, Rhododendron chitatum, Geraniums, Bouvardias, Camellias, Citrus, Double White Primulas, Cinerarias, Orchids, Ferns in variety, Palms, and many other Ferns, and other Plants to numerous to mention.

Entrance by Dobbin Street Gate. Terms—Cash, and purchasers to pay Auctioneer's fees.

M. A. BELL, Auctioneer, Armagh.—August, 1886.

To Nurserymen, Gardeners, &c.

TO BE DISPOSED OF, owing to death of Proprietor, a good and increasing BUSINESS, consisting of Lease of Premises, Glasshouse, Stock and Plant, with good private connection.—MR. E. DAY, 1, Connaught Road, Hove, Brighton.

Little Frobscott, South Hants.

3½ miles from Farnham Road Station.

To MARKET GARDENERS, FLORISTS, FRUIT GROWERS, and OTHERS.

TO LET, with immediate possession, solely in consequence of the death of the Manager, 20 VINEYARDS, GREENHOUSES, ORCHARD, CUCUMBER, and TOMATO HOUSES, covering about 1½ acre. The Houses are heated by 3 Boilers, and work on the most economical principle. The Vineyard is on Lot 14 acres of LAND, of the finest quality, partly planted with Orchard Trees, now in full bearing. There is a good Manager's House, and a Cottage for the Gardener, and a fine view of the best in England for the growth of Fruit, Roses, Cut Flowers, or for Market Garden purposes. The whole of the plant and soil may be taken or sold at a valuation.

Further particulars may be had of C. B. SMITH and GOLDSMITH, Farnham and Portsea, Hants.

To Nurserymen, Fruit Growers, &c.

FOR SALE, situate in the Parliamentary Borough of Bristol, a large and well appointed BUSINESS PREMISES, well stocked and in full working order, comprising nearly 20 Acres of Freehold Land, it has free and full tax returned, with all Minerals, which include large and valuable beds of Pennant Stone with Coal underlying. The House, built six years ago, is large and convenient: on ground floor, entrance hall, drawing-room 27 feet by 16 feet, dining-room, 18 feet by 16 feet, breakfast-room, two kitchens; larder, china pantry, and offices; on first floor, five bedrooms and large bathroom, 14 feet by 16 feet, and a large wardrobe and library. The Glasshouses are two ornamental Ferneries, opening from drawing-room, large Camellia-house, two Vineries, each 55 feet by 16 feet, Rose-house, 16 feet by 16 feet; Fernery, 64 feet by 11 feet; Cucumber-house, 64 feet by 14 feet; range of three Potting-houses, 120 feet long; Stove, Propagating-house, Tomato-house, range of Firs, &c., with several hundred hand-glasses. The whole is heated by two large boilers, and from 3000 to 4000 feet of hot-water pipes.

The other buildings consist of two nearly new Cottages, stabling for three horses, potting sheds, Mushroom-house, 64 feet by 15 feet; range of lofts used as fruit-rooms, &c., about 150 feet long; sheds, &c. The Working Stone is too large and varied to put in an advertisement, and includes many thousand Standard, Pyramid, and Bush Fruit Trees; of Pears alone there are over 1000 standard and pyramidal trees of the choicest and best kinds; also large numbers of Cherry, Apple, and Plum trees of the best cropping sorts.

The greater part of the fruit trees have been planted nearly twenty years, are in full bearing, and the crop of fruit is very heavy and valuable.

Photographs of houses, &c., with fuller particulars, or to view, apply to GEO. HARDING, The Grove, Fishponds, Bristol.

To Gentlemen, Nurserymen, Farmers, Builders, AND OTHERS.

TO BE SOLD (in consequence of the owner retiring from business) by Private Treaty, as a going concern, **THE HOLLY NURSERY**, Bold, near Warrington, established almost a century; comprising a handsome newly-erected Brick and Stone built Double-fronted Dwelling-house, with three entertaining Rooms, entrance Hall, Staircase, five Bedrooms, large Kitchen and Scullery with Nursery over, four Cellars and Out-offices, standing on an elevated site with tastefully laid out Walks and Ornamental Grounds and Shrubberies.

THE NURSERY LAND, containing about 22 acres, is well stocked with thousands of choice Flowering Shrubs and Evergreens, including Gold, Silver, Hodgkins, and other fine Hollies, from 1 to 14 feet high; Forest, Fruit, and Ornamental Trees, Roses, Thorns, Privet, &c. There are three strong Green-houses, Propagating, and Loose Light, &c.

THE FARMSTEAD consists of above 18 acres of rich arable land, with or without the growing crops thereon, together with detached Dwelling-house, with two sitting and five Bedrooms, Ornamental and Kitchen Gardens, Ranges of extensive Out-buildings, Shippings, Stabling, newly erected Cast-ash of large size, and other Offices; also six well tenanted Cottages with the appliances thereto.

The whole comprises about 40 a. r. 36 p. of well drained FREEHOLD LAND, in full heart, in a ring fence, with frontages at least half a mile, to the two main roads from Liverpool, St. Helens, and Warrington. Situate one mile from the Farnworth and the Clock-face Stations on the London and North-Western Railway, and 4½ miles from Warrington; it is well situated for a Public Pleasure Garden.

A view and all particulars may be had from the proprietor, Mr. JOHN STEAD, on the Premises, also from Messrs. ROBERT DAVIES, SHARP, and KIRKCONNELL, Solicitors, Warrington; or from Messrs. ARTINGSTALL and HIND, Auctioneers, Manchester.

To Landed Proprietors, &c.

A. MCINTYRE (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELING existing GARDENS. Plans prepared. 115, Listeria Park, Stamford Hill, N.

LILIES OF THE VALLEY.

FORCING CROWNS, i.e., 3-yr. old strong flowering Crowns, of my well-known large flowering variety. Prices per 1000, 10,000, or 20,000 on application.

PLANTING CROWNS, i.e., young Plants for growing on for forcing, the true large flowering variety, acclimatised, and which will be fit for forcing two years after planting. I have long since proved that Lilies of the Valley can be successfully grown in England, and in many cases excel those from Germany. I recommend every one who requires crowns for forcing to grow them himself. A Pamphlet, "How to Grow Lilies of the Valley Successfully," will be sent free with every order amounting to 10s. and upwards. Delivery from November to April. Price 10s. per 1000, including postage. Cash only. No order without remittance will be acknowledged.

T. JANNOK, Lily of the Valley Nursery, Dersingham, King's Lynn, Norfolk.

LARGE FLOWER ROOTS

JAMES VEITCH & SONS

BEG TO ANNOUNCE THEY HAVE RECEIVED THEIR ANNUAL SUPPLY OF

HYACINTHS, NARCISSUS, TULIPS, and other BULBOUS ROOTS;

and are pleased to say that they are in exceptionally fine condition.

BULB CATALOGUE FOR 1886

Has now been Posted to all our Customers; any one not having received the same, a Duplicate Copy will immediately be forwarded Post-free on application.

ROYAL EXHIBIT NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

CARTERS' EARLY BULBS

FOR FORCING.

To produce Beautiful White and Coloured Flowers for Christmas Decoration.

CARTERS' Earliest White Roman HYACINTHS.

The Largest Bulbs of the Year

We do not keep a Second Size.

Per 100, 16s.; per dozen, 1s. 6d.

CARTERS' Double Roman NARCISSUS.

Per 100, 10s. 6d.; per dozen, 1s. 6d.

CARTERS' Paper-white NARCISSUS.

Per 100, 11s. 6d.; per dozen, 1s. 6d.

CARTERS' Red and Yellow VAN THOL TULIPS.

Per 100, 4s. 3d.; per dozen, 8d.

CARTERS' Extra Large SNOWDROPS.

Per 100, 13s.; per dozen, 6d.

ALL PARCELS CARRIAGE FREE.

Carters

237, 238, High Holborn, London, W.C.

For Sale.

THIRTY THOUSAND GENISTAS,

in thumbs, good plants for shifting to 48s., at 13s. per 100; 12s. 6d. per 100 for cases and packing; for Cash only.

Post-office Orders payable at Leyton Green.

T. BALDWIN and SON, Edith Nursery, Burchell Road, Leyton.

Come and See

IT IS NOW ADMITTED, not only by thousands in the United Kingdom who make their annual visit, but by hundreds of foreign customers and friends, that the "HOME OF FLOWERS" affords much the most glowing and interesting floral sight in the world. It should be distinctly understood that we write our own announcements, and do not pay others to trumpet forth our productions, neither are tickets necessary to see and verify our statements. It must also be known that we do not put imaginary constructions and value on the perfectness of our collections. We have all the newest and best oldest varieties collected from all sources, irrespective of cost, for comparison, consequently we have the very best evidence and material for knowing and obtaining valuable improvements.

Just at this moment our BEGONIAS, GLOXINIAS, ZONAL PELARGONIUMS, VERBENAS, DAHLIAS, EARLY FLOWERING CHRYSANTHEMUMS, and other various families are in the zenith of their perfection, and excel anything ever before seen in this country. Again, without seeing it one would scarcely believe that we have a DOUBLE VERBENA (Defiance B-9), or credit that mortal hands could produce a plant perfectly intermediate between a very tall and a very dwarf variety, with parentage equally proportionate; but here it is, and what is supposed to be the greatest stride, surprise, and victory ever achieved in cross-breeding.

We are proud to receive all lovers of flowers, and many on the termination of their inspection say, "The intensity of colour is too much and too dazzling for the eye;" others remark, "Your flowers are wonderful, and I must certainly repeat the visit."

All who have not perused our CATALOGUE are specially requested to send us their address.

H. CANNELL & SONS,

The Home of Flowers,

SWANLEY, KENT.

Bulbs for

Early Forcing.

FIRST CONSIGNMENTS OF

ROMAN HYACINTHS, DOUBLE ROMAN and PAPER-WHITE NARCISSUS, to hand. Finest quality and in splendid condition.

Early Orders solicited.

Complete CATALOGUE of DUTCH FLOWERING BULBS

Gratis and Post-free on application.

F. & A. DICKSON & SONS,

The Queen's Seedsmen, Chester.

STRAWBERRY PLANTS, for Forcing and

Planting.—The Best Varieties, the Best Plants, and the Cheapest in the Market.

Apply R. GILBERT, High Park, Stamford.

CARNATION "PRIDE OF PENSURST."

—The most beautiful yellow (First-class Certificate Royal Horticultural Society). Vigorous grower, perpetual bloomer, suitable for either pot culture or borders, perfectly hardy, forces well. Healthy, well rooted plants, established in pots, of this lovely variety, 12s. per dozen; sample plant post-free for fifteen penny stamps.

F. WEBBER, Quarry Hill Nursery, Tondridge, Kent.

Free Carnations and Ferns.

H. B. MAY invites visitors to London to inspect his unrivalled stock of the above. Silver Street and Angel Road Stations, G. E. Railway, are within a few minutes' walk of the premises.

Dyson's Lane Nursery, Upper Edmonton.

Grape Vines

THE LIVERPOOL HORTICULTURAL

CO. (John Cowan), Limited, have this season a splendid stock of GRAPE VINES, clean, robust, and healthy. Interesting purchasers are requested to come and see them during the growing season. Planting Canes, 5s. and 7s. 6d. each; Fruiting Canes, 10s. 6d. and 12s. 6d. each.

The Vineyard, Garsdon, Liverpool.

Fertis critica Mayil.

H. B. MAY is now offering the above, which is one of the greatest novelties of the season. The Plant is dwarf and compact in habit; the fronds beautifully branched and crested; and the variegation very distinct. It is one of the most lovely FERNS ever offered. Has been awarded First-class Certificates by the Royal Horticultural and Royal Botanic Societies.

Well furnished Ferns, in 48s., 7s. 6d. each.

Usual Discount to the Trade.

Dyson's Lane Nursery, Upper Edmonton Middlesex.

STRAWBERRY PLANTS.

The Three Best Sorts.

RESIDENT. We have established, in small

SIR JEREMY PAXTON, 10s. 7s. 6d. per 100, 45s. per 1000.

VICOMTESSE H. DE THURY, per 1000; or of pots,

Cash. Extra plants for carriage. Package free. Specially

prepared for forcing or planting out. Sure to produce heavy

crops next year.

H. J. HARDY, Stour Valley Seed Grounds, Bures, Suffolk.

DUTCH BULBS.

DIRECT FROM THE GROWERS.

ANT. ROOZEN and SON, NURSERYMEN,

Overveen, near Haarlem, Holland.

Intending purchasers of DUTCH BULBS are invited to read ANT. ROOZEN & SON'S CATALOGUE for 1886, and see the large saving effected by DEALING DIRECT WITH THE GROWER. The Catalogue, containing details of their immense Collections of New, Rare, and Fine Dutch Bulbs and Plants, and also particulars as to FREE DELIVERY, will be sent, POST-FREE, on application to them, or to their Agents, MERTENS and CO., 3, Cross Lane, St. Mary-at-Hill, London, E.C.

B. MALLER and SONS beg to offer to the

Trade a very large and unusually well-grown stock of ERICAS (Hymenals and other varieties), EPACRIS, SOLANUMS, GENISTAS, CYCLAMEN, BOUVARDIAS, ADIANTUM, CUNILA and Plants, and also particulars as to FREE DELIVERY, will be sent, POST-FREE, on application to them, or to their Agents, MERTENS and CO., 3, Cross Lane, St. Mary-at-Hill, London, E.C.

The ANNUAL SALE by AUCTION will be held on

TUESDAY, September 14.

Burnt Ash Lane Nurseries, Lee, S. E.

IMPORTANT ANNOUNCEMENT.

WILLIAM & GEORGE STEWART

(Senior Partners of the Firm of JOHN STEWART & SONS),

NURSERYMEN, SEEDSMEN, and FLORISTS,

DUNDEE and BROUGHTY FERRY,

Will Conduct the Business on their own Account

after Martinmas First.

The Business will be carried on under their own Persons

Superintendence, along with Competent Assistants in All Departments; and they hope to be favoured with a Continuance of the

Patronage so long bestowed upon them.

AFRICAN TUBEROSES,

AND LILIIUM HARRISII,

Grown by WM. RISLEY, Maritzburg, Natal.

THE TRADE and GROWERS

are hereby informed that the reports of this season's growth are of the most hopeful description. The Bulbs promise to be superior to any hitherto offered in the market.

Orders are now being booked freely for delivery in AUGUST and SEPTEMBER, and Buyers are advised to make an early application. Quotations very low.—Terms—net cash. For prices and full particulars apply to

WM. G. MAC GREGOR,

17, Fenchurch Street, E.C.

The *Daily Telegraph* of August 20, 1886, in a Leading Article, states:—"Tomato growers in the Channel Islands seem in a fair way of making fortunes. There is no doubt the time is near when the market will be as well supplied with Tomatoes all the year round as Cucumbers."

THE GUERNSEY AND JERSEY FRUIT AND PRODUCE COMPANY, LIMITED.

Registered under the Joint Stock Companies' Acts, 1862 to 1883, whereby the liability of the Shareholders is limited to the amount of their Shares.

CAPITAL £20,000, IN 4,000 SHARES OF £5 EACH.

First Issue of £15,000 (3,000 Shares) without premium, a number of which have been already taken up privately.
Payable £2 10s. on Allotment, and it is not intended at present to call up more than £2 10s. per Share.

LONDON BANKERS—CAPITAL and COUNTIES BANK, Head Office and Jersey.
GUERNSEY BANKERS—COMMERCIAL BANKING COMPANY, High Street.
LONDON OFFICE—4, Tokenhouse Buildings, Bank of England. **GUERNSEY OFFICE—Glasshouses and Vineries, Courtil de Jacques.**
MANAGER—HENRY DE JERSEY. **SECRETARY—EDWARD OXENFORD PRESTON.**

THE GUERNSEY AND JERSEY FRUIT AND PRODUCE COMPANY (LIMITED) has been established for the purpose of Growing Fruit and the Produce generally of the Channel Islands, and also for Receiving such Produce from Growers and Supplying the same direct to Consumers and Retail Establishments. The Trade has hitherto been almost entirely in the hands of private growers, except two local companies which have paid their shareholders from 12 to 20 per cent. dividends, and is well known to be of a most profitable character.

The Directors with confidence recommend the operations of this Company, for which there is a fine opportunity, as an unusually safe and remunerative investment—safe, because nearly the whole of the Company's capital is being invested in first-class land in Guernsey, and Glasshouses for the Cultivation of Grapes, Melons, Tomatoes, Beans, and other Choice Fruits, which are supplied from the Channel Islands into England.

The property of the Company will increase in value with the growth of the Vines.

As showing the Profits derived from dealing in Fruit and Garden Produce of the Channel Islands, the Directors are informed one of the two Companies in Guernsey has paid its Shareholders dividends at the following rates:—

1880, 10 per cent.

1881, 11 " }

1882, 9½ " }

1883, 15 " }

1884, 20 " }

Extensive building operations took place during these years.

The only other Vinery Company which commenced operations recently has paid its Shareholders 12 per cent.

Applications for Shares, stating number required, can be made to the Secretary of the Guernsey and Jersey Fruit and Produce Company, 4, Tokenhouse Buildings, Bank of England, London, E.C.; or to the Company's Bankers. Prospectuses and any information desired will be supplied on application.

Upon a fair estimate, the Directors anticipate a dividend of at least 10 to 12 per cent. on the year's sales.

The Sales of Tomatoes from one house only, for the week ending August 7, amounted to a quarter of a ton. The Directors have erected on the Company's Estate, to secure the coming winter crops, which prove very remunerative, the following:—

One	200 feet House.	Six	200 feet House.	One	180 feet House.
Two	ditto.	Seven	ditto.	Two	ditto.
Three	ditto.	Eight	ditto.	Three	ditto.
Four	ditto.	Nine	ditto.	Four	ditto.
Five	ditto.	Ten	ditto.	Large Vinery, 45 feet wide.	

Total, fourteen long Span Glasshouses and large Vinery, making a total of about 50,000 square feet of Glass.

The *Horticultural Times*, June 20, refers to the Company as follows:—

"The development of Market Gardening in the Channel Islands has often been dealt with by us, and we are glad to learn that efforts are being made to still further prove what, under high culture, the land will produce. The Guernsey and Jersey Fruit and Produce Company is a striking example of this. Incorporated only last February—when its estate did not contain a single glasshouse—it has now 50,000 square feet of glass erected! Having as local manager one of the most successful growers in Guernsey, with economical management, half the capital only called up, and nearly the whole of capital invested in freehold land and houses, and of progressing value, this venture will, we predict, succeed. It has started in the right spot, under the right management, and is raising the right sort of produce. As we write, we have specimens of the Company's first Tomato consignment before us—grown without heat—and we can vouch for their excellent quality. Colour and size are almost perfect."

GARDENERS' CHRONICLE FORM OF SUBSCRIPTION

FROM _____ TO _____
W. RICHARDS,
41, WELLINGTON STREET, STRAND,
LONDON, W.C.

1886.

Please send me "THE GARDENERS' CHRONICLE" for _____ Months,

commencing _____, for which I enclose P.O.O. _____.

Please Note that all Copies Sent Direct from this Office must be paid for in advance.

THE UNITED KINGDOM:—12 Months, £1 3s. 10d.; 6 Months, 11s. 11d.; 3 Months, 6s.; Post-free.

FOREIGN SUBSCRIPTIONS (excepting India and China):—Including Postage, £1 6s. for Twelve Months. India and China, £1 8s. 2d.

P.O.O. to be made payable at No. 42, DRURY LANE, London, to W. RICHARDS.
Cheques should be crossed "DRUMMOND."

O. C.
Aug. 28, 1886.

WEBBS' BULBS.

FREE BY POST
OR RAIL.

FOR EARLY
FORCING.

ROMAN HYACINTHS.

Early White, selected roots 2s. 6d. per doz.
Ditto 15s. per 100.
Single named Hyacinths 6s. to 12s. per doz.

POLYANTHUS NARCISSUS.

Double Roman 3d. each, 2s. per doz.
Paper White 3d. each, 2s. per doz.

EARLY TULIPS.

Duc Van Thol, single, scarlet & yellow, 1s. per doz., 6s. 10s.
Ditto double ditto 9d. per doz., 5s. 10s.

WEBBS' BULB CATALOGUE,

Beautifully Illustrated, and containing Complete Cultu Instructions, Now ready, Gratis and Post-free.

Seedsman by Royal Warrants to H.M. the Queen and H.R.H. the Prince of Wales,

WORDSLEY, STOURBRIDGE.

SEEDLING PLANTS OF CHOICE FLORISTS' FLOWERS, &c.

We have much pleasure in offering strong, healthy transplanted Seedlings from our inferior strains of the following:—

	Per doz.	Per 100.
CALCEOLARIAS, from choicest flowers only, beautifully tigered and spotted.	1 6	10 6
CARNATIONS and PICOTEES, from stage flowers, will produce 80 per cent. of fine double blooms	1 6	10 6
CARNATIONS, choicest yellow, very fine	2 6	—
CINERARIAS, from a grand strain ..	1 6	10 6
new dwarf, large flowered, fine ..	2 6	12 6
CYCLAMEN, Strong young plants, from single pots, for blooming next season.	—	—
CYCLAMEN PERSICUM ALBUM, pure white, very fine	4 6	30 0
CYCLAMEN PERSICUM, mixed	4 0	25 0
PRIMULA, Crimson King, magnificent ..	2 6	—
"Crimson King, extra strong plants ..	3 6	—
"Daniels' choicest white, fine	1 6	10 6
"Daniels' choicest red, splendid	1 6	10 6
"Daniels' choicest mixed, many beautiful varieties	1 6	10 6
"Daniels' choicest mixed, extra strong plants	3 6	15 0
PANSY, Emperor William, deep ultramarine blue, very fine	1 0	7 6
POLYANTHUS, gold-laced, very choice ..	0 10	8 6
BLUE GUM TREE AUSTRALIA (EUCALYPTUS GLOBULUS), fine for greenhouse or sub-tropical garden. Said to be the most powerful febrifuge known. Fine young plants of this interesting species, 6d. each, 5s. per dozen. Carriage Paid on receipt of Post-office Order.	—	—

DANIELS BROS., Town Close Nurseries, Norwich

EARLY FORCING AND OTHER FLOWERING

BULBS

of finest quality, in endless variety, at moderate prices.

Catalogues gratis and post-free on application.

LITTLE & BALLANTYNE,
THE QUEEN'S SEEDSMEN,
CARLISLE.

BULBS.

Illustrated Priced CATALOGUE of HYACINTHS, TULIPS, and other BULBS, containing the best of everything, and low in price, may be had, Post-free, on application to

WM. PAUL & SON,
PAULS' NURSERIES,
WALTHAM CROSS.

Now Ready.

SEEDSMEN BY ROYAL WARRANTS
To Her Majesty The Queen. To H.R.H. the Prince of Wales.

SUTTON'S AUTUMN CATALOGUE

FOR 1886,

Contains complete Cultural Instructions and Select List of the best kinds of Flower Roots;

ALSO A

HANDSOME COLOURED PLATE,

ILLUSTRATIVE OF

SUTTON'S HYACINTHS,

in full bloom at the Dutch Bulb Farms,

AND

NUMEROUS ENGRAVINGS.

Gratis and Post-free on application.

SUTTON & SONS,
THE QUEEN'S SEEDSMEN,
READING, BERKS.

DUTCH FLOWER ROOTS.

B. S. WILLIAMS,

PURVEYOR THIS YEAR FOR THE SUPPLY OF

HYACINTHS, TULIPS, NARCISSI,
LILIUMS, GLADIOLI, &c.,

REQUIRED BY

Her Majesty's Commissioners of Works

FOR THE

ROYAL PARKS, AND BY THE METROPOLITAN BOARD
OF WORKS FOR THEIR LONDON PARKS,

Begs to announce that he has received his
Annual Importation of

DUTCH and FRENCH BULBS,

Which are unusually large and well ripened
this year.

EARLY ORDERS SOLICITED.

The Illustrated Bulb Catalogue

Has been Posted to all Customers. A Copy of same will be forwarded to any who may not have received one.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

PRIZE COB and other NUT TREES.

Gentlemen desirous of obtaining the true

WEBB'S PRIZE COB FILBERT TREES,

AS ALSO THE

Kentish Cob and other Nut Trees,

should send their Orders as early as convenient to
Mr. COOPER, FRHS. Calcut Gardens, Reading,

of whom alone the various sorts can be obtained.

PRICE LISTS and PAMPHLETS on application.

BERLIN LILY of the VALLEY CROWNS,

STRONG BLOOMING,

OFFERED BY

JOSEPH KLAR,

199, LINIENSTRASSE, BERLIN.

FERNS A SPECIALTY.

AN IMMENSE STOCK, in SPLENDID CONDITION.

ILLUSTRATED CATALOGUE, containing "Hints on Fern
Cultivation," 12.

SMALLER CATALOGUE, of over 1300 species and varieties,
including Descriptive "LIST of NEW, RARE, and
CHOICE FERNS," and "HARDY NORTH AMERICAN FERNS,"
free on application.

W. & J. BIRKENHEAD,
FERN NURSERY, SALE, MANCHESTER.


THE

Gardeners' Chronicle.

SATURDAY, AUGUST 28, 1886.

DENBIES.

IN Manning and Bray's *History of Surrey*, 1804, Denbys or Denbighs is described as having been an ordinary farmhouse, which was purchased, in 1734, by Mr. Jonathan Tyers, the proprietor of Vauxhall Gardens, who improved the place and laid out the grounds. It pleased Mr. Tyers to contrast the gaiety of his public gardens by the exhibition of an entirely different taste at Dorking, and accordingly he planted a wood of 8 acres, and named it Il Penseroso, and in its midst he placed a small temple abounding with serious inscriptions upon the walls, while a clock, concealed from view, rang out a solemn knell at the end of every minute for the purpose of reminding all who heard it of the passage of Time.

Numerous retired walks, adapted for reflection, intersected the wood, and not far from the temple was a building open at the sides, so as to exhibit a statue of Truth pointing to a couple of recumbent figures. And here this very realistic artist reached a climax, for the two figures, large as life, represented a Christian and an unbeliever in their last moments.

When Mr. Joseph Sedley, in *Vanity Fair*, became inebriated at Vauxhall Gardens, and addressed one of the young ladies of the party suddenly as "Diddle, diddle, darling!" everybody took flight and went home, and so at last did the owner of the gardens, Mr. Tyers, who departed this life in 1767, when Denbies was sold to the family of which Lord King was the head, and the grave conceits of Mr. Tyer were done away with. After passing to another owner Denbies was secured in 1787 by the distinguished merchant and banker of London, Mr. Denison, M.P., whose nephew, Lord Londesborough, sold it to Mr. T. Cubitt, the builder of Osborne House, and afterwards of the great house here, which stands conspicuously on a bold chalk promontory of the valley of the Mole, and which is now occupied by his esteemed successor and son, the Right Honourable George Cubitt, Member of Parliament for the Epsom division of Surrey.

It is difficult to describe the scenery which lies spread around this commanding site. Olympus would not have been too grand a name for a hill and house which Jove himself might covet. I have seen a learned German book whose first chapter commences in this way—"Think a wall;" and it then describes a wall. Suppose we think a hill reared many hundred feet above the town of Dorking, and commanding a landscape reaching from the South Downs of Sussex across the Wealden, and over Leith Hill, and northwards into Bucks and Berks, and across Surrey and Middlesex as far as such salient landmarks as the dome of St. Paul's, the towers of Westminster, the Crystal Palace, the Grand Stand at Epsom, the Holloway Institution at Egham, and Windsor Castle. This is Denbies! and on such a site, so high and so exposed to blustering winds coming from the open north, and from Leith

Hill and over that hill by Dorking known as The Glory, you would hardly conceive it possible what snug lawns surround the house, and what fine specimens of tender Conifers and other things adorn them. The memory of benefits passes away, but I suppose the wood which shelters Denbies on the south-west, and encloses the long lawn extending from the terrace under the windows to Ranmore Church, was planted by Mr. Tyers. It is chiefly of Beech, edged with evergreens on the lawn side to break the wind, since Beech woods are often hollow below. A long avenue of Beech passes through the wood—an interesting object, but without the arch which the Lime forms by the interlacing of its branches.

There are specimens on the lawn which could not exist on the bare unplanted chalk hills of Sussex and Surrey, and they are all due to Tyers' Wood, which flanks them on the windy side. I noted among them the following trees, all from 40 feet to 50 feet in height, and all very handsome specimens:—*Cryptomeria japonica*, *Abies cephalonica*, *A. Pinsapo*, *Taxodium sempervirens*, and *Pinus insignis*. There are four of the last-named tender Conifers in one group on the north side of the lawn, near the beautiful and far seen spire of Ranmore Church, and the two outside trees have given their protection to the two inner ones, which are fair and shapely while their nurses have been sadly battered and embrowned by the weather. In exposed situations the protection of trees alone enables other trees to prosper, and many lofty knolls owe their charms chiefly to their planters. The big house at Denbies, for I suppose the name applies to the spot, though the noble mansion is part and parcel of the place, was completed about the year 1852, and much subsequent clothing of the hill with trees and plantations has completed the conversion of what was once a bare down into an exceedingly picturesque park with well sheltered, winding approach roads.

A few great trees are always an ornament around a house, and, thanks to Mr. Tyers or Mr. Denison, several noble Cedars of Lebanon and some great Beeches challenge admiration in the park close to the dwelling. The garden on two sides of the house, looking south and east, is a narrow strip, which must be appropriate in a case where further decoration might seem to desecrate a park whose natural features are hardly capable of improvement.

The ornaments of the lawn cannot all be noticed here. I must forbear to name the different sorts of Rhododendrons, or to describe the fernery, or the herbaceous plants, or the covering of some of the walls, including the house; but I must mention the long stretch of beds in a single row, gorgeous with bedding plants, seen from the conservatory in a long line of purple, white, and gold, and from some of the windows of the drawing-room. The width of the strip of turf which connects the terrace with the lawn lying between the wood and Ranmore Church is not great. It forms, in fact, a wide green passage, with a single line of beds running down the centre. Mr. Beesley, who kindly showed me round the gardens, has arranged the colours of these beds with great taste, and has thus provided in the long line of colour edged with green quite a novel spectacle. The effect, too, is increased by a large bed of *Hydrangea paniculata*, which lies like snow on the turf at the end of the vista.

The forcing and other houses are extensive, consisting of many divisions for Grapes, other fruits, and flowers, and including a long walk through wide corridors planted with flowers, with intersecting houses and vestibules. You may stroll through these corridors and away through Graperies into wide "passages," as they are called here, full of fruit trees, including a wonderful crop of Plums. I have heard of the *Lagerflora* out-of-doors—*L. rosea*

grows here at one end of a passage barely frost-proof, and its quarters must suit it, for the number of its gorgeous blossoms is, as Dominie Sampson would have said, "Prodigious!" A single plant of *L. alba* in a more dignified position among congenial companions, hangs its white and waxen flowers from the roof of a corridor, the number of its blossoms this year being countless—at any rate I made a vain attempt to count them, and broke down at fifty. One or two were double.

The lofty conservatory, entered from the house, and communicating with the corridors, contains many plants of much interest, and some "good old-fashioned sorts." *Tacsonia exoniensis*, a product of cross-breeding (see *Gardeners' Chronicle*, 1872, p. 1653) a South American climber, hangs its carmine blossoms from the roof, looking like what it is—a near relation to the most gorgeous of the *Passiflora* family. *Tacsonia mollissima* is here, too, with pink blossoms, and two sorts of beautiful *Bignonia*s—*B. Chirere*, with scarlet and orange flowers, not unlike *Gloxinias*, hanging aloft, and as large, with *B. grandiflora*. As the wide and handsome corridors are, in fact, conservatories, one need not be particular as to the division in which the few flowers that can be noticed here may happen to grow.

The *Fuchsias*, ranged along one side of the conservatory proper, are very remarkable, and require a building of some height, since the plants are all old bushes 8 and 10 feet high, and if you lift the drooping top branches you will easily get a measurement of 14 feet. All the bushes are loaded with blossoms, and the floral display is so attractive and long-continued that the names of the sorts may be desired. They are *F. Dominicana*, named after its raiser; *F. Souvenir de Chiswick*, *F. Venus de Medici*, *F. corymbiflora*, which is not a hybrid, but an import from Peru, and looks sub-tropical out-of-doors through the summer; *F. triumphans* and *F. Rose de Castille*.

A bank of *Begonias* along the front wall of a corridor is something to linger over, especially when composed of the new sorts, which some one has called "tremendous," and when the annual *Lobelia ramosa* runs along in front with light blue flowers and delicate foliage, a plant never out of place in the front row of the conservatory, where its weeping habit of growth effectually breaks the straight lines of such a position. Among other plants I noted the yellow and scarlet *Brugmansia sanguinea* and others, *Abutilon megapotamicum*, the rosy-flowered *Canna Ehemanni*, which should be planted in every great conservatory for its beautiful flower and leaves, and moved with the sub-tropical garden outdoors in summer. Here I must stop, leaving a number of fine old sorts still unnamed, including all those in the stove. My paper being already long, perhaps I may here slightly alter Sterne in one of his most pathetic stories—"Shall I name them? No." *H. E.*

New Garden Plants.

BULBOPHYLLUM SAUROCEPHALUM, n. sp.*

AMIDST all the *petites horreurs* which the protean Orchids afford this one ranks with uncommon dignity. It combines, as some *Bulbophyllarias* do, the common habit of a *Bulbophyllum* with a curious clavate thick bright red rhachis of the inflorescence, and this is loaded with flowers which make you think of the heads of alligators and similar apaki-

* *Bulbophyllum saurocephalum*, n. sp.—Pseudobulbus tetragonus pentagono conico fusiformis monophyllus; folio strenuo cuneato oblongo acuto; pedunculo in rachia inflorescentie crasso-cylindrico incrassato plurifloro; bracteis triangulis ovatis puberulis transverse-ovarium subaequantibus; ovario puberulo; sepalis impari ligulato; sepalis paribus connatis;

bious quadrupeds. The sepals are light ochre, coloured with brown lines over the chief nerves. The petals are small, white, with reddish midline and borders, lip's base deep purple, blade ochre. Column white, with some purple lines and light ochre wings.

This great curiosity was kindly sent me by my excellent correspondent, Mr. W. Lee, of Downside, Leatherhead, who tells me it comes from the Philippine Islands. *H. G. Rehb. f.*

EPIDENDRUM PRISTES, n. sp.*

A slender plant, with the habit of *Epidendrum ellipticum*, but with larger and very bright flowers. The pedicels are white at the base, cinnabar at the top, sepals lanceolate, petals equal, but serrate on the superior half, all cinnabar; lip trifid, as described in diagnosis, finest yellow with a few cinnabar spots; column clavate, with the borders of the involutal side lacinia, serrate, deepest purple-cinnabar with a green anther.

This fine plant appeared with Mr. W. Lee, who kindly sent twice very good, very fresh inflorescences, and even a plant with roots.

Many of my correspondents may read with surprise, that Mr. W. Lee takes not only care for the best packing, for the freshest flowers, for excellent specimens, and that this gentleman adopts also the excellent custom of having his full name and address written inside of the strong box. It is very uncomfortable to get sendings from unknown senders, and what misunderstandings arise from anonymous packets. And how often do I linger for news, which might have saved me hours. Thus I had a fortnight ago from Frankfort-on-Maine, in Germany, a box with a French address, French remarks to the flowers, but without any name of the sender. It contained very interesting monsters of *Cypripedium Lawrenceanum*, *Odontoglossum crispum*, and typical flowers of *Aërides pallidum*, Blume, with the remark that it was called *Thibautianum* in France. *H. G. Rehb. f.*

CÆLYGYNE FOERSTERMANNI, n. sp.†

This is a gorgeous plant, whose morphological habits would appear to be those of a *lute caricie*, that goes on its own way. The strong rhizome, as thick as a mighty condor's quill, is covered with numerous finally sepia-brown sheaths, and copious roots creep downwards. The old bulbs show the scars of two leaves and traces of an ascending inflorescence. Now one, now two peduncles arise on one or other side of the leafy bulb. And what peduncles are they!—one, 2 feet high, covered with dense sheaths—the flower-bearing part flexuose, with scarios linear acute bracts as long as the stalked ovaries. I have them before me with twenty flowers and their scars. Mr. T. F. Foerstermann tells me he found them with forty flowers! I see in this inflorescence a mimicry of that of *Miltonia flavescens*. And now comes the strangest thing. The peduncle dies away and leaves its base, as it appears quite dead and without any fresh shoot. I have one specimen at hand, that has some sheaths both apart from the inflorescence and the basal sheaths. This would bring the plant into Dr. Lindley's *Prolifera*, though the other specimens denote the group *Erecta*, where it must be placed by the majority of characters. I am informed by Mr. T. F. Foerstermann that the flowers are snow-white with some yellowish-brown on the lip's disc. The dried

multo majoribus; apice excisis omnibus extus velutinis. tepalis triangularibus acuminatis angustis serrulatis; labello basi utrinque angulato; lamina ligulata obtusa; columna apice utrinque alata, ala bifida, lacinia superioris ascendente ligulata retusa, inferiori filiforme. Ex insulis Philippinis advectum dicitur. Acc. ab exc. W. Lee. *H. G. Rehb. f.*

* *Epidendrum pristis*, n. sp.—Amphiglossum schistochila carinatum; gracile, caule (foliis) inflorescentia prope; Epidendri elliptici, Grub.; foliis marginibus minutissime serrulatis; foribus majoribus; sepalis lanceis; tepalis subaequalibus dimidio superioris serratis, labelli lacinia inflorescentia semiovatis inaequaliter serratis, basi involuta; acicula recta, carina flexuosa a basi in discum, pediculis subaequalibus utrinque; androclinis lacinia lateralibus involutis serratis. Coluit vivumque misit exc. W. Lee, Downside, Leatherhead. *H. G. Rehb. f.*

† *Cælygynae Foerstermanni*, n. sp.—(*Erecta*.) Rhizomate validissimo squamoso repente; pseudobulbis crasso cylindricis curvulis pluricaulis diphyllis, foliis petiolatis oblongis anti nervosis rigidis prope sesquipedalibus; pedunculis juxta bulbos evolutis; validis longissimis a basi multi-quantis vaginis dimidiatis quibusdam subinflorescentia elongata; carina flexuosa, folio flexuoso, bracteis diu persistentibus linearilanceis ovaria pedicellata subaequantibus; sepalis tepalibus ligulatis acutis; labello trifido, lacinia lateralibus semiovatis, lacinia mediana minori pericarpa elliptica acuta minute crispis, carinis plicatis a basi pericarpium inter lacinias laterales, lateralibus in crura duo superiorem laciniam medianam antea decurrentibus, carina mediana evanescente; columnis trigonis, androclinis limbo lobato. In Archip. Soudale dextei exc. T. F. Foerstermann. *H. G. Rehb. f.*

flowers are equal to the fresh ones of a very good large flowered *Coelegyne* Cumingi.

I have dedicated this lovely plant of Sondaia origin to its zealous discoverer, Mr. T. F. Foerstermann. I feel persuaded that this lovely inflorescence will constitute a fresh attraction to our Orchids. *H. G. Rehb. f.*

LÆLIA BATERMANIANA, n. hybr. (Hort. Veitch).

[A HYBRID BETWEEN A *CATTLEYA* AND A *SOPHRONITIS*.]

This is a glorious result of the Sedenian skill at the Royal Exotic Nurseries of Messrs. J. Veitch & Sons, being a seedling saved from *Sophrontis grandiflora* and *Cattleya intermedia* five years ago—a lovely gem, a miniature *Lælia*, with the short peduncle of a *Sophrontis*; or you might compare it to such *Lælias* as *L. rupestris*, or a purple *L. albida*. Longest bulb $1\frac{1}{2}$ inch; one with one, another with two leaves; these are $1\frac{1}{2}$ inch long, $\frac{1}{2}$ inch broad. The one-leaved bulb has a short peduncled *Lælia* flower, as already stated, yet the petals are pretty rhombic, like those of *Sophrontis grandiflora*. The sepals are ligulate-acute, the lateral ones slightly recurved; and the petals are of a light purple rose-madder, with the very lightest mauve hue, which appears to get deeper as the flower gets older. Lip trifid; side laciniae long, cuneate-oblong, obtuse-angled; mid-lacinia oblong, blunt, obscurely wavy, of the warmest Dahlia-carmine, with a light mauve hue. This is the *pièce de résistance* on which the gem's fine contrast relies. The side laciniae and disc are white with a light mauve-purple border. Columna trigonal, quite *Lælia*-shaped, with the small dorsal lobe overlapping the anther; white, with a few purple spots at the angles, four of which peep out like eyes, two each side the anther. Pollinia eight, exceedingly thin, one pair much smaller, nearly obsolete. I am very doubtful whether these pollinia will prove fertile.

This plant has been much admired by the connoisseurs, and I feel very pleased to have this graceful document at hand, with a fine sketch of the whole plant prepared by Mr. Page. This novelty offers a wide field for consideration of nomenclature.

Are all hybrids between what we call genera to get intermediate names, as that lovely name of *Phaegeria* of Masters? What do you think of *Catsochia* or *Sophrontidicattleyidium*? I do not propose such names in this case, nor do I believe the cases numerous where they are desirable, as when the plant shows an absolute mixture of the characters of the two genera. We know many hybrids have the floral characters of the one, the foliar characters of the other parent. In such a case you may place them under the genus whose flowers it has.

Our case is much worse. The effect of mixing a *Sophrontis* and a *Cattleya* is a *Lælia*!

Now indeed, if you look to recent publications, there is no character given for *Sophrontis*, and if you would like to do honour to "habit," there are three kinds of habit in the genus. The single character on which I could rely, is the expansion of the stigma (excluding *Sophrontis violacea*), but this is not much. Hence I must reduce *Sophrontis* as *Lælia cernua*, *pterocephalus*, *militaris*, *purpurea*, *grandiflora*, for those who accept changes, and leave alone *Sophrontis violacea* with a remodelled character.

This lovely gem, according to Mr. Harry Veitch's promise that a fine new hybrid should bear the name of our illustrious excellent veteran, Mr. James Bateman, is dedicated to him in due acknowledgement of his having finally made his peace with the hybrids at the London Orchid Conference (see *Gardeners' Chronicle*, 1885, n.s., xliii., May 16, p. 642). *H. G. Rehb. f.*

FRUIT CROPS NEAR TO THE SEA.

THE supposed vitalising and invigorating properties of the dry air of the east coast of England are now being recommended by medical men in preference to the more humid atmosphere of the western shores; and among other reputed health-restoring resorts adjacent to the North Sea, and in close proximity to noble rivers, viz., the Orwell and the Deben, is the fast-improving seaside town of Felixstowe, some 12 miles from Ipswich, and about 5 miles from the seaport of Harwich. It is situated upon a bold acclivity commanding extensive views of the sea, as well as portions of the shores of Essex and Suffolk. The principal line of houses is within a few yards of high-water mark, and the beach extends for some 5 miles without interruption, or from Landguard Point on the south to Bawdsey Ferry on the

north, while on the latter portion of it various fossils, together with amber and cornelian, are frequently found. The walks upon the cliffs are very pretty, and they command extensive views of the sea, and in the distance Walton-on-the-Naze and other objects of interest. But it was the fruit crops in the neighbourhood which attracted my attention, such as that of the Apple, the Pear, and the Plum, which in many localities are this season far from being abundant; but here, in most instances quite near to the sea, are all that could be desired. In a sort of hanging garden, very skillfully formed upon a portion of the cliffs about half-way between the Bath and the Ordnance Hotels, the Apple crop is particularly abundant. This garden extends to within a few yards of high-water mark. It is tastefully laid out in the form of terraces connected with each other by long flights of stone steps, while to the right and to the left are grottos and arbours partially concealed by Ivy and other climbing plants. The fruit trees consist of various varieties of Apples, Pears, Plums, Figs, and the varieties of bush fruit, such as the Gooseberry and the Currant. A lofty wall which intersects the garden from north to south is beautifully clothed with varieties of the Grape Vine. The rods are not trained close to the surface of the wall, but are secured to a framework of iron rods at a distance of some 18 inches from it; but although it presents a very pretty appearance, the aspect being nearly due east, unlike the other varieties of fruits in the garden the Grapes, as a rule, seldom ripen satisfactorily. The varieties of the Apple are mostly grown in the form of espaliers or cordons; the trees are all very healthy, and without an exception every tree bears a full and heavy crop of what has the appearance of becoming fine fruit. Pears and Plums are mostly in the form of standards, and all are growing and bearing freely. The garden appears to have existed for a considerable number of years, to judge by the appearance of the trees, &c. The soil consists chiefly of the crumbling surface of the cliff, but may have been enriched by the addition of surface-soil from other parts, and of better quality; but be that as it may, fruit trees appear to thrive admirably upon it.

The flower gardens attached to the "Bath Hotel" are justly celebrated for their beauty. They are this season very tastefully planted with the finest varieties of bedding plants. Even carpet-bedding is extensively practised, while, as an indication of the mildness of the climate, such tender species as the *Alternanthera amœna*, &c., had well covered the surface of the soil soon after the middle of the month of July. Standard Fig trees here are also bearing an abundant crop of fruit, and they this seldom or never fail to ripen. The pretty foliated *Tamarix* may also be seen in the form of standard trees of considerable dimensions.

A little further to the north is the pretty seaside residence of Felix Cobbold, Esq., until lately one of the members for the county of Suffolk; while on the high cliff, close to the sea, at Bawdsey Ferry, Mr. Quilter, M.P., is erecting a beautiful residence, which, when finished, will form a very remarkable feature in this rapidly improving locality. *P. G.*

SCOTCH NOTES.

THE VISIT OF THE QUEEN TO THE INTERNATIONAL EXHIBITION, EDINBURGH.

ON the 18th inst. the Queen paid a visit in state to the International Exhibition, Edinburgh. The Executive Committee and the exhibitors generally busied themselves energetically for some days previously in special efforts to make everything attractive, and to give Her Majesty a right royal reception; and they succeeded well. The Horticultural Committee distinguished themselves by the excellent taste they displayed in decorating the grand stand, the Queen's statue in the neighbourhood of the principal entrance to the grounds, the terrace in front of the grand hall, the grand hall itself, and all other parts of the buildings through which Her Majesty was to pass. The execution of these decorations was entrusted to Messrs. Thomas Methven & Sons. The materials used were chiefly Tree Ferns, Palms, and other fine-foliage plants, all of which were admirable specimens of their kind. The pedestal of the Queen's statue was ornamented with massive festoons of Oak leaves. The grand stand, an enormous erection, capable of seating over 3000 people, was rendered

gay with festoons of evergreens and floral crowns, the latter of great size, and formed with excellent taste.

The royal retiring-room at the east end of the Exhibition building was entered through a bank of Roses, and the interior of the room was decorated with masses of cut blooms of the same, supplied and set up by Mr. Hugh Dickson, of Belmont Nurseries, Belfast.

Immediately outside the royal retiring-room was situated the exhibit of Messrs. Lamont & Son, Edinburgh, the principal features of which were noticed in our general report of the horticultural exhibits in May. It was now richly adorned with trophies of single Dahlia blooms and *Lilium auratum*, which presented a gorgeous appearance, standing out in relief from the beautiful forms of Conifers and other shrubs which compose the bulk of the two groups. The letters "V.R." were picked out in device with violet and primrose *Viola* blooms on either side of the doorway leading into the Exhibition buildings at this point, and which divide the two groups of plants.

At this point Her Majesty entered her carriage and drove past the fine groups of Messrs. Cunningham, Fraser & Co., and Messrs. Ireland & Thomson. The former of these two groups has been recently wholly renewed, and comprises an interesting and beautiful assortment of choice and rare Conifers, and beautiful samples of *Ivies* trained in elegant style on moss-covered stumps all arranged in a most tasteful manner. Messrs. Ireland & Thomson's exhibit has also been considerably added to and greatly improved. Several noble Palms and Cycads introduced into some of the principal points gave for the occasion quite a tropical aspect to the groups, which was enhanced by the intermixture with the Conifers, *Ficus elastica*, Blue Gum trees, and Sweet Bays, which are ordinarily the chief components of the groups of well coloured plants of variegated Zea, *Palma Christi*, and masses of *Lilium lancifolium rubrum*. Messrs. Little & Ballantyne, Carlisle, added considerably to the interest of their fine group by the introduction of some very highly coloured golden Yews, *Retinospora*, *Cupressus*, and other coloured Conifers, and golden *Hollies*.

Messrs. Cocker & Sons, Aberdeen, had an extensive display of Roses in Messrs. Keith & Co.'s conservatory, which were greatly admired by the thousands of visitors who crowded the Exhibition grounds. The collection, numbering many hundreds of blooms, comprised grand samples of Merveille de Lyon, A. K. Williams, and other favourite H.P. Roses, and a rich assortment of Tea Roses, embracing many varieties, showing that even the more delicate sorts of this favourite class may be successfully cultivated so far north as the Granite City.

On the 19th the Queen again visited the Exhibition for the purpose of making a private inspection of the many points of interest that could not be reached in the limited time that could be devoted to them during the ceremonial visit of the previous day.

It had been arranged that Her Majesty should plant a memorial tree before leaving the grounds on the occasion of her second visit to the Exhibition, but the weather proving unfavourable she delegated the task to the Marquis of Lothian, while she witnessed the operation from her carriage. It was planted about 20 yards nearer the entrance to the grand hall than the one that was planted by Prince Albert Victor when he opened the Exhibition in May. The tree, a Wych Elm, was presented by Messrs. J. Methven & Sons, and had been prepared by them in anticipation in the spring.

MESSRS. LAMONT & SON'S NURSERY, MUSSELBURGH.

THIS nursery is pleasantly situated about 5 miles eastward from Edinburgh, Joppa being the nearest station, access to which may be obtained by over the twenty trains daily from the Waverley terminus of the North British Railway. Much of the nursery ground lies in an extensive and beautiful glen, formerly the site of a considerable coal mine, long since disused. The glen stretches east and west, and a pretty burn or little stream meanders along its bottom. The sunny slopes of the northern side are planted with Strawberries and Potatoes, both of which are grown largely in an experimental way. The cool aspect of the southern side is entirely devoted to Raspberry varieties, of which there are a good many acres, the varieties being chiefly Fastolf and Northumberland and Filibasket. The former is held in highest esteem as a profitable market variety. It gives an enormous crop in a perpetual sort of way during a longer period

than any other sort known; there is no flush at any time, and consequently no glutting of the market, while it continues to bear long after most other kinds are a finished crop. The bottom of the glen is devoted to the culture of Dahlias, Carnations, and other florists' flowers, choice herbaceous perennials, and alpine plants. The upper fields lying north of the glen, and fully exposed to breezes from the Firth of Forth, are stocked with hardy forest trees and choice Conifers, and deciduous ornamental trees and shrubs. There is no attempt at getting up shelter; the stock must protect itself. It is marvellous how well many things do here which in many parts of the country, much more warm and sheltered, prove very disappointing in regard to their hardiness. Abies (Picea) amabilis (true), A. grandis, A. concolor, A. lasiocarpa, all the Retinosporas, and the numerous other ornamental Conifers, not only grow well but assume a depth and purity of colour which is rarely seen in these parts. No doubt this is mainly due to the exceptionally pure atmosphere of the neighbourhood, and of the sharp light soil of which the nursery is chiefly composed, both conducing to the early and perfect ripening of growth in autumn. To the same causes may be ascribed the stocky thrifty appearance of the general stock of transplanted and seedling forest trees which are extensively grown.

Among Strawberries Messrs. Lamont find Marshall MacMahon the most reliable for their sunny slopes and light soil; it stands better than any others in dry seasons. James Veitch, among approved and tried kinds, is also a favourite with them, and ripening a little earlier than the Marshall—good breadths of it are sown for first crops. Among new kinds The Captain promises well to take a favoured place in this district, but experience is not yet large enough to warrant a decided pronouncement in its favour. King of the Earthies is also well thought of, especially as regards its cropping qualities, which are good, and, being unlike Black Prince—to which many liken it—in respect of the duration of its crop, which is continuous for some time—not a flush and done with, as in that variety—it is looked upon as an acquisition to the list of early sorts.

Of choice herbaceous plants there is a very excellent selection, among which we noticed large stocks of *Hepatica triloba*, double blue; *Montbretia Pottii*, *Chieranthus alpinus*, *Delphinium chinense* var. *alba*, double purple Rocket, *Papaver nudicaule*, grown in masses for the Edinburgh flower market, in which it is—especially the yellow form—a great favourite; a fine collection of Iris of the tuberous section of the genus, and many other popular and rare or scarce things.

Single Dahlias are largely grown, and much attention is devoted to the raising of improved varieties. Amongst the varieties not yet sent out are many of very superior merit. Those already in commerce are fully tested with the view of sending out next spring are all of improved form and distinct shades of colour. *Crimson Paragon* is an acquisition in the style of the well known maroon and purple variety of the same name, but with crimson and scarlet shaded flowers; *Jane Wallace*, with beautiful rose-purple flowers, boldly and symmetrically striped with crimson, is a very distinct and constant variety; *Mrs. H. G. Murray Stewart*, lovely bright primrose, edged with rose-pink, is very chaste and pleasing; *White Paragon* is the best white we have yet seen, having neatly formed flowers of about the size of the original *Paragon*, supported on stout stalks that throw them well up to view; *James Cocker*, bright crimson, deeply shaded and lined with denser tints of the same colour; *Duke of Edinburgh*, very perfect in form, and fine crimson lake in colour. These are a few of the more distinct named varieties of the last and present season's introductions, but there are many in hand equally distinct and desirable to be sent out next year.

MUSSELBURGH LEAK.

More than half an acre of land is devoted to the growth of the true variety of this valued Leek for seed. It is a precarious but valuable crop, the bulk of which is raised in this neighbourhood. Every cottager having a little garden grows as much as he can spare room for, but all have not the true variety, which is distinct in many respects from any other sort, but especially so in its exceeding hardiness. No market gardener in the North will grow any other sort if he knows it, but so scarce is the stock of seed of the best sort in some seasons that the high price becomes a temptation to fraud, and the foisting of

spurious sorts on the seed vendors, leading not infrequently to serious loss and vexatious litigation between them and their customers, the market gardeners. The crops look well at the present time around Musselburgh, but as the flowers are only now opening it is too early to forecast what its value may be at the end of the season. Everything depends on the character of the weather during the remainder of the present and throughout next month. X.

EXPERIMENTS ON GRASSES FOR PERMANENT PASTURE.

MR. MARTIN J. SUTTON deserves the thanks of agriculturists for his trials of grasses at his farm at Kidmore, near Reading. The extension of pastures proceeds more rapidly than the knowledge of the comparative value of the cultivated grasses. Productive land capable of producing Meadow Fescue, Fox-tail, and Cocksfoot—three of the best grasses, which in fact suit almost all soils when highly farmed, is monopolised by such unproductive species as Dogstail, merely through the ignorance of farmers and of those obscure seedsmen who supply them with grass seeds. Those who are responsible for such ill-seeded pastures as we have sometimes seen might read a very useful lesson at Kidmore. Among the experiments some are directed to the improvement of an old pasture of inferior fertility by the use of various artificial manures, the results being similar to those at Rothamsted, where nitrogenous manures has been found to increase the yield of grasses, and mineral manures that of leguminous plants. The other experiments were undertaken for the purpose of ascertaining the best mixture of grasses for the formation both of permanent and temporary pastures, for the production of hay, which should not be composed of coarse grasses, and of grazing pastures.

Festuca elatior and *Dactylis glomerata* are both first-rate grasses when grazed, but they are far too coarse for hay. Some advisers who have found these two grasses admirably suited to their own soils and requirements have forgotten that general advice should not be based on a limited and special experience.

The same remark may be made in regard to Ryegrass, which has been depreciated in recent years on account of several alleged deficiencies. It is one of the most useful grasses on well farmed land and, as Dr. Voelcker found on analysis, one of the most nutritious. Yet in these days of rushing indiscreetly into print, it has been asserted that Ryegrass is an annual instead of a perennial, as any grass may be on an inferior soil—that its one year of life is a year too much, owing to its habit of choking its companion grasses and leaving the land barren—and that it ought to be entirely excluded from all mixtures of grass seeds used in forming permanent or temporary pastures. These assertions are strangely inconsistent with the fact that one-third of the bulk of the most productive pastures in Leicestershire consists of Ryegrass, which is always eaten down close, so that it cannot produce seed, and which has nevertheless remained perennial for a hundred years or more. There are no doubt many sorts of Ryegrass, good, bad, and indifferent. According to Sinclair, Russell's Ryegrass, the best variety at Woburn, yielded twice the weight of forage as a named sort bearing a good reputation which he tried against it; and we remember to have seen in Messrs. Sutton's trial grounds at Reading half-a-dozen varieties grown experimentally, side by side, and differing widely in their yield and habit. The trying, testing, and continual comparison at Reading are interesting, and they enable a painstaking and conscientious firm to advise a great many customers in that district differing widely in soil and climate; while it seems to us that those growers who have defamed Ryegrass are only competent to speak for their own land and their own particular circumstances.

Some light land at Kidmore was sown with the approved mixture of grass seeds for a permanent pasture, including Ryegrass, and in the third year the stronger grasses—especially Cocksfoot—have almost entirely replaced it. They were not choked in that fatal first year! But as these grasses do not yield a crop the first year, as the quick Ryegrass does, the latter has proved a profitable addition to the mixture. A good example of the different habit and value of different "strains" of the same variety of grass appears in the trial-grounds this year in the case of *Alopecurus pratensis*, a valuable early grass, particularly productive of aftermath. The whole of the plot was sown at the

same time, but not with the same seed, and one row proved so much earlier than the rest as to be ready for the scythe on May 26^{inst.}, instead of June 11. As the value of this grass is greatly enhanced by its early habit, it is much to be desired that the characteristic we had noticed may be permanent. Probably it will be, by virtue of the same care and attention which have been bestowed on three sorts of *Trifolium incarnatum*, early, medium, and late, that are now available for the lengthened period of six or seven weeks, while the one original sort was useful only for about a fortnight.

As Messrs. Sutton's collection of growing grasses is one of the most complete in the United Kingdom, others besides agriculturists may gather useful hints from its inspection. It recalls to mind the great services which great traders may render to the public, and which we have frequently had to acknowledge in visiting the establishments of famous nurserymen and seedsmen. H. E.

THE SEED GROUND, BEDFORD, FELTHAM.

FEW of our gardening writers have done more to give publicity to the beautiful flowers and products others have raised or produced than has Mr. R. Dean, but few have been more reticent concerning his own things, which are grown at Bedford, or "Bede's Font."

VEGETABLES.

Potatoes are here a great specialty, not grown to produce specially fine tubers, as big samples are not so well suited for seed as are those of more moderate dimensions, but rather as a well cultivated field crop. The soil is stiff, but not "holding," hence it is subject to drought, much more so than are some other localities quite near; but soils vary appreciably, and thus it happens that, whilst too absorbent of moisture in the winter, it parts all the more freely with that moisture in the summer.

Good breadths of those sterling sorts raised at Bedford—Chancellor, Prime Minister, London Hero, The Dean, and Midsummer Kidney, together with other kinds, new and old, all looking exceedingly well; the late ones being robust, whilst the first earlies are gradually ripening off. There is in one place a batch of seedlings of last year's raising, the products of a cross between Prime Minister and Radstock Beauty, and the result, both in tops and tubers, is singularly varied. In another place is a batch of the present year's seedlings from various crosses, the interest attached to Potato raising still holding sway, although in no case does it seem to lead to exceptionally profitable results.

A lot of Peas of various good kinds have cropped well, and are fast being harvested for seed. There is also a considerable breadth of Exhibition Scarlet Runners—a fine selection and very prolific.

For the first time Mr. Dean has taken to the growth of Seakale, both from seed and "sets," for the production of forcing crowns; and in spite of the early drought, and the arid condition of the soil even now, capital growth has been made, the seed-sown breadth, when thinned, having given results as fine as seen from sets. It is evident that, with a fair season, very fine Seakale may be obtained from this soil.

The long-podded Negro Dwarf Bean shows a fine strain; for cropping or show purposes it would be difficult to excel this capital variety. The only Celery grown is the true White Incomparable—its special merit being that it stands so long before running to seed, and indeed it is one of the best white kinds in cultivation.

A recently introduced French Cabbage Lettuce—White Chavigny—is the only kind grown for seed, its chief merit being its ability to stand long without running to seed. It is indeed difficult to get it to produce seed the same season. A good batch of the true Snowball Cauliflower—a sterling variety which originated here—was noted, now going to seed. This is one of the best early kinds in cultivation.

FLOWERS.

In the direction of flowers there is much to attract attention. There yet remain evidences of the very fine and varied strain of Sweet William grown here, many of the later flowers showing great size of pip, and rich markings. A large breadth for next year's seedlings has just been got out, whilst the bulk of the present year's seed is harvested. Canterbury Bells are also largely grown, the strain showing numerous double flowers of great size and of very diverse hues. A batch of the curious strain of Canterbury Bells shows

huge flowers and much diversity of colours. A big breadth of several hundreds of plants has been got out for next year's seedling, and a very beautiful show will be seen then.

One of the most showy and useful of our garden flowers—the African Marigold—is particularly well done here, the colours ranging from lemon to deep orange. And to what a size some of the flowers attain! Some individual blooms measured about a foot

branching habit, and fully 80 per cent. of double flowers; and Giant Crimson Ten-week, almost rivaling a Brompton in height and size of bloom—all being spring sown.

If one were asked to name one of the special features in the flower way at Bedfont it would be Balsams; they are, indeed, very fine. The practice is to take them from the seed bed when about 6 inches high, and dibble them out. By this means they are

as they should, the display of these and similar popular and beautiful flowers.

Three good bedding Tropæolums were noted in Lustrous, rich crimson flowers, well set off by its dark foliage; Bedfont Rival, bright orange-scarlet; and compactum aureum, yellow: all good, and throw their flowers so well above the foliage. They may be termed perpetual bloomers, flowering till killed by frost.



FIG. 51.—CHRYSANTHEMUM ULIGINOSUM: HARDY PERENNIAL, FLOWERS WHITE. (SEE P. 274.)

in circumference, though not yet fully developed. The striped section, by themselves, presented quite a floral picture. Plants about 15 inches in height, very uniform, and clothed with flowers, some a rich chestnut in colour, others a bright crimson, and largely we find them perfectly striped, self, and beautifully edged. Also aurea floribunda, a bright golden strain, plants of compact habit and dwarf.

Summer Stocks constituted another feature—massive spikes of flowers, and comprising the well known Mauve Beauty, New White Intermediate, good dwarf

not encouraged to make too great a roothold, to the evident advantage of the flowering process, as was seen in the plants under notice. They were sturdy bushes of flower, almost concealing the healthy foliage, the prevailing colours being mauve, purple, crimson, carmine, pink, flaked, spotted, and other hues and markings.

These plants would cause a little sensation, and may be a due recognition of their undoubted claims to a more extended culture could they be "potted up" and shown at some of our exhibitions. Unfortunately, though, the managers of such do not encourage,

Lobelia, a compact very fine strain of the speciosa compacta type, a telling blue; also a fine pure white strain.

Pentstemons, remarkably fine and varied, a batch just passing out of flower; a second batch, fine young plants, spring-sown, coming into bloom.

The pretty and useful free-flowering variety of Malva moschata, in quantity, was very noticeable.

A strain of French Carnations, very pretty, worthy of record as being produced from seed—on certain soils (as here) an easy process of raising these plants, obviating the necessity of "layering" and "piping."

Fancy Polyanthuses—one of the specialties—a batch of 1000 plants in one quarter, planted out in the spring, many of them already in flower. These will doubtless present a pretty sight next spring.

Primroses are also a great feature, great quantities of plants, one, two, and three years old, being planted out, whilst a big batch of seedlings from recent sowing of seed is just showing rough leaf. A general absence of thrips this year, aided by nice showers, has kept the foliage of these spring flowers unusually vigorous and clean.

Quilled Asters are very robust, and never better than this season. In passing, this appears to be quite an Aster year. These flowers seem to be doing well in most places.

Of *Antirrhinum* was noted a spring-sown batch, well grown, and in full beauty; whilst the seed from the early-blooming breadth has been secured, the ground being already prepared for *Anemones*, of which a superb strain is grown, roots in the beds already sending up foliage, showing a very short rest of not more than six weeks. A batch from seed is raised yearly.

Dianthus Heddewigii Brilliant, flowers single, large and beautiful—intense fiery crimson; the effect produced when the sun's rays are fully thrown upon the bed is striking indeed.

What effective border flowers are *Petunias*, as seen here! A good striped strain was very telling.

Much more might be said of several other noteworthy things in the flower way, but enough has been written to show that these seed grounds are replete with interest to those who take a pride in extending a knowledge of a class of plants that give beauty to our gardens—a class of plants, too, that is within the reach of all who love flowers.

We may well conclude these remarks by referring to a fine lot of trees of the *Fairleigh Prolific Damson*, ten years planted; they are breaking down with the fruit crop this year. This is a favourite market variety, and its fruitfulness certainly entitles it to this distinction. *B.*

ROOTS AND THEIR WORK.

(Concluded from p. 257.)

APPLICATIONS TO METHODS OF CULTIVATION.

Seeds and Seedlings.—We have seen how delicate is the structure of roots after first being developed. The soil must be light, easily penetrated, and damp at the surface, for all plants whatever their habitat may be when fully grown.

Air must have access to soil—it must not “cake,” as stiff clayey soil is apt to do—the mere shaking of soil down in the seed-pot is sufficient for the purpose, except just a little pressure after sowing to flatter the surface.

BRANCHING.

The branching rootlets are apt to get broken, they should be removed from the seed-pot before of much length, and in pricking in the seed it is easily seen that a displacement of the soil to one side instead of boring a hole and shoving the roots in, is the preferable plan.

POTTING.

At potting, if we cannot indeed judge from the seedling what is the habit of the plant, we can at least see of what nature the perfect plant is, and act accordingly. Had the plant a creeping habit, easily rooting from the stem, what folly it would be to press the soil firmly around the seedling. Were the roots very smooth and fibrous, plentifully produced, we should judge that the plant wanted plenty of water and a moisture-retaining soil. If our root branched readily we might judge that it liked a fairly loose damp soil. If there were naturally delicate long hairs and a hard root, stony places would be likely enough its natural home, and we should pot it firmly. As to wedging plants (alpinists) between stones, there is the danger of drying them to death—the stones and small pots if not plunged becoming soon very dry. It is an excellent help in cases where there is no danger of this drought.

REPOTTING.

In repotting plants great care should be taken to get the old and new soil of the same density, else if the new is looser the water passes through it when watered and leaves the original ball dry. Some potters slope the surface of the soil from the centre to

the circumference, considering that the roots are mostly formed at the edge of the pot, or on the further side of the old ball, therefore it is best to send the water to the side. Others prefer that the soil should be quite even, so as to secure an equal distribution of the water. This seems reasonable when it is considered that the slope of the pot will cause the outside to get most after all. It is, however, very objectionable indeed to send a hole in the surface of the soil into which the water always runs, and so goes only through one part of the “ball” thoroughly.

If the ball be dusty it should be shaken out or else water never penetrates it, although as a rule there is not much root in the centre of the ball of pot plants.

In cases where the roots are very fine indeed and make but slow growth the roots penetrate right through the ball. The best known case of this is to be met with in the Cape Heaths. Where the growth is so, it stands to reason that the “shift” in potting on should not be great, and where the root is very fine it may be taken for granted that it naturally grows in a hard, somewhat dry place. These fine roots and long root-hairs need the more careful treatment.

In reporting also, except among coarse, easily branching roots (those of not too hard texture), care should be taken not to break the “ball,” or the chances are that the greater part of fibrous growths of the root are broken away, when the shock caused by evaporation subsequently is too much for the plant.

Nor in slowly growing hard roots, which do not give off branch roots, as Heaths, should the fibre be disturbed more than possible, certainly not broken by poking among them with pointed sticks.

WATERING.

Watering is considered about the most difficult part of plant-culture to manage well. That the soil shall not be too much saturated with water is quite as important as that it shall not be too dry: in the latter case the flagging is readily seen. Where saturated with water the soil is cold—if not decaying—and the needful warmth is absent which causes the delicate growing roots to develop. Especially should this be taken care about where a plant is newly “potted on.” The larger mass of soil retains the water more readily, and the roots cannot take it up quickly enough; and similarly, if a “ball” is not fairly well covered with roots, it is hurtful to water it much even if the leaves are large and appear as though they would draw water up quickly.

DRAINAGE.

As to the drainage in pots, it is well to have a considerable amount where the roots do not—as, for instance, in *Gleichenia*—penetrate deeply. That plant may like a great amount of water about it, but it does not want stagnant acid-generating soil, which if the drainage is clogged is apt to occur. To pour water on freely and let it pass off freely is a better plan. For the same reason it is well to have the soil porous, not to allow too much fine soil to remain in the potting mixture, though among common plants—and coarsely rooting plants especially—of course is not worth while to riddle the fine away. We may notice that when the drainage is blocked up the roots have a tendency to grow to the surface again. At times we may see pots well filled with roots at the surface, and roots absent entirely from lower down the pot. This shows that the roots object to a water clogged soil. A considerable length of root, as in *Imantophyllum*, indicates great capabilities for absorbing water.

In many cases one is tempted to moisten the surface only of the soil in small pots. This, though beneficial, on account of the damp, to the leaves, is likely, unless very carefully managed, to be productive of harm. The bottom of the “ball” may be dry whilst damp at the surface—a most ruinous state of things, quite contrary to Nature. Top-dressing is very much to be deprecated also, for a somewhat similar reason—the fresh soil looks dry, and water is given, saturating to a hurtful extent the old soil of the ball below.

It is much more advisable where possible to plunge all small pots in sand, which keeps them uniformly damp throughout, and is more natural as ensuring that the dampest part shall be at the base of the pots.

SYRINGING.

Syringing, though invaluable in many respects, has just this drawback, that the surface is damped, the

base of the ball not; if well-managed, however, it is a most necessary aid, especially just after potting plants, where, through the roots being broken, and the leaves continually evaporating, there would not be a sufficient amount of water in the tissues, did not syringing allow of its entering largely by the leaves.

PLANTING.

In planting care should be paid to the physical nature of the soil especially. For example, there can be little pleasure in seeing a creeping plant growing on a dry sunny place. Wherever roots grow freely from the prostrate stems there must be a fair amount of moisture in the very surface soil which will attract them and admit them readily into the surface. Trees moved should be as little injured in the fibrous part of the root as can be; and it has again and again been pointed out, that as the ascent of the sap is more vigorous in the spring and summer months, when also evaporation is excessive from the leaves, transplanting should be done in winter or autumn, when there is no great amount of leaf in deciduous trees, or less evaporation.

ROOTS MOVING BEFORE LEAVES.

Many plants make vigorous roots and do not produce leaves until later. I remember lifting some rare plants (*Ranunculus Lyalli*) growing in a boggy place because the leaves were poor, and as winter was coming on it was thought as well to take the plants under glass. After having dug them up we noticed how vigorous and strong the roots were. The planting and lifting in such conditions ruined the plants. It would have been much better to have slightly protected them in the open place where they grew, had we judged from examination of root as well as leaves before disturbing them.

Roots of many rhizomes, as in *Anemone fulgens*, *A. nemorosa*, &c., move before the leaves do; therefore it is well to plant or pot these in the autumn, that growth of root may have taken place before the conditions favourable to leaf growth are present in the spring time.

An example of the dependence of root and leaf was given me the other day by one who had grown Vines. They made leaves vigorously the first year, and were not cut back until late; the grower knew that whilst making leaves they were also developing strong roots, which would be of great help the next year after the stem had been cut back. This was an example of thoughtful pruning. The grower allowed all the leaves to be developed fully before cutting back his stem, which is generally the case in pruning, I believe.

PRUNING.

In cutting stems either for pruning or grafting great attention should be paid to the strong ascent of the sap before noticed. In one plant the time for the strongest ascent differs somewhat from the time for it in others. I am told that this bleeding from a tree has been known to continue even after the cut end had been painted and treated in many ways, the ground just under the branch being continually moist from the sap exuding.

Early or late pruning would either be preferable to pruning in the middle of the growing season, but where possible late pruning seems to me the most recommendable as regards the callusing of the place cut, whilst early pruning is better where the parts left are wanted to “break” or make buds quickly.

Illustrating the dependence of leaf and root, an old story is told by one of our nurserymen to the effect that he once was growing *Asparagus* a long time ago, and having to keep a walk clear through the bed he tied string on either side of it, which string supported the stems. The leaves or finely branching stem were produced more profusely, and the roots of the tied-up plants were as a result by far the best in the plot. Those which had bent down had stopped the circulation of the sap, and therefore prevented the full development of the parts of the plants. *Asparagus* is now often grown against string supports.

SHIFTING PLANTS.

It is said to be well for [some] plants to be pretty frequently transplanted. Bulbs growing together and dividing, are of course enabled to swell to larger sizes if shifted, and the soil below them has much of its nutrient properties extracted. All soil has a tendency to become close also, and this is hurtful, as the air so necessary to sweeten it does not have access to the particles of soil. It is harder for many plants to root if the soil be very close.

MANURES.

In applying manures also, it is well to consider their effect upon the physical condition of the soil. Farmyard manure contains matter which has to decompose, and its effect is to split up the soil and keep it "lighter" for some time. When the roots are consequently benefited by these as well as by the chemical properties of the manure. No such effect is produced by the smaller quantity of phosphates, or the like artificial manures. A surface soil if well manured, should not be dug into a considerable depth; unless the soil is very light and poor, this trenching is not advisable to prevent it becoming too stiff. It is but a poor remedy, some very light sandy or rubble material should be added.

LENGTHS OF ROOTS.

Roots descend to different lengths; this fact is made use of by farmers on laying down grass land. It would be useful in our lawns, and I should think that a deeply rooting grass, for instance, would have a better chance of growing well in a place which was likely to be baked in hot summers.

SOILS.

Also if roots thrive particularly in special soils, they should have some attention where possible given them in the way of supplying them with similar constituents. But far more important to my mind than supplying plants with soils of different chemical composition, is to give them those which retain more or less moisture in accordance with the positions in which the plant has grown. It is of no use to give a plant a peaty soil of a loose nature, and then expose it to the fullest sun. Peat and excessive moisture are generally associated in Nature, and we should not dissociate the two in practice. This is but one example out of many.

Plants with running roots, too, should, of course, have a light soil, through which they will be able to easily send their shoots, and by way of practical advice I may say that peat, unless very sandy, or with leaf-mould, does not form the most easy substance for roots or runners to pierce; especially in pots it is apt to make a very tenacious "ball."

Plunging in sand is a capital attempt to remedy the artificial isolation with which we visit plants when potted.

GROWTH.

I have thought that perhaps plants in pots, as is the case with many trees grown especially for fruit, did not at times produce roots vigorously at the expense of the rest of the plant. I have seen a *Dactylis* hanging over a bank, and sending out 15 inches of fibrous root without seemingly contributing any fresh leaves to its parent plant.

In hoeing, we should not just cut off the tops of such roots as *Dandelion* and *Polygonum*; but think that they grow again. The plant should be taken quite out of the soil, or at least the root cut well down, so that the greater part of the thicker tap-root is pulled out.

We often ask, "What time should cuttings be put in, or grafts made?" We should look to the structures of the tissue, and see when such are fairly ripe, and not too woody.

Where Orchids are grown in the air they should, of course, have a damp atmosphere kept up, and many of our pot plants would be better grown if we sprinkled water oftener on stands and about the pots.

I have not been able in this essay to give any definite ideas as to how to judge from roots as to whether they should be placed in one place or another—whether, for instance, they are damp-loving or the reverse. This has been hinted at, but time has forbidden any minute examination as to these and similar suggestive questions. [This may often be seen from an examination of the microscopic structure of leaves and roots. Ed.] We can all tell, for instance, if we see a root growing in moss at the surface rather than in the soil below, that such a plant likes open damp compounds of a light nature to grow in. Such facts and observations we can continually turn to account.

In conclusion, however, I would say that most are too ready to throw over all "rules of thumb" because they are old and we are new, and cannot see reasons for them at first. We have many times in the investigations required for this essay been unable to find any reason, much less the right one, for various results we have met with; how important is it, then, that in our own practice that we should be

reasonable enough to accept all rules of thumb when we see them producing good results, only breaking such rules when we can better the result. Our reasoning as to cause and effect should not be with the object of breaking down these old traditions of experience, but in the honour of our noble profession to show the common and reasonable sense which underlies them. P. Sewell.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS. — It is often a subject of comment how long it takes the world to profit by a good idea, and the potting of young Strawberry plants, preparatory to setting out in autumn, is a case in point. It is getting on towards a quarter of a century since we made the first suggestion in the *Gardeners' Monthly* that it would be well for those in the trade to prepare for such a demand. At that time it was thought the time would soon come when the demand would arise, and inventors set themselves to prepare for it by schemes to get the plants potted cheaply. Among others, our ingenious friend Dr. Ryder, of Chambersburg, in Pennsylvania, invented a very cheap basket, costing almost nothing, which the grower could use and sell with the plants without missing the expense. But nothing came of it. Few people seemed to understand that a plant that cost a trifle more than another, but gave a good crop of fruit a few months after planting, was as good as a cheaper one that took eighteen months to bring the full crop. Hence, when one had prepared the plants there were few buyers, and the labour was wholly lost. This operated also against the use of the cheap boxes. They were no use at all after being once set in the ground; but a small flower-pot could be used again, though the plant in it might have to be thrown away. So regular flower-pots are still in use for setting the runner in. But now that everybody understands the vast superiority of potted plants, and even for large plantations only potted plants are found worthy of use, it is a question whether some such a plan as Mr. Ryder's might not be considered with some profit.

It will be seen that the original intention was to include the growth of all plants intended for summer bedding. The boxes are too large for Strawberry runners that would be only a few weeks growing in them, for they should be a little "pot-bound" in order to take little room and have little weight in travel, and make the round form—a form like a box made for salve—for all the waste of space in packing, better than the square. Our object is not so much to commend this plan exactly as it is to set inventors to improving on the idea, now that the "long-felt want" has arisen. Dr. Ryder says:—"Strawberry plants, &c., that have well filled the box with roots sufficient to hold the ball of earth together, will pack secure without the veneer, and, being square, they pack close and carry safely. When Strawberry runners are to be layered, the plants being cultivated in rows and the ground in mellow condition, we use the tool or dibble to make the impressions in the ground, using a second tool or plug a little smaller than the first, and made square at the bottom, to press the box flat down until they are even with the top of the ground, the soil slightly compressed outside, when the plug is withdrawn and the box is ready to fill with soil, all of which is performed very rapidly. The point below the square provides for drainage, as my experiments amply illustrate."

It is interesting to note what a revolution this introduction of potted runners has caused in the whole field of Strawberry culture, and how changed have to be the "Seasonable Hints" in consequence. The old boys can no doubt remember the warm discussions about moving of the leaves of the Strawberry in autumn, in order that the beds might bear better the next year. In those days a Strawberry bed was like an Asparagus bed in this—that, once made, it was to continue a number of years. The beds were solid mats of "sod," and almost like a lawn passed over by a modern mower after the annual mowing when the fruit was gone. But who sees a matted Strawberry bed now? The potted runner, if well potted, and the bedded plants, if well bedded, will give the best crop the next spring after planting. And thus it comes about that those who strive for excellence find it pays to have new beds every year. Those who do not have the very best potted plants find the second

year's crop the best, but very few in these days care to keep the same Strawberry beds for over three years. The "third term" is not popular with Strawberry growers now. Rotation in office prevails as a political dogma among Strawberry growers. One thing is certain, that a first-class potted runner, set out in August or September, the plants 1 foot apart and the rows 18 inches, with every third row 2 feet from the others, to furnish a pathway for fruit cultures and fruit gatherers, will, if the ground is made suitable to the Strawberry, in all probability do its best for its owner the first season after setting out.

In old times it was a caution not to make the soil too rich for the Strawberry. They would go all to leaves it was found. Under the new system it seems almost impossible to make the soil too rich, so long as the manure is thoroughly incorporated with the soil, and the ground not a mere rank manure-heap. And a deep soil that will not dry out when a few hot suns shine on it, with a situation where there is an abundance of light, and yet not exposed to the full rays of the sunlight without heat—this is found to be the essence of all that is good in modern Strawberry culture. The doctrine of the wearing out of varieties will rarely get an illustration from the Strawberry grown under these conditions. The spotted leaf—the fungus that interferes so much with the long-continued vigour of any variety—may not be attacking plants that in the strictest sense we may call diseased. The philosopher may, with some show of facts, insist that the plants are healthy, and that the fungus is the cause of all the trouble, but we who have watched the course of cultivation through the long years past know that "something is wrong" before the "wearing out of the variety" began, *American Gardeners' Monthly and Horticulturalist*.

Orchid Notes and Gleanings.

CHOICE ORCHIDS IN FLOWER.

We have received some beautiful blooms of Orchids, together with the following notes on them, from our old correspondent, Mr. Swan, Howick House, Preston:—

I herewith send for your inspection several blooms of some rare and handsome species which I thought you would be pleased to have an opportunity to inspect.

Cattleya Dowiana is, without doubt, the most beautiful of the late summer-flowering forms. We grow this in a basket in the *Cattleya*-house, together with *C. Mendilli*, *C. Gaskelliana*, &c., and capital growths have this year been formed on it. The short interval that elapses between the first appearance of the points of the buds through the sheath and the expanding of the blooms is noticeable in this species more than in any other. The rich yellow sepals and petals, streaked in some instances with crimson, and the broad labellum of a rich crimson-purple lined with a beautiful golden-yellow, make it distinct and attractive.

The flowers of *Cattleya superba* were cut from a plant grown in a basket hung in the East India house, just above the *Aerides* and *Vandas*. The spike produced five good flowers, one of which I send you.

C. velutina is also grown in a basket in the *Cattleya*-house. The plant in some respects resembles *bicolor*, the leaves, however, are rather more pointed and darker in colour than many *bicolors* that we have. The pseudobulb is about 18 inches high, and has produced five flowers. The sepals and petals are brownish-yellow, spotted with purple. The lip orange at the base, then white, with violet veins in front. It is curious to notice the manner in which the column of *velutina* is pressed down into the middle of the labellum.

C. crispata, a good and useful old form. The flower cut is from an imported plant, which has flowered with me for the first time. *C. Eldorado* is one of the many varieties of this summer-blooming species. Of this form of *C. Gaskelliana* we have had several in flower, and found that scarcely two are alike. In some respects it resembles *C. Warneri*. It however flowers about a month or six weeks later than that variety.

The bloom of *Lælia monophylla* was taken from a plant fastened on a block, and growing in a house with *Lycastes*. The plant is very different to what we usually expect to find when speaking of *Lælia*. In

growth it is like a small growing *Masdevallia*. The bulb is about 2 inches high and no thicker than a Rush, or a single stem of grass. The leaves are single, and from the centre of the leaf the sheath appears, then a stem 4 to 6 inches appears, which at length produces a solitary bud. The flower, less than 2 inches across, is of an orange-scarlet.

Lelia Amanda is also grown in a basket; it much resembles *L. Schilleriana* in growth and general appearance. The sheath appears as soon as the growth is finished and the flower-buds quickly push through. Two flowers were produced, and though not so showy as many, it is still very pretty. Sepals and petals light rose, lip deeper rose, with rich crimson venation.

CATTLEYA GRANULOSA (Lindl.) ASPERA, n. var.

A very fine *Cattleya granulosa* with brownish sepals and petals spotted with dark purple, lip yellow at the base, anterior part finest mauve-purple with a broad white border. The anterior surface is rough all over, and the asperities are partly formed by filiform processes, partly by serrate keels, which altogether gives a new aspect. I had it from the Editor of the *Gardening World*, who obtained it from Major A. F. Lench, Sunbury House, Sunbury-on-Thames. H. G. Rehb. f.

The Apiary.

BEE PLANTS.

In conversation with an enthusiastic apiarian friend he mentioned the names of the following plants as essential to the bee-keeper, recommending them to be planted within reasonable distance of their hives, viz., *Salix caprea*, or Yellow Palm. Bees are very fond of this plant, it being (when in bloom in spring) completely smothered with the busy workers. Sweet herbs, particularly the Thymes of sorts. Some bee-keepers think that bees do not obtain much from Borage, but it is found that they are extremely fond of it, and it should be sown largely in every spare nook and corner; it is one of the most useful bee-flowers—late and continuous. To resume our list:—*Acer saccharinum*, *A. rubrum*, *A. platanoides*, *Lilia argentea*, *L. leptophylla*, and, where there is room, the following are also good bee-plants:—*Centaurea cyanus*, *Rosemary*, *Hyacinth*, *Almond*, *Wallflower*, *Gooseberry*, *Plums*, *Turnip*, *Broom*, *Sweet Brier*, *Marsh Mallow*, *Bean*, *Mustard*, *Radish*, *St. John's Wort*, *Ivy*, and many others.

There is no honey equal to that made from the *Gooseberry*, *Raspberry*, *Currants*, *Borage*, and *Mignonette*.

Just now the bees are busy at work on the *Borage*, *Mignonette*, *Marrows*, *Maples*, and the *Snowberry*. As they are hatching out young brood they are laden with pollen, principally from *Marrows*. This is not by any means a good honey year, and bee-keeping is not the profitable investment it was formerly—it is overdone. Where pounds used to be made, shillings now represent the takings. Honey buyers will not buy the sugary mess that is often put into the market in the name of honey, and so injury is done to legitimate traders. B.

BEE FLOWERS.

Honey farmers have not the least objection to their myriads of bees plundering honey from other people's flowers, and would be the last to acknowledge the obligation by sending tithe of their honey harvest to the florist or gardener whose floral beauties have been thus poached upon. The best thing for flower growers to do, no doubt, is to keep bees themselves, but all have not the time to attend to the wants and necessities of the insects. Has it ever occurred to any of these bee-farmers that they should accept some of the responsibilities of their position, and provide flowers for their bees, as sheep-masters have to provide pasturage for their flocks? Not a few of these bee men have scores of hives and scores of thousands of insects to feed. How many of them have obtained the use of some few acres of ground and grown bee food?—probably not one. If any are so disposed to be honest, let me advise them to grow every year about an acre of some strong growing *Mignonette*, such as *Parsons' Giant White*, perhaps the best branching kind we have. Such a breadth would alone afford food all the summer and autumn for a million of bees, and should [far] away [repay for] rent and seed outlay as well as labour in the harvest of honey obtained. There is no garden flower that is so much favoured by bees as *Mignonette*. A. D.

LAZY BEES.

Dr. Watts still deserves respect for his moral sentiments. The bee is lazy unless impelled by necessity. "Birds in their little nests agree" only so long as they do not fall out. The Rose is not now the glory of April and May; but all these may have appeared differently to the worthy Doctor "sixty years since" from what they do to us now. I know from personal experience in the Colonies that bees will not work whilst they have honey, or a substitute at hand, and on one occasion I saw a swarm lazily hanging to a church at Sydney listening to the music, and then transfer themselves individually to their respective stores of food in the Domain (Botanic) Gardens. Bees selecting food from poisonous plants is a subject worthy of investigation. S. A.

RED AND WHITE CURRANTS ON THE SAME STALK.

THE curious abnormal growth (fig. 52) of both red and white fruits on one and the same stalk, was sent to us by our old correspondent, Mr. Divers, of



FIG. 52.—RED AND WHITE CURRANTS ON THE SAME BUNCH.

Ketton Hall Gardens, together with the following note:—"I am not aware if the origin of this fruit is definitely known, but the bunch enclosed goes a long way towards proving that it is merely a sport from the red variety. It was found growing on a bush of the red kind, and has three red berries, three white ones, and one white with a red stripe. All the others on the same bush were red as usual." [For similar cases see *Gard. Chron.*, 1842, p. 873; 1844, p. 87; 1855, p. 646; and Darwin's *Variation of Animals and Plants*, 1868, vol. i., p. 376. Ed.]

DISEASED VINES.

We publish below a letter from a correspondent who has Vines which appeared to him to be affected with fungoid growths, and also the reply of Mr.



FIG. 53.—THE DOWN OF VINE LEAVES (B), WITH THREADS OF VINE MILDW (A). ENLARGED 200 DIAM.

Worthington G. Smith, to whom the matter was referred:—

"Enclosed please find samples of a fungoid growth infesting a Black Alicante Vine growing with others in a

viney near here. The plant was but slightly affected last year, but this season is fairly covered with it, while the neighbouring Vines are taking it on as well. Can you suggest any cause, or remedy? If it is identical with any form of mildew written about in the *Gardener's Chronicle* for May 15 and 22 last, we can, of course, adopt the mean advised therein. W. L."

The "fungoid growth" which you say is now "infesting" your Black Alicante Vine, is the natural down or hair belonging to the plant, and is a sign of robust health. There is no fungus. Downy and hairy leaves are often sent to this office with a request for the name of the "fungoid growth infesting" the material. All mildewed leaves exhibit signs of damage, ill-health or deformity. We have not yet heard of the down and hairs of Peaches and Gooseberries being mistaken for "fungoid growths," but all readers of the *Gardener's Chronicle* will remember the recent dispute about the Strawberries which were disqualified because certain judges mistook the downy bloom for mildew. The worst effect of growing downy Vines is that sometimes gardeners sulphur such Vines tremendously in futile efforts to keep down the down. Correspondents write and say "sulphuring seems to have no effect on the fungus." The result of the over-sulphuring and root doctoring is—leafless rods and rusted fruit. The latter in due course reaches this office for an opinion. Microscopists often make the same blunder: even fungologists have slipped. The fungus (?) named *Acalytophora nervisequia*, Desm. (sweet name) of our text-books, consists of nothing but common leaf hairs. There has been a fight for this fungus amongst the professors; one school has claimed it for the Pucciniæ, another for the Torulacæ,—wonderful!

A small drawing often explains a subject better than words. The accompanying illustration (fig. 53) shows the down found on Vine leaves, amongst which are a few threads of Vine mildew, enlarged 200 diameters. The fungus threads seen at A are of very small diameter, whilst the down natural to the leaf, as seen at B, is of very much greater size. Both growths are quite transparent and colourless, but the threads which form the down of Grape leaves are twisted in a screw-like manner. The down is much firmer than the fungus. Gardeners need never fear mildews if there are no bad effects visible; in fact, sometimes, when gardeners send downy leaves to this office, they write and say, although "the Vines are infested with disease," they seem none the worse for it, but bear well." W. G. S.

SELENIPEDIUM CAUDATUM.

THE specimen of which we here give an illustration, fig. 54, is one which would not have thrown an Orchid grower into ecstasies, but it was one to confer serene joy upon the botanist. *Selenipedium caudatum* is in all cases a striking species, while *Uropedium* attracts attention from the regularity of its form.

It was natural to suppose that *Uropedium* is only a peloric form of *Selenipedium* but this was doubted by Professor Reichenbach.

Perhaps the present specimen, which was sent us by Mr. Bull, may serve to solve the doubt. In any case it is a great and interesting curiosity, for it has three separate sepals, two long petals, and a lip which is trying to emulate the petals, and is as it were halfway between the ordinary bag-like lip and the long-tailed petal. But the column was the most interesting part of the whole, inasmuch as it bore three perfect stamens, so that the inner row of stamens was in this instance complete, and the lower median stamen, a 3, of Darwinian notation, even shaking off its usual reticence and showing itself in the place reserved for it; the outer three stamens, as usual in *Cypripedium*, were absent or only present in the form of staminodes. In the appended diagrams A 1, A 2, A 3, represent the outer barren stamens; a 1, a 2, a 3, the inner stamens; sm, the stigma; P, the petals; L, the lip. We may here state that within the last few months we have received specimens showing in different cases stamens varying in number from one to six, the majority of the stamens being in some cases fertile in other cases barren, while in other instances all six were present in the guise of petals, as in *Cypripedium Sedeni* x. At fig. 54, p. 269, are shown the entire flower; at A, a cross section of the three-celled ovary; at B, side views of the column, magnified, and a plan of the arrangement of the parts. M. T. M.

COLOUR DESCRIPTION.

HAVING procured a copy of Field's *Chromatography*, so strongly recommended at p. 118, I find the subject treated in a scientific manner, and at the same time both tersely and explicitly. Any one, whether gardener, artist, or what not, would derive considerable pleasure, not to say instruction, from a careful perusal of its pages; but the reader could scarcely fail to perceive for whom the book is intended. This is especially evident in the third part of the book, which treats of pigments individually, briefly describing their hues, composition, qualities, and leading properties. This undoubtedly is an incalculable boon to the artist, who can buy the pigments under the names given, and so obtain a practical acquaintance with them. The case is altogether different with the gardener who desires to become familiar with different hues, so that he can describe them after a certain standard. In his case mere description conveys but little without some tangible illustration for the sake of comparison, which is, after all, the best vehicle for the conveyance of knowledge by comparing an unfamiliar object or colour with a familiar and well-known one. From this point of view, then, the subject at issue, namely, a book on colour for the use of gardeners, botanists, artists, and all those who have anything to do with plants or plant description, is still an open question; for a book to be of direct practical value in such cases should not only describe, but contain an exhaustive series of illustrations. The hues and tints to be found in Nature are practically endless, but a limited number even of the natural colours of most importance and of the most frequent occurrence, would be of incalculable service to those who merely wish to describe them as nearly as possible according to some recognised standard. Knowledge of this description would prove of special value in the case of the great Orchid family, where a proper definition of the tints and hues is of more importance than many botanists seem inclined to admit. In numerous instances structure only is described, with no attempt at colour, notwithstanding its importance for horticultural purposes. This latter statement is borne out by the numerous forms of *Cattleya* in cultivation, especially of the *C. labiata* type, such as *C. l. Mossiae*, *C. l. Mendelii*, and *C. l. Percivalliana*, where structural differences are so slight as to be of small practical value for descriptive purposes. Correctly painted and coloured plates in this instance constitute the most fitting and lasting description that could be made of such forms. Even here in many instances artists differ more widely from one another, and from the natural colours, than is desirable or warrantable.

In the book above mentioned colours are defined according to what are termed the three "constants of colour," namely tone, tint, and hue. By the first is meant the total amount of light sent to the eye, or, in other words, its luminosity. Tint, on the other hand, signifies the richness or purity of a colour, and its freedom from admixture with other colours, although this is a thing that seldom happens with natural bodies, and above all in the flowers of Orchids. The analysis of the solar spectrum gives the purest and most suitable standard colours for comparison. What in common language is generally defined as the colour of anything is here spoken of as its hue, which depends on the wave length of light that produces it. This is described by reference to the spectrum, which forms the first plate, where red, which has the longest wave lengths, is at one end, and violet, having the shortest wave-lengths of light, is at the opposite extremity of the spectrum. Plate ii. treats of chromatic contrast, and plate iii. of achromatic contrast, while plate iv. treats of the chromatic and achromatic contrast of colours. All this is evidently intended for the artist, and undoubtedly of great service in the mixing of colours, showing what effect one has upon another, and the effect of contrast. The number of colours, however, is too small to be of much service in colour description.

The scientific definition of what determines the colour of a natural body, by its absorption of certain rays of sunlight and rejection of others, is of primary importance, and determines with much accuracy wherein the difficulty lies that the artist has in reproducing natural colours. In many instances several colours are rejected, which being diluted by white light produces a very complicated effect. For instance the perianth of *Bessera elegans* is scarlet externally, and cream coloured internally, with a scarlet midrib and margin. In daylight the cream

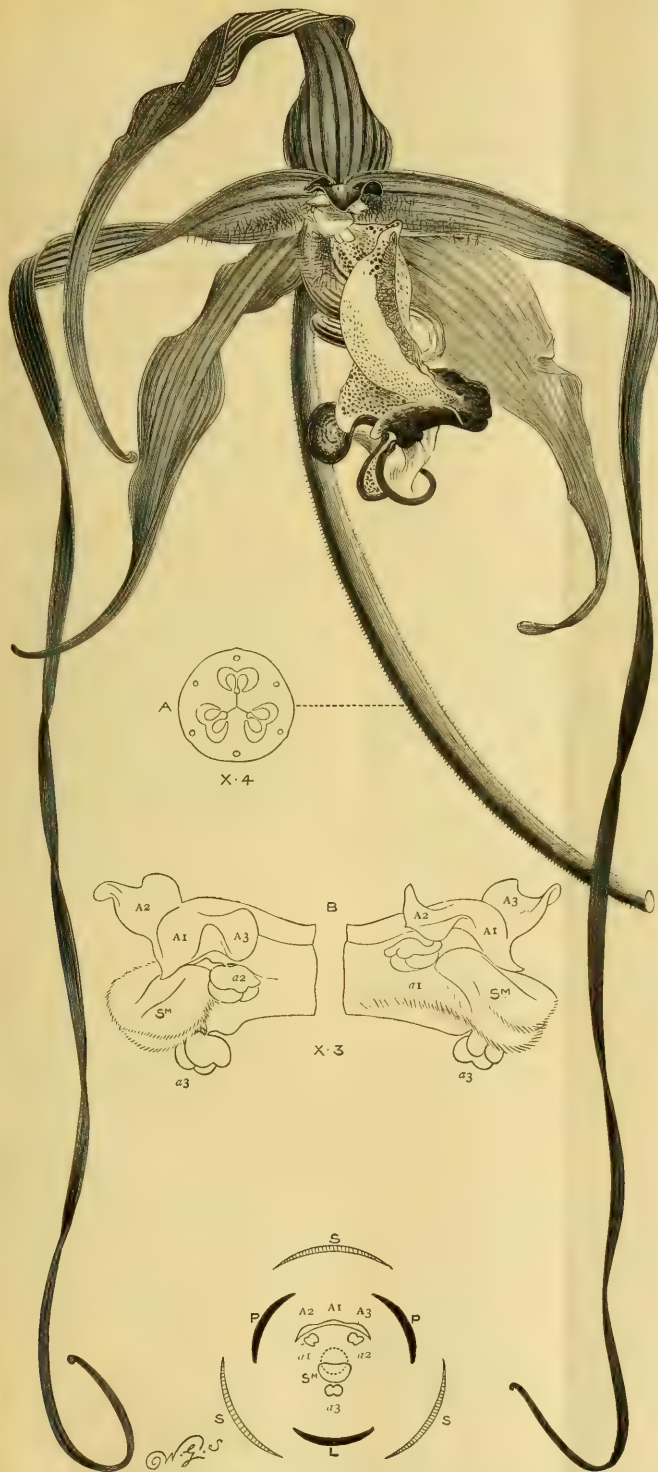


FIG. 54.—SELENIPEDIUM CAUDATUM: INTERMEDIATE BETWEEN THE ORDINARY FORM AND UROPEEDIUM. (SEE TEXT, P. 268.)

colour acquires a difficultly describable shade of pink. The filaments are crimson, the style and anthers deep blue, and the pollen green. Many species of *Crocus* exhibit a similar blending of colours on the two surfaces of the perianth.

Miles on the artistic method of mixing colours affords another excellent explanation of the effect of the association of different colours in close proximity, and the resulting phenomena that greet the naked or unassisted eye. In practice, the artist, instead of mixing his pigments to produce the desired effect, paints them in small spots or very fine lines of different colours in close contiguity, and these becoming diluted and blended one with another by the action of light, present altogether a totally different appearance to the naked eye, and produce a far finer effect than the same pigments would have done if mixed together, demonstrating that the mixture of colours and the mixture of pigments are productive of very different results. This is very similar to what takes place in a state of Nature, especially in the case of variegated flowers, and particularly amongst Orchids, such as *Oncidium*, *Odontoglossum*, and *Epidendrum*. If the various spots and lines consisted of primary colours, the difficulty of reproducing them would be reduced to a minimum; but they are mostly secondary colours, and often produced by various coloured pigments in different but contiguous cells. The microscope also reveals pigments blended in the same cell, especially green and yellow, sometimes brown and yellow, or other colours. In some instances, what appears to the naked eye as a uniform moderately rich tint of violet-purple, is shown by the microscope to be produced by pigment occupying less than a half of the cells composing the surface of the coloured object. The rest of the cells are colourless save for the nucleated protoplasm. J. F.

The Herbaceous Border.

AUTUMN FLOWERS.

It might have been thought by those who have seen the profuse and continued display made by Mr. Ware in the conservatory at South Kensington that he could not possibly have any to spare. The demands of the West, however, do not suffice to exhaust the resources of the East. We have before us a set of showy herbaceous plants, which Mr. Ware sends to show what a display may be made by their use. Composite, as usual at this season, predominate, but they are not all yellow, as some people in their haste say, for here is *Aster Townsendii*, a relatively dwarf species, with the upper leaves ovate, sessile, and with terminal heads of flowers $1\frac{1}{2}$ inch across, with bluish-lilac rays surrounding a central yellow disc, and begit by an involucre of small reflexed bracts in many rows—one of the most distinct and pretty of its class.

Rudbeckia purpurea, with solitary flower-heads 3 inches across, with an involucre of many rows of short lanceolate bracts. The ray-florets are a deep rosy-lilac colour, reflexed, and surrounding a dome-shaped disc, the most striking feature of which consists in the stiff erect scales, like so many little spears surrounding the inconspicuous disc-florets.

Aster tharminoides, as its name implies, is like *Achillea tharminia*, and might be mistaken for it by superficial observers. Its narrow, linear leaves, however, are entire at the margins, and the floral structures like that of the *Aster*.

A. gymnocephalus is a very distinct form, with small, sessile, lanceolate, deeply serrated and wavy leaves, with small flower-heads about an inch across, with involucre of many rows of small, recurved bracts, surrounding a ring of rosy-lilac ray-florets, and a central yellow disc.

Of yellow Composites Mr. Ware sends *Harporapha Leichtlinii*, a plant with grey stems, marked with small purplish spots; the leaves are oblong, lyrate, deeply pinnately lobed, dark green above, cottony-white beneath. The flower-heads are like those of a *Gazania*, 2 inches across, with a cup-shaped involucre of many rows of flat, tightly-packed, lanceolate scales surrounding a ray of many yellow strap-shaped florets, brownish on the lower surface. The disc consists of numerous yellow florets.

Siphium laciniatum is a tall, coarse-growing perennial, with deeply and repeatedly pinnately cut rough leaves and large heads of yellow flowers, like

a small Sunflower. This is the famous Compass-plant so often alluded to.

Helenium grandiflorum is like *H. autumnale*, but the rounded disc is of a rich purplish-brown, contrasting well with the broad ligulate florets of the ray.

Helianthus japonicus reminds one of *H. rigidus*. It has broad lanceolate rough leaves and very showy heads of deep yellow flowers, 3 inches across, surrounded by an involucre of oblong appressed bracts.

H. multiflorus, var. *maximus*, as its name implies, is a large-flowered form of a common cottage-garden plant, with numerous lanceolate spreading bracts surrounding its brilliant yellow ray.

Lastly we may mention *Asclepias tuberosa*, the singular brownish-orange coloured flowers of which are very attractive, but so complex in structure as to defy popular description though interesting to the botanists.

SALVIA PSEUDOCOCINEA.

So many species of *Salvia* are in cultivation that it might seem superfluous to mention any of them, but it is evident that much more might be made of this, as well as numerous other species, both easy to cultivate, free flowering, and possessing brilliant coloration of many hues. Cultivation in pots is but one point in their favour, notwithstanding their value for indoor decoration during the autumn and winter months. The front of shrubberies, herbaceous borders, or even rockwork, might be enlivened by their brilliant hues, using the dwarf and finer sorts in the latter case. In a mixed bed in the botanic grounds, Kew, where a number of species are planted in groups, *S. pseudococcinea* is conspicuous for its dwarf branching habit and floriferous character. The flowers which individually are not very large, are bright scarlet, with two white lines in the throat. The lower lip is the larger, and like that of many species, constitutes the most conspicuous part of the flower. The plant is very common in several parts of South America and Mexico, originally introduced in 1797, and by some recorded as hardy, while others consider it as a stove plant. Although it is so perfectly amenable to outdoor cultivation in summer, it is more than probable it would succumb in all but the mildest winters. Rich fibrous loam, kept open by a sprinkling of sand, and even stimulated during the flowering period by artificial manures, will grow the plant to perfection if cultivated in pots. The plant is extremely variable under different kinds of treatment, indoors or in the open air, both as to hairiness of the leaves, flowers, or stems, and the relative breadth of the foliage. The figures given in the *Botanical Magazine*, 2864, and Paxton's *Flower Garden*, 40, show this to some extent. J. F.

The Flower Garden.

PROPAGATION.

LET the propagation of the different kinds of bedding stock have diligent attention. If any of the earlier batch have missed, no time should be lost in making good any deficiency. Those put in now will require the assistance of a little artificial heat; an old Cucumber or Melon bed with the heat almost spent will suit the purpose. Where the cuttings are too thick in the pots it will be better to sacrifice a few than have them overcrowded, or they may be transferred to shallow pans from 2½ to 3 inches each way, keeping them close and moist till they have established themselves, when they should gradually be inured to light and air.

CUTTINGS OF AMPELOPSIS.

This is a charming thing for covering tree stumps, old walls, &c. Associated with *Ivies* of the variegated type it makes a splendid contrast with its Vine-like leaves. There are three kinds which are well worthy attention—*hederacea*, *Veitchii*, and *Ruelii*; this last is the smallest leaved variety of the group and the brightest in autumn. Cuttings of the various sorts of *Cupressus* may also be put in.

NEXT YEAR'S ARRANGEMENTS.

As *Verbenas* and *Petunias* are now in full flower, notes of the best kinds should be made respecting their habit of growth, colour, &c., for their proper arrangement in the flower-beds next year.

VIOLETS

should receive attention to keep them clear of runners and weeds; and in order to get the crowns well matured they should have the surface soil well stirred, and if it be poor a good soaking of liquid manure should be given. Should red-spider appear, syringe the plants a few times with soap-suds. *Marie Louise* will now be yielding flowers, if they have received proper attention in the early stages. Preparations will soon be necessary to have *Violets* transferred to their winter quarters; which should be done before frost sets in, in order that they may be established; but it will be soon enough to remove them by the middle of September.

HERBACEOUS BORDERS.

These should be kept neat and tidy. The dead flower-spikes should be removed from all plants immediately they go out of flower unless it is intended to save the seed of any. Care must be taken not to cut away any of the foliage, or else the crowns will be considerably weakened, and the flowers of the next season will be correspondingly poor. Keep the seed-pods constantly picked off Sweet Peas, otherwise they will soon become exhausted. The same applies to Dahlias. Pansy cuttings may still be put in behind a wall, or in any moist shady situation. A hand-light or rough box, with an old sash as a cover, will materially assist their rooting.

FLOWER PARTERRES.

The flower-beds will require more attention now the days shorten and the deposits of dew increase, to keep them free from decayed leaves and flowers. Where any of the occupants are becoming crowded, it is better to cut the interlacing shoots back, so as to secure a freer circulation of air amongst the plants. Such subjects as *Königia variegata*, *Alternanthera*, *Cerastium*, *Stellaria*, *Mesembryanthemum*, &c., should be frequently pinched and clipped to keep the outlines of the designs well defined. Unless this be well attended to the designs of the beds will be obliterated. Keep any sub-tropicals requiring it securely fastened. Ordinary showers will fail to reach the roots of such subjects as *Nicotianas*, *Wigandias*, *Solanums*, *Ferdinandas*, and other large leaved plants, therefore they must be occasionally examined to see that a sufficiency of moisture reaches the roots to maintain their leaf development in proper health. W. M. Baillie, Luton Hoe Gardens.

PLANTS AND THEIR CULTURE.

THE STOVE.

EUCHARIS AMAZONICA, valuable as it is at any time of the year, is particularly so during the last three months, when choice flowers are scarce. By dividing the stock of plants into several batches flowers may be obtained all through the year. If a number of the plants are taken out of the stove or other place where they have been growing, reducing the water at the roots, but not sufficient to make them lose their leaves, placing them in a lower temperature for about six weeks, they will throw up their flower-spikes during the season named.

Young plants of *Gardenia* and *Tabernaemontana* should now have their final shift, so as to get the pots well filled with roots before the autumn sets in. A pit where a growing temperature is kept up suits these best, and if they can have a bed of leaves over hot water, so that the pot can be plunged, so much the better. Should the foliage be infested with insects it must be cleaned by hand with soft-soap and water, as their tender foliage is injured by the use of insecticides.

Bougainvillea glabra should have all the weak shoots cleared away, as it is only the strong growths that flower. If kept well thinned out and a mulching of manure put on the top of the ball (when grown in pots) they may be kept in bloom for some time to come.

The main batch of *Genesera* and *Tydeas* will now be showing bloom; keep them under warm and moist conditions at the roots, but on no account let the foliage get wetted. *Bilbergias* are fine subjects for autumn blooming, namely *B. Morelana* and *B. splendens*.

All root climbers must be kept well thinned out and regulated, for if allowed to grow unrestrained they rob the occupants underneath of light. Reduce

the shading on the roofs of stoves and warm pits, as all growths should now be getting matured.

I do not advise the cool treatment which some adopt with stove plants, as it oftentimes causes them to start into fresh growth when placed in warmer houses later on, and then the plants cannot be depended on to produce much bloom the following season; but when all the occupants in this department have completed their growth the temperature and moisture should be reduced a little; this of itself will cause a partial rest.

PLANTS FOR THE DINNER-TABLE.

As far as possible, a calculation should be made of the number of these which are likely to be wanted and if there be not sufficient in stock of the various kinds which are not readily propagated and grown these should be procured at once. If the stock of *Crotons*, *Dracenas*, *Pandanus*, *Aralia*, &c., were put in as advised they will now be large enough for the purpose, but an addition to the stock of *Palms* and *Aralias* is always desirable. Any fine or new kinds of *Crotons* or *Dracenas* should be procured, so that whilst time remains they can be increased. *Tillandsia zebrina* and *T. muscica* are valuable for this purpose, and some of the *Nidulariums*, such as *splendens* and *fulgens*, which are of a compact character, and owing to the brilliancy of their leave, are well adapted for table plants. *A. Evans*, *Lythe Hill*, *Haslemere*.

FRUITS UNDER GLASS.

MELONS IN PITS AND FRAMES.

THE seasonable weather which we have had was favourable to the maturing of Melons in unheated pits and frames, in which, however, water must be applied very sparingly. In case the plants are likely to suffer for want of water at the roots—which seems doubtful, seeing that the latter can push freely into the dung or leaves underneath—supply it before mid-day, or sufficiently early in the afternoon to allow of the foliage getting dry before nightfall, otherwise mildew may be troublesome, and canker, too, would probably appear. Do not wait till it appears, but use as a preventive a mixture of quicklime and fresh soil around the collar of each plant, which will absorb any unnecessary moisture that may arise on or about the stems of the plants. Late plants will require the shoots to be stopped and thinned, the fruits being well exposed to the light by elevating them above the foliage. The pits and frames should be shut up soon after 2 o'clock P.M., slightly damping the plants overhead at the time on bright days. As soon as the fruits generally show signs of maturing, free circulation of air must be allowed, so as to give flavour and finish to them. Cover the pits and frames at night with mats.

MELONS IN HEATED PITS.

These should be attended to in the way of thinning, stopping, and tying of the shoots when necessary, stopping the shoots at two joints beyond the fruits, and put the supports to the latter in due time, so as to relieve the plants of their weight. Give liberal supplies of diluted tepid manure at the roots when necessary, until the fruits have attained to their full size, when clear water must be given. Damp the plants and house generally more or less every morning and afternoon according to the character of the weather and the stage of growth at which the plants may have arrived, maintaining a somewhat dry and airy atmosphere in houses in which the plants are in flower or the fruits approaching ripeness, and conditions the reverse of these where the plants are swelling off their fruits. Light the fires sufficiently early in the evening to prevent the temperature falling below 70° between sunset and sunrise. *H. W. Ward*, *Longford Castle*.

FRUIT TREES IN POTS: REPOTTING.

The fruit has long ago been gathered from the house that was forced early. The trees have also been repotted into larger pots, and they have rooted well into new potting soil. I have often described our system of potting, and need not go into any minute details except to say that when the trees get large, we take a chopper, and cut the hard ball of roots through just over the drainage, the ball itself is also reduced by the same process, an inch or so is cut off, and the tree returned into the same-sized

pot, from which it was taken out, the compost is rammed in very firmly all round.

AMERICAN PEACHES.

I have read Mr. Gilbert's remarks at p. 244, about the failure of the early American Peaches under glass. I presume his remarks do not apply to pot trees in the orchard-house, or even in an early Peach-house. We have grown Alexander and Amsden June Peaches every year since they were sold first in England, and have always had plenty of fruit. Our first fruits of them were gathered early in April this year, a month or six weeks before Early York was ready. We find Hale's Early also to be well adapted for orchard-house culture. I have not yet tried to grow Waterloo. I know nothing about Ketton Hall, but can take Mr. Gilbert's word that it is a "great Peach place." In that case nearly every variety of Peach and Nectarine ought to be made to bear fruit. The most troublesome variety known to me is Exquisite, and if I forget to look after it personally at setting time, it will most likely fail to bear fruit. It is necessary to take a fine hair-brush to collect pollen from any free-setting varieties to dust the stigmatic portions of the flowers of Exquisite; but we have never done this with Alexander or Amsden June. I fancy we have cropped them annually for ten or twelve years.

THE LATE-HOUSE.

The trees in this house are now in full bearing; but as soon as all the fruit is gathered, the trees requiring reppingotting will be seen to without any delay. Those not reppotted will be top-dressed when the leaves fall. We fumigated the houses well early in the year, and aphids has not been troublesome; but a few have appeared recently, which had to be destroyed with tobacco powder or soapy water, as the house cannot be fumigated when the fruit is ripening.

ORANGE-HOUSE.

I have never tried the culture of this fruit planted out in borders, but would like to have the chance of planting and cultivating an Orange grove under glass. We have, however, long practised the more modest system of pot culture under glass. The trees will succeed well in any house where they get plenty of light and heat. The leaves are apt to become dirty owing to the scale, which will always attack them, and must be washed off periodically with soapy water. The trees ought to be now in quite a warm stove temperature, 70° at night, 85° to 90° by day; in that temperature the fruit will swell rapidly—indeed the Tangierine, which is the first to ripen its fruits, will come in during next month. When the fruits are ripe, or nearly so, the trees may be taken into a cooler house with a drier atmosphere, while the later fruiting varieties, such as St. Michael's, Maltese Blood, and the Silver, may still be pushed on in a moist warm atmosphere. The trees may be daily syringed until the fruit is nearly ripe. If it is not required when ripe, it will hang in good condition upon the trees for many weeks. Any trees with little or no fruit upon them, but which may be expected to fruit next year, should now be reppotted, using good loam, a fourth part of decayed manure, and some crushed bones, with pieces of charcoal intermixed as large as Hazel nuts. *J. Douglas*.

HARDY FRUIT GARDEN.

RASPBERRIES.

If the old fruiting canes are not already removed, in order to give full light and air to the young ones of this year's growth, the work should be carried out as soon as possible. The old-fashioned system of tying five or six canes to one stake has wisely been abandoned for the better plan of tying them out singly to a permanent wire trellis, or a substitute formed with tar twine and stout wooden stakes placed at intervals along the rows, to which the tarred twine is tightly strained; the latter answers the purpose admirably, but, in the long run, is more expensive than the former. This is the time to tie the young shoots out, being careful not to break off the leaves. The young canes should be left full length at present, as it is preferable to shorten them back in the spring if necessary. When the tying is completed, the ground between the rows should be cleared from rubbish and weeds, afterwards the old mulching should be turned

under the surface soil, and when carrying out this work the fork should be driven under the soil, parallel to the surface, only to the depth of 3 or 4 inches, as this will raise sufficient soil to cover the mulching and at the same time break up the trodden surface. The same remarks apply to the treatment of the soil and mulching between the rows of bush fruits, Strawberries, &c.

FRUIT GATHERING.

The gathering of Apples, Pears, Plums, Peaches, &c., will now, and for some time to come, claim daily attention, and when the fruit is dry and ready no opportunities should be lost to pick it when the weather is favourable. Early varieties of Pears, such as *Souvenir du Congrès*, *Colmar d'Ete*, *Burré d'Amanlis*, will soon be ready. Peaches out-of-doors are a fine crop this year. When the fruit commences to ripen they should be regularly examined every morning when the fruit is dry, giving a gentle pull to those which indicate ripeness. The fruit is all the better for being kept in a cool fruit-room for two or three days prior to sending up for dessert. The best main crop varieties we have here out-of-doors are *Royal George*, *Dymond*, *Violette Hative*, *Noblesse*, *Grosse Mignonne*, *Téton de Venus*, and *Walburton Admirable*. *G. H. Richards*, *Somerley, Ringwood*.

The Kitchen Garden.

WEEDS.

DURING the next month every opportunity should be taken of thoroughly cleaning and clearing the garden of weeds, hoeing and raking should therefore be persevered in, and as far as possible all weeds exterminated. One or two good cleanings now will go a long way in maintaining a clean and neat appearance and in keeping weeds in check during the autumn and winter months amongst growing crops, and where the use of the hoe is impracticable, hand weeding should be resorted to in removing big weeds before they seed, which should afterwards be taken to the rubbish heap and burnt.

WINTER STUFF.

The various quarters of Brussels Sprouts, Broccoli, Winter Greens, and the like, should also be gone over, and any small or discoloured leaves removed, and if not already done, the plants supported by having the soil drawn up to the stems.

ONIONS.

These, when the tops and necks begin to shrivel should be pulled up, and allowed to remain on the ground for a few days, meanwhile being turned over in order that they may become thoroughly ripe and firm, choosing a bright sunny day to store them. An airy dry store-room, with open shelves wherever to spread them thinly, would be the most suitable situation for the present, and until they can be assorted and cleaned. This is a favourable time for harvesting seeds of any description, and where not sufficiently ripe and matured at the time of gathering should be placed under conditions favourable for drying, but where the process would not be a too rapid one.

ENDIVE.

Plant out from the seed-beds sufficient to meet the demands throughout the winter. These plantings will supply the most useful crop, and will be available for lifting into frames, or for bleaching on the ground. More forward plants should be tied up or have slates placed over them whilst dry so as to become bleached for use. Where there is suitable accommodation a very small sowing can be made in a cold frame, to be afterwards transplanted into others for very late spring use.

LETTUCE.

Good provision should also be made of these, particularly of *Cos* varieties, by planting out now from the seed-beds all the most forward and strongest plants, and both Endive and Lettuce should be allotted warm sheltered borders and good ground.

TOMATOS.

Those on outside walls should now be ripening. Remove all surplus leaves and laterals, and expose the fruit as much as possible to the influence of the sun and air, and after this date remove all flower-spikes as they appear. The fruit also should be gathered with the stalks attached as soon as they show colour, and placed in a dry, warm, house or room to finish ripening. *John Austen*, *Witley Court*.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Aug 30	1	Sale of Bulbs, at Stevens' Rooms. Great Sale of Bulbs, at Protheroe & Morris' Rooms.
TUESDAY, Aug 31	2	Special Sale of Orchids in Flower, at Protheroe & Morris' Rooms. Bath Horticultural Show (two days). Sale of Bulbs, at Stevens' Rooms.
WEDNESDAY, Sept 1	3	Sale of Shove and Greenhouse Plants, at Stevens' Rooms. Sale of Valuable Imported Orchids, at Stevens' Rooms. Great Sale of Bulbs, at Protheroe & Morris' Rooms.
THURSDAY, Sept 2	4	Sale of Greenhouse Plants, at The Floral Nurseries, Maidenhead, by Protheroe & Morris. Fruit and Dahlia Show, Crystal Palace (two days).
FRIDAY, Sept 3	5	Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms. Sale of Bulbs, at Stevens' Rooms.
SATURDAY, Sept 4	6	Sale of Bulbs, at Protheroe & Morris' Rooms.

AN interesting meeting was held in the Conference-room of the Colonial Exhibition on Tuesday last in connection with the first NATIONAL CO-OPERATIVE FLOWER SHOW, held in the Conservatory. As to the show we need not say much beyond what is stated in our report. In some particulars, as, for instance, Potatoes, it was good; in other points it is as well not to say more than that in all probability, when the effort is repeated another year, the results will be more satisfactory. Suffice it to say that the show was mainly got up by the Agricultural and Horticultural Association, that the competitors were members of the Association, and the produce was the result of seeds provided by that body. We prefer, on this occasion, to dwell rather on the general principles of the Association than on the exhibition, because they embody matters of the greatest importance, and which may confidently be expected in the future to grow and develop into something better.

The paper read by the Managing Director, Mr. EDWARD OWEN GREENING, before a Conference of Representatives of Co-operative Societies had for title, "How can our co-operative organisation be best utilised to promote a love of horticulture amongst our working people." In dealing with this subject Mr. GREENING was commendably clear and judiciously brief. This was shown by the great numbers of delegates from various parts of the country who contributed their share to the discussion. These gentlemen, unlike the reader of the paper, indulged in the stock sentiments as to the refining influence of flowers, and all the rest of it, which is no doubt quite true, but is a trifle stale. Practical suggestions would have been more appropriate than long-winded discussions on ethics and political economy. It may be that these latter matters are in a measure responsible for that tendency to elevate the social and recreative feature of the meeting above the business of the Association, and which was commented upon with some severity by some of the speakers. We must own, however, that if we had come up from Lancashire for a day at the Colonial, we might have felt disposed to eschew the business element, which can be transacted under less distracting circumstances, and under more favourable conditions elsewhere. But perhaps the remarks applied rather to other gatherings than to the one actually under consideration. In any case it is certain that much earnestness for the cause prevailed, and a strong desire for self-help as distinguished from officious patronage. All this is very encouraging, although we doubt not that a little judicious advice from competent persons as to what to do, and how to do it, would be acceptable.

Mr. GREENING's suggestions for adding the pleasures and profits of a garden to every workman's house embraced the following points:—

1. An annual show, to be held by each society.

2. The provision of gardening requisites of all descriptions in small quantities, and at a reasonable cost to all the members.

3. The provision of instruction in botany and horticulture.

4. The organisation of excursions under competent leaders.

5. The provision of allotment gardens.

Adequately to discuss all these points would demand much more than the allotted time for discussion before the members were summoned to tea, and would, if treated in these columns, demand almost as many numbers of the *Gardeners' Chronicle* as there are items in the programme. Mr. GREENING, however, with much skill managed to compress what he had to say within the compass of an eight-page pamphlet.

Our own views as to local flower shows, what they do, and how sadly ineffective they are in promoting horticulture, have often been expressed; and we have repeatedly thrown out suggestions for their improvement, without, so far as we see, much result. The co-operators have evidently much common sense, and they may be trusted to develop their shows into something more useful than a show where there are nearly as many prizes as entries.

One way in which this development may find profitable scope is in carrying out the third item in the programme.

Co-operators, like other amateurs, lose much valuable time and waste much valuable force from ignorance of what to grow and how to grow it. Flower shows as at present organised only partially meet this defect, and indeed they are often misleading. It very often happens that the exhibits at a flower show, and which are supposed to be models, are by no means suitable examples for cottagers and co-operators.

Circumstances alter cases. What may be suitable for the duke's gardener or the wealthy amateur; what may comply with the fashion or the whims and caprice of the day, may be very unfit for the class of whom we are now speaking. What seems to be specially wanting in our rural districts are suitable schools of horticulture—and here we do not allude so much to organised systematic teaching of the rudiments of horticultural science as to practical demonstrations. Co-operators have not time to go to school; their days for sitting on a school form are past. To meet their requirements some such scheme as is carried out in Belgium and in France is required. In those countries competent instructors visit the rural districts at intervals, and give practical demonstrations in the garden of the best way to prune a fruit tree, to bud a Rose, graft an Apple, and so on. They explain the reason why, and point out the best methods of doing this, that, or the other operation, illustrating their remarks by actually performing the operation in view of the class. Such teachers, too, make known what sorts it is best to grow in particular localities, and facilitate the means of obtaining them. Prizes at flower shows consist, not of tea-pots or small money doles, but of approved seeds, tubers, cuttings, grafts of sorts well enough known to those who have access to great gardens, metropolitan flower shows, or to readers of the gardening Press, but which are all but unknown to those who do not enjoy these advantages. Some such scheme we commend to the co-operators for their consideration—no doubt with their keen business instincts they will see their way to improve upon it.

One other point we may allude to, and that is the little use that is made of the parcel post. Consumers in our great towns know to their cost at what price the very inferior supplies from the greengrocer are obtained, and we on our side know what beggarly returns the growers get from their produce. This season we have numerous complaints from the growers that Plums, for one instance, are scarcely worth picking, by the time the expenses are paid, the railway transit and the sellers' commission pro-

vided for, there is little or nothing left for the grower.

Surely here is a chance for the co-operators; let them by means of the parcel post bring themselves into direct communication with the consumer, and we doubt not that they will get a fair return for their trouble, and the consumer will get better value for his outlay. Of course, this would be done only on a very limited scale at first, but healthy things begin by being small, and grow by degrees. We commend the notion to Mr. GREENING and his fellow-co-operators as one eminently worthy of their consideration.

We must not extend our remarks at present, but we may at some other time make some further remarks on the other points in Mr. GREENING's programme. In the meantime it is satisfactory to find the Royal Horticultural Society doing something towards recognising the diffusion of horticulture among a class for whom it has hitherto done but little.

JUST at this season the careful gardener who takes Time by the forelock, is busy taking notes of the various VEGETABLES he grows, with the idea of weeding out the inferior, and substituting some better kinds. And not infrequently the good and trustworthy, but not perhaps showy ones, are marked in the note-book to be wholly or partially discarded for some new candidate for place in the front rank of table vegetables. There is nothing but what is laudable in the pursuit of novelties, both on the part of those who raise them and those who purchase the newly launched commodities of the hybridiser and selector of new kinds, but it will happen, especially now that horticultural societies offer seductive prizes for large, in preference to the best productions of the gardener, that the new favourites do not excel, or indeed equal the old ones in sterling qualities; and nowhere does this fact seem to be so apparent as in varieties of PEAS. With the one exception amongst vegetables of Asparagus, as distinguished from roots, the Pea stands first as a table dish, and in most families it is found on the dinner-table from June till October, and in the preserved state during the winter months, but then only as an occasional dish—no method being known by which the delicate and evanescent flavour can be wholly preserved. Hence gardeners become greatly interested in anything connected with the universally liked vegetables, as proved by the amount of correspondence on the subject that reaches us from time to time during the season of Peas.

The gardeners may be roughly classed into lovers of big pods and of little pods; the first are mostly men who exhibit, and who, owing to the false standard fostered by judges at horticultural shows, attach all importance to size, be the other qualities what they may; the latter prefer the small podded, abundant cropping, and generally sweeter Peas, like Hare's Mammoth and its selection, Veitch's Perfection, and the many kinds of which these are near or distant relatives raised by Mr. LAXTON, Dr. MACLEAN, and others; and we cannot but think that in the course of time the sweet flavoured prolific "Marrows" will drive the coarser kinds out of all well ordered gardens.

Amongst other Peas than those named which possess all desirable good qualities we must not pass over Champion of England, Ne Plus Ultra (which is almost mildew-proof), Paradise Marrow, and the Early Advancer. Supreme is a good variety for a special purpose, for it may be sown to give its pods at about a certain date, after which time there is no succession of pods, and the ground may be cleared for another crop without delay—a great advantage to the market grower or the gardener with a limited area of garden ground.

Some persons like round Peas, and others



FIG. 55.—CHRYSANTHEMUM MAXIMUM: HARDY PERENNIAL: FLOWERS WHITE: POLLEN MAGNIFIED 320 DIAM. (SEE P. 274.)

again the wrinkled Marrow; but as the host does not select vegetables for himself alone, but for his family and his guests, and the majority of persons liking the latter the best, these varieties find the first place in the kitchen garden all over the country.

We have mentioned the fact of the large Peas finding favour with judges at shows, which will reasonably account for the estimation in which they are held by exhibitors; but we think that gardeners with small gardens should not grow them, for the rows will need more space between them than less tall, robust kinds; and if the rows should run singly at wide intervals across the quarters, the amount of space on either side must be large, and yet considerable shade will be thrown on the neighbouring crops that will be rather detrimental than otherwise.

In the matter of sowing Peas, there should be some little reform; we know that as a rule too many Peas are purchased, without there being adequate reason for so doing. It is no uncommon thing for half a peck of Peas to be sown in a drill of fifty yards, when, if the seed had been placed singly at 2 or 3-inch intervals, the plants would have been much stronger and far more prolific. There can only be two motives for thick seeding—those are, losses accruing from such depredators as mice and pheasants, and even here Pea-guards and traps would prove to be cheaper than the yearly outlay on large quantities of seed Peas. The points in good Pea culture may be summed up as consisting of deeply-trenched ground, if it is good enough to bear it; abundant manure, plenty of space, thin seeding, timely sticking to prevent wind twisting, and plentiful supplies of water or diluted liquid manure in hot weather, with mulchings of half decayed litter laid on for a breadth of 2 feet on each side of the row.

Every cook and housewife can cook Peas according to our island fashion, but the same Peas, if stewed in a small quantity of soup and eaten with or without meat, would be appetising and more nourishing, retaining the flavour fully, which with our method of boiling in a large quantity of water becomes in a measure dissipated.

— **CHRYSANTHEMUM MAXIMUM** (fig. 55, p. 273). —The Rev. C. WOLLEY DOD sends flowers of *Chrysanthemum* (*Leucanthemum*) *maximum* (DE CANDOLLE), a Pyrenean plant, often confounded in nurseries with *C. latifolium* (syn. *lucastre*), a taller and coarser plant, flowering later, and found wild in Portugal and near Naples. The stalk sent of *C. latifolium* was raised from seed sent from Portugal, where it grows to feet high. Perhaps all these varieties may belong to one botanical species. As much confusion exists in gardens we give a figure of *C. uliginosum* (fig. 51, p. 265), which is later in flower and has thinner, narrower, and more deeply toothed leaves. *C. maximum* and *C. lucastre*, we suspect, as our correspondent says, belong to one species. All are useful plants at this season for cutting or for general effect in the border.

— **PROFESSOR REICHENBACH.** —We are requested to state that the Professor's address for the next fortnight will be Herbarium, Royal Gardens, Kew.

— **BOTANICAL DEPARTMENT, JAMAICA.** —Pending the decision of the Local Legislative Council as to the future of the Department, Mr. J. HART has been appointed Acting Director.

— **HORTICULTURAL INTERNATIONAL EXHIBITION, DRESDEN, MAY 7-14, 1887.** —The committee of the above exhibition has sent out the official programme. It contains 392 different classes, with more than 1000 prizes, exceeding in amount 20,000 marks (= £1000), and is to be obtained free on application to the "Geschäftsausschuss der Internationalen Gartenbau-Ausstellung, Dresden." His Majesty the King of Saxony most graciously consented to become protector of this large enterprise; the Privy Councillor VON EINSEDEL, Director of the third department of the Royal Saxon

Ministry of the Interior, has been appointed Government Commissioner; and Dr. STUEBEL, first burgomaster of Dresden, has accepted the post of honorary President of the committee. The grounds where the exhibition will take place are situated in the fine old park of the royal residence, close to the city, and in a most lovely and sheltered spot. Ten hectares were last spring prepared for exhibition purposes, the necessary buildings covering 6000 square metres (more than 70,000 square feet). The committee will do its utmost to supply foreign exhibitors with every possible facility, so as to secure to the exhibition an international character. It seems to have taken for its model the well-known quinquennial exhibitions at Ghent.

— **PROLONGED VITALITY OF SEED.** —From the gardens at Glen Grant we have received two joints of the pod of *Eutada scandens*. The pods of this plant are very large and woody, each joint containing a single large seed. We have heard of these pods being made to serve the purpose of door knockers in the West Indies, and this use suggests another, viz., that they might be used as rattles to keep the birds off fruit trees. If we remember rightly, seeds of this plant have been washed up in a germinating condition on our western coast, but this is of minor importance as compared with the story told in the following letter:—

"The enclosed are two Beans from the joint of a pod 2 feet in length, and containing ten Beans. This pod was brought home from India over forty years ago by the late Dr. TAYLOR, of Elgin. Two months ago I put several of the Beans in a pot in our stove, and to my surprise two of them have germinated and thrown up stalks which are now over a foot in height. The Beans have not been preserved in any special way, so that under these circumstances and after so long a lapse of time it is strange to see vitality so strong in them. Perhaps you could tell me what is the name of the plant from which the enclosed has been taken off. *Glen Grant.*"

— **Kew.** —The gardens are very beautiful just now, and as usual full of interest. The rockwork is such a success that it makes us long for a proper bog garden; the recesses that do duty for one at present are quite inadequate, and the tank hardly meets the requirements we have in view. The planting of the shrubby beds has been greatly improved of late, and beds of shrubs of interesting or striking character are inserted in place of masses of common Laurels and other tolerably well-known plants. Beds of variegated shrubs, of *Fuchsias* and of *Salvias* of various kinds, of *Helichrysums*, of *Phloxes*, and *Hydrangeas*, illustrate what we mean, and constitute a comparatively new feature of great interest. *Lilium auratum* in the Rhododendron beds adds variety to what at this season would be monotonous green beds. In the houses the massing system is introduced in a similar way—a clump of *Exacums*, or *Cockscombs*, or *Agapanthus*, or what not. This is better than a biggedly-piggledy arrangement, and allows of the character of the plant being better seen; but, for effect's sake, we should vote for a mixed system, in which a clump of some striking flower should rise from a mixed border as it were, rather than have a mass of one flower in juxtaposition with another group of some other flower. A bench of *Lilium speciosum* and blue *Agapanthus* intermingled is very beautiful just now in No. 4. What an eye for effect, too, had he, whoever he was, who lined the bed on one side of the Succulent-house with an edging of the extraordinary and curious *Streptocarpus Dunnii*, each plant with a single very large boldly crumpled leaf, and a panicle of pale dull red flowers. We should never have thought of growing a *Streptocarpus* in such a position, but the effect is unique. The pale cream-coloured *Crocus vallicola* may be noted in the *Crocus* bed. It looks as *insolite* in its way as the *Streptocarpus*. A bed of species of *Nicotiana*, opposite No. 2 Museum, should attract the attention of those enthusiasts who are looking to grow Tobacco in this country; the different periods at which the leaves ripen off is especially noteworthy, from this point of view.

— **MR. BULL'S ORCHIDS.** —Although the special exhibition which Mr. BULL holds for so many weeks during the summer has now closed, the visitor may still find much to interest him; indeed, we are disposed to think that the real Orchid lover will find a visit more satisfactory now when the number

of plants in bloom is greater. At any rate, he can study the plants more effectively and more at his ease. Those who want something gorgeous to look at may still find *Cattleya Dowiana* and *C. speciosa Mendellii*, *Lælia Amanda*; *Oncidium dasystyle*, with its bee-like lip, forces itself upon the visitor; *Maxillaria venusta*, *Oncidium Papilio*, and its allies; *Dendrobium bigibbum*, *Catantemus* of various kinds, *Miltonias*, *Epidendrum prismatocarpum*, *Renanthera coccinea*, small plants full of flower, and various others, are still to be seen, including the beautiful *Cypripedium Spicerianum*, which is blooming out of season. Where such large quantities are grown some will be sure to be out of season, but none the less welcome. For the lover of curiosities Mr. BULL has a treat in store in the shape of a new *Aristolochia*, closely allied to *A. ariantha*, but differing from that species. In form it is grotesque, but the distribution of colour is singularly beautiful. We hope shortly to have an opportunity of figuring this species, which has but one drawback—the smell, not of the flower, but of the leaves.

— **PASSIFLORA VITIFOLIA.** —If this Passion-flower could be made to bloom with the freedom of *P. racemosa* or *P. kermesina* it would simply be magnificent, but rather overpowering if the flowers were numerous, owing to the intensity of colour, which is a brilliant or vermilion-scarlet. This applies to both sepals, petals, and corona, with the exception perhaps of the keel or excurrent midrib of the sepals, which is often or usually green. The flowers are axillary, solitary, and several inches in diameter, resembling a *Tacsonia* in general aspect, and is often called *Tacsonia vitifolia* or *T. Buchananii*. The elongated tube, however, by which *Tacsonia* is distinguished generically from *Passiflora* is here absent. The leaves are ample and deeply three-lobed, with indications of two small lateral lobes near the base in strong specimens, and irregularly toothed, with much broader and ovate segments, very different from those of the *Tacsonia Van Volckemii* type, to which the flowers bear a superficial resemblance. There is a good representation of the species in the *Floral Magazine*, n.s., 317, and a flowering specimen may be seen in the Palm-house at Kew trained to wires under the curvilinear roof. It may be cultivated in a large pot, using light rich loam and fibrous peat, with sufficient silver or river sand to ensure sufficient porosity; but like many or most other species it gives most satisfaction when planted out as at Kew. The climbing stems attain great length, and consequently require more room for root extension than could be conveniently given them in a pot. The plant is a native of Panama, and the northern parts of South America.

— **EXPERIMENTAL TOBACCO CULTURE.** —On some ground rented by Messrs. CARTER & CO., at Plaistow in Kent, a number of varieties of the Tobacco plant are now undergoing a course of trial, so as to ascertain the varieties best suited to our climate. The ground is so far suited to the growth of the plant it being well sheltered, but although its area does not exceed three-quarters of an acre, there appears to be considerable diversity in its fertility, as is shown by the varying heights and strength of the plants; and the lowest part of the ground is liable to be flooded by water from a neighbouring ditch. These drawbacks could be avoided by deep digging after an even distribution of homogeneous well-rotted manure, and by other obvious changes. The sorts grown are Havana, Spanish Seed-Leaf, Florida, Yellow Pryor, Hester Virginia, Pennsylvania, One Sucker, Kentucky, Virginian, Big Frederick, Maryland Broadleaf, Island Broadleaf, White Burley, White Stem, Yellow Oronoco, Connecticut, and Glasner. The most promising Tobaccos are those which are long jointed and broad-leaved. These carry their foliage clear of the soil, and are in consequence not disfigured by dirt or injured by worms and slugs; the air gets better amongst them than in the case with the short compact-habited sorts whose leaves, as in the case of Cann's Seed-Leaf, lie on the ground or nearly so. Glasner, Connecticut, Pennsylvania, and White Burley are each more or less, so far as could be seen now, of this close dwarf habit. The other kinds differ from these in being, as we have said, of an ascending habit, with long intervals between the leaves. Some have slender foliage, pendulous at the tips; others support the leaf horizontally, or nearly so; and in scarcely any of them are the various hues of green alike. The plants are now

growing fast, and if the weather continues warm, without rain, great progress will be made before we get frost in that part of the country. The method of cultivation adopted is that generally advocated by men of experience in the United States of America, the plants being set out on slight hillocks standing 3 feet apart in the row, and 4 feet between the rows, the greater space affording means of getting amongst the plants with the cultivator in the early stages, and with the hoe later. Topping the plants as they show the flower-buds and have developed nine leaves, without reckoning the bottom pair, and constantly removing laterals, requires the constant attention of the man in charge of the crop. If it should be found to answer, and our Government fix an Excise tax on each plant, as is done in Belgium, it would prove a source of revenue to our small farmers and cottagers, as the profits per acre are considerably higher than those from corn, &c.

— A BI-GENERIC HYBRID.—We know nothing of Bulgarian atrocities or other news of the week that will for a moment compare with the interest attaching to MESSRS. VEITCH'S hybrid between Sophoranthus and Cattleya, described by Professor REICHENBACH at p. 263. The result, as will be seen, is not a Cattleya nor a Sophoranthus, but a *Lelia*! We are confident that Mr. SEDEN has accomplished a revolution in botanical science which in its possibilities and far-reaching significance puts Home Rule, or any ephemeral accident of that kind, quite in the shade. If politicians cannot see it in the same light, that is not our fault. They deal with the things of the day—this is one of the "external verities," as CARLYLE would say.

— SWISS SOCIETY OF NATURAL SCIENCE.—The meeting of this society, the oldest of its kind holding meetings in different towns, has lately been held in Geneva. Among other papers read was one by Dr. GILBERT on "Aggregate Temperatures." This was the more appropriate, as the veteran botanist of Geneva, M. ALPHONSE DE CANDOLLE, was the first to draw the distinction between what may be called useless temperatures and those which are useful. No temperature lower than 32° Fahr. can be considered useful to plants, and in most cases a considerably higher degree is necessary, hence in applying meteorological records to practical purposes it is necessary to eliminate all those lower than a certain degree as useless. It has been ascertained that for each plant a certain aggregate amount of heat is necessary—so much for the production of foliage, so much more for the production of flower and seed, and so on. Dr. GILBERT, therefore, availed himself of the unique series of observations at Rothamsted to prepare a paper, entitled "Some Illustrations of the Connection between Aggregate Temperature and Agricultural Produce." The paper contained a summary of the records of Rothamsted and of the Meteorological Office, comparing the results with those of a like character in different countries. M. ALPHONSE DE CANDOLLE spoke at length on the subject, and we may shortly hope to be able to publish an abstract of this paper of such vast interest to cultivators.

— WHAT CULTIVATION DOES.—Mr. BARR furnishes us a good illustration of this in the shape of some root-stocks of the lovely *Anemone fulgens*. Wild specimens before us vary from 1 inch to 2½ inches in length, with an average diameter of about half an inch. Cultivated specimens measure 4 inches in length by 2½ of 3 inches in width, and are divided into numerous stout, sturdy branches, giving abundant promise for the future. Tourists and plant lovers should remember this, and not uproot the native plants, but collect the seed and grow it on, or get the nurseryman to do it for them.

— CHANGE OF ADDRESS.—Mr. ALEXANDER CREWE, late Manager to Messrs. VICKARS, COLLYER & Co., Leicester, has been appointed to a similar post in the establishment of Mr. R. H. VERTEGANS, Chad Valley Nurseries, Birmingham.

— PUBLICATIONS RECEIVED.—*Revival of Trade by the Development of India*. By W. BIRKMYRE.—*Reports on Insects Injurious to Fruit Crops*. (Agricultural Department. Privy Council Office.)—*The Mulberry Silk-worm: a Manual of Instructions in Silk Culture*. By C. V. RILEY, M.A., Ph.D. (U.S.A. Department of Agriculture.)—*Report of the Entomologist* (C. V. RILEY, M.A., Ph.D.) for the Year 1886. (U.S.A. Department of Agriculture).



GRAFTED AND BUDDED TREES.

ANY such must now be examined, the bandages loosened or renewed, and shoots growing below the junction be rubbed off. Hollies, Thorns, and Chestnuts may still be worked, but the sooner the buds are inserted the more rapid and strong the young shoots will appear.

NEW PLANTATIONS.

All grounds intended for planting will now require to be enclosed, drained if necessary, cleared of rank herbage—Gorse, Broom, rough grass, and brush—and pitted, where such is found most suitable for the future welfare of the young plants.

Early pitting should always be the rule, and particularly where the soil is stiff, as the upturned earth is thus exposed to the influences of the early frosts, which make it well fitted for the reception of the plants. In removing Gorse and Broom from land that is to be planted, grubbing will be found to be the best way, removing every root and twig, or else these will prove a source of danger by fostering insects and fungoid pests, to the detriment of the trees. Draining should be performed as early as possible in the present month, so that by planting time the ground may be in a workable condition.

PINE BEETLES.

Keep a sharp outlook amongst newly planted Firs and Pines for beetles and caterpillars, as this is their busy time. *Pinus Laricio* was thought to be exempt from the attacks of the Pine-beetle, but this, I am sorry to say, is not the case, for some 12,000 plants, put in at about 1000 feet altitude, on this estate, have suffered severely. For identification of the insects, and the best methods of exterminating the same, we would strongly advise foresters or others in charge of woodlands to apply direct to Miss Ormerod, as too much of the information usually appearing under this head is very faulty.

DRAINS.

Drains will be apt to get choked up by Nettles and other weeds, the growth of which has been extraordinary during the past month, so that it will be found advisable to pay extra attention to this matter. This may be considered as the best season for clearing all woodland ditches, mouths of closed drains, culverts, &c.

HEDGES AND FENCES.

These may now be trimmed closely in, the soil along their sides cleared of weeds, and any branches of trees which overshadow them cut back. Overhanging branches are always injurious to live fences of all kinds, and should be cut back at least once every year, and no better time for such will be found than when the hedges are receiving their annual trimming during the summer months. Prepare ground for the reception of Quicks in autumn by deeply digging or trenching it over, poor soils receiving a good coating of decayed farmyard manure before being dug. Plant the Quicks during favourable weather in late autumn, or before Christmas, as the Thorn being one of our earliest plants to start into growth must be got in early, so as to have a fair chance of becoming established during the following year. More than at any other season of the year fences generally will require attention, so that the trespassing of farm stock to the woods may be prevented. Cattle are now so tormented by flies that the cool woodland is a pleasant resort, and anything but a fence of the best material and construction will be useless for the purpose. During dry weather cart materials for the erection of new fences, but particularly those on high hilly grounds, as the cost of transit is considerably lessened at such a time.

Tree guards will likewise require an occasional examination to see that all is secure. Upright stakes nailed to a circular hoop at top, we find the best both for appearance and efficiency, hurdles taking up too much room, and wire netting placed around the stems being both dangerous and risky, and more especially where valuable horses are kept, their shoes getting entangled in the wire. Rabbit-proof nettings and the stakes and ties of last year's planted Conifers should also be examined and repairs done where such are found necessary.

RIDES AND DRIVES.

Trim and mow wood rides and shooting paths, and prune park and hedgerow trees, removing all ill-balanced and drooping branches, as well as dead twigs and limbs. The Portugal Laurel and Laurustinus were, in this and other districts, severely cut by the unseasonable frosts, so that a little trouble in the way of pruning will, for the sake of neatness, have to be taken.

GENERAL WORK.

Work in the woodlands, including thinning, removing of timber and firewood, pruning of dead branches from recently thinned Oak plantations, and removing of superfluous shoots from coppice stools, should be pushed forward, and finished early in the month; indeed such work should precede the harvest, so that the game, on being driven into the woods as the crops are cut down, may not be disturbed by the operation. Collect branches alongside the drives and roads in the woods, and have these made into faggots and removed.

About the latter end of the month is the best time to transplant all evergreens, but it is likewise well to choose dull damp weather for the work. By thus making an early start the plants will be able to lay hold of the ground while the temperature is still high and get established before winter sets in—a point much in their favour, for if they come through that season unharmed they are much better prepared to withstand the east winds and partial droughts from which spring planted evergreens usually suffer so much.

Rarely have we seen such a heavy crop of cones as is at present visible on the various species of Abies, Picea, Pinus, Cedrus, and Cupressus. The branches of *A. nobilis* are, in the majority of cases, borne down with the unusual number of large sized cones, which may likewise be said in a minor degree of *A. Nordmanniana*, *A. cephalonica*, and *A. Webbiana*. How soon the pretty little cones of *P. Menziesii* assume a brown and ripened tinge!—indeed, a month ago, when numerous others on allied species were hardly fully formed, those on this distinct and desirable Conifer were glistening in the sunlight. Perhaps never before have such a number of our forest trees produced a second growth as during the present peculiar season, and certainly seldom so early numbers of the Oak and Beech during the final weeks of July. It is to be hoped that we shall have warm dry weather, so as to ripen these ill-timed though highly ornamental growths. *A. D. Webster, Penrhyn Castle, North Wales.*

Notices of Books.

Golden Feather. By the Author of *Mehillah* John Herring, &c.

This is one of the series of penny novelettes lately projected by the Society for Promoting Christian Knowledge, with a view to improve the taste in fiction of the masses. Mr. Baring-Gould, it seems to us, has produced in *Golden Feather* an ideal of what such a tale should be. To say it is equal to the general run of 31s. 6d. three volume novels, considering their invertebrate morality, dull prolixity, and sameness, would be poor praise. As the hero is a gardener, and the greater number of the incidents move in a horticultural atmosphere, it should prove of great interest to a number of our readers. The story opens with an exemplified definition of the Essex phrase "Tiffing toily." And at the end of the first chapter we get to know what "toit tiffing" may mean in the life of a family. A contrast is next drawn by a description of the happy home of a small seedsman, who had a vast tenderness for Balsams. This seedsman, Deval, by name, has two sons. The older, a scapegrace, has no fondness for anything in his father's nursery except the Tobacco, which he purloins for his own use. These thefts lead to a quarrel between father and son. The old man never could see the *raison d'être* of smoking folks, he was wont to declare, had no greenly in their insides. The eldest son, who was really a graceless scamp, finally leaves the paternal roof and goes to sea. A report soon transpires that he has been drowned—much to the sorrow of the mother, who loves her profligate elder son far more than the quiet, genuine younger brother. Matters, again, do not go so smoothly as possible between the father and this son. He had an ambition above Balsams. "He

would rather be a chimney-sweep than stick at Petunias," which flower his father had suggested as an alternative to Balsams; he had made up his mind to be a Rose grower, and a Rose grower he would be.

The tale from beginning to end, where the younger boy comes over from his Rose nursery at Chantilly, and wins the chief prizes at an International Rose Show at Colchester, and at the same the sweet type of womanhood drawn in the person of "Golden Feather," has an unflagging interest. Mr. Baring-Gould shows an intimate knowledge of gardening life which one would hardly expect from the weird vein he has been working in his other romances. Besides the hero and heroine all the other characters are good. Particularly well drawn are the occupants of the miserable household from which the blameless "Golden Feather" emerges. The mother is one of those unhappy women "who are always in a mess, and the harder she worked the greater the mess into which she reduced the house." Her description of the uses of a petticoat is worth quoting. "You see what a blessed mercy a petticoat is to a mother of a family; it's like a towel, and a duster, and a handkerchief, and a glasscloth, and a brush, and a score of other things combined; if you haven't what you want handy, you have only to whip up the side of your gown, and you can use the petticoat to clean a plate, or wipe the table, or wash a face, or when Malonic has been a-banging me about in his playful ways, I can wipe my eyes with it, or you can try an iron on it, or use it as a kettle-holder. You let down your gown and nobody's the wiser. It's just—just like the drop-scene of a theatre."

Another good point is that there is no moral drawn at the end, but the tale cannot avoid teaching a good lesson, and ought to be known in every poor household.

Florists' Flowers.

CYCLAMEN PERSICUM.

The valuable note by Mr. James Douglas at p. 246 illustrates in the most direct manner the familiar but much abused truth, that we must look to Dame Nature as our teacher when our ambition is to succeed in plant growing. It will be good for young gardeners to read the note a second time, and men who have given up the habit of being "young" may in many cases certainly derive something from it. The cultivation of the Persian Cyclamen is one of the most modern of arts, as the books will show to those who know nothing of exhibitions or markets. It was the custom to "dry off" the corms when the flowering was over, and the plant was always hovering between life and death until within some five-and-twenty years of this time, since when the teachings of Nature have had some amount of respect, and the Cyclamen has become a truly wonderful thing. In the year 1858 I made a venture in this business, following the stupid old routine of drying off. It is said that "dead men tell no tales," but that is a grave mistake, for they tell tales of the doctors, the heart-breakers, and the wretches who make promises they do not intend to keep. My dead Cyclamens used to say to me in words I could actually hear, "This drying-off is a deadly business, give it up." And I gave it up, and acted on the theory of continuous growth as a feature of the life-history of this lovely plant. I did the same with Calla (Richardia) ethiopica, and had the generous aid of the *Gardeners' Chronicle* in dispelling the delusion that is embodied in the drying-off that beauty which no more needs such severe treatment than Mont Blanc requires whitewashing. The improved cultivation of the Persian Cyclamen has acquired historical importance, for it illustrates the whole theory of horticultural progress in the past half century. The life of the modern garden may be said to be coeval with that of horticultural journalism, dating, say, from the time of the Reform Bill, 1832, when Loudon was in full swing and railroads were in their procreant cradle. Yes, I soon found that drying-off was a clever method of compelling the dying off of my pets, and I adopted the plan of continuous growing, subject to a sort of tidal rise and fall, the low tide time in this case meaning moderate moisture, and a temperature just low enough to favour rest. I should

much like to establish the date, if only approximately, of the origin of Cyclamen culture according to modern ideas. It needed but a few striking facts and agreeable reflections thereupon to satisfy me that to dry off a Cyclamen corm was to make a bad mummy of it. I want to supplement the valuable paper of Mr. Douglas by saying that tidal growth is the secret of success, and low tide should always mean that moisture is still requisite—what is understood as desiccation being a desecration of this delicate gift of the All-giver. In the *Garden Oracle* for 1863 I published what I then believed, and do still believe, was and is the best short essay ever penned on the subject; but if somebody will show me a better of an earlier date I will be in haste to cry "Peccevi." And here is the substance of it, which possibly is a good code still for success in Cyclamen culture. A stock of useful plants may be raised in six months by a very simple course of action. Prepare a number of shallow boxes 3 inches deep, or, lacking these, use shallow seed-pans. Over the corks spread tough peat in half-inch lumps, and fill up with a mixture of equal parts peat, turfy loam, leaf-mould, and sharp sand. In January sow the seeds singly 3 inches apart every way, and put the boxes or pans on a tank or bank bed in a moist temperature of 60° Fahr. As soon as the seedlings show, look over with sharp eyes and insert a seed wherever one has missed. Keep them going at 60° until March, then raise the heat to 70°, and be careful to maintain a rather high degree of atmospheric humidity while supplying water to the roots with regularity and freedom. By the first week in June you ought to be in possession of a fine lot of growing plants, and it will be time to promote the formation of the flowers. To do this put them under the stage, or remove to a cool greenhouse, and at the end of the month remove again to a frame or pit. From the time of removal from the growing stage they must have less and less water, but they must never be dry, for drought at any time is deadly to the Cyclamen. The month of July should see this chapter of the cultivation completed, and the whole of the stock may be potted for flowering—the routine for securing the crowning delight being nearly the same as for producing the plants in the first instance. *Shirley Hibberd, Ken.*

A REVISION OF THE GENUS PHALENOPSIS.

(Continued from p. 212.)

Section II. PROBOSCIDIODES.—Sepals and petals as in Euphalenopsis, lip without apical appendages; column with a long proboscis-like rostellum, and singularly like an elephant's head and trunk—hence the name.

8. *P. Louiei*, Rehb. f., in *Bot. Zeit.*, 1862, p. 214; *Gard. Chron.*, 1862, p. 979; *Proc. Roy. Hort. Soc.*, ii., p. 726; *Bot. Mag.*, t. 535; *Warner, Sel. Orch.*, ser. 2, t. 15; *Rehb. f.*, *Xen. Orch.*, ii., t. 151; *Fl. des Serres*, t. 1970.—A handsome species, differing from all others by the remarkable rostellum, which resembles an elephant's trunk in appearance. It is also remarkable for its deciduous habit. Sepals and petals rosy-blush; lip yellow at base and purple in front. Native of Borneo and Moulinein.

Section III. ESMERALDA, Rehb. f.—Petals not or scarcely broader than sepals; lip without apical appendages, but with a pair of slender linear appendages on the stalk of the lip below the lateral lobes; the latter character alone separating it from the following section. Two species from Burma and Cochin China.

9. *P. Esmeralda*, Rehb. f., in *Gard. Chron.*, n.s., ii., p. 532; *Rev. Hort.*, 1877, t. 107; *Fl. Mag.*, n.s., t. 358.—A pretty little species, with flowers in elongated racemes, amethyst coloured, and about the size of *P. rosea*. Some varieties have pale coloured flowers. Native of Cochin China.

10. *P. antewipera*, Rehb. f., in *Gard. Chron.*, n.s., ix., p. 398, and xviii., p. 580.—A pretty species, somewhat resembling the preceding. Spikes about 2 feet long. Flowers light rose-coloured; front lobe of lip amethyst coloured, side lobes striped with orange-red. Native of Burma.

Section IV. STAUROGLOTTIS, Benth. and Hook f.—Petals not or scarcely broader than sepals; lip variously shaped, but without the apical appendages of the section Euphalenopsis, or the basal appendages of the section Esmeralda. The first three species have the apex of the lip notched, but do not otherwise differ. It is by far the largest section of the genus, the species numbering twenty-four. They are spread over the islands of the Indian Archipelago, with two or three species in continental India.

11. *P. amethystina*, Rehb. f., in *Gard. Chron.*, 1865, p. 410; 1870, p. 1731, with a Cyclamen-like species, with cuneate-oblong leaves, and small cream-coloured flowers, with an amethyst lip. This latter is shortly notched at the apex. The locality is given as Sondaic Islands, so is possibly Java or Sumatra.

12. *P. Stobilaria*, Rehb. f., in *Gard. Chron.*, n.s., viii., p. 392.—Described as "a curious little plant, in the way of *P. amethystina*, with very uncommon colours." The sepals and petals are apple-green, changing to yellowish-green; lip amethyst coloured, changing to cinnamon-red; lateral lobes of lip marked with yellow and white. Native country not stated.

13. *P. Hebe*, Rehb. f., *Hamb. Gartenz.*, 1862, p. 35; *Xen. Orch.*, ii., p. 5, t. 156; *P. bella*, Teijsm and Binn. in *Batav. Nat. Tijdschr.*, xxiv. (reprint, p. 17).—A small flowered species, probably not now in cultivation. The flowers are white with some purple stripes on the lip, and borne in short spikes. The front lobe of the lip is very short and again divided into two rounded lobes. Native of Java.

14. *P. rosea*, Lindl., in *Gard. Chron.*, 1848, p. 671, with fig.; *Bot. Mag.*, t. 5212; *Pact. Fl. Gard.*, ii., p. 72; *Fl. des Serres*, t. 1645.—*P. equestris*, Rehb. f., in *Linnaea*, xxii., p. 864.—*Stauroroglossis equestris*, Schauer, *Act. Leop.*, xix., Suppl. 1, p. 432.—A very pretty species, the rose-coloured flowers being borne in branched panicles. Native of the Philippines.

15. *P. leucaspis*.—*P. equestris* var. *leucaspis*, Rehb. f., in *Gard. Chron.*, n.s., xv., p. 638.—Said to be a distinct variety, having a white callus with brown dots, and no brown on the base of the lip. It sometimes has a yellowish hue.

16. *P. deliciosa*, Rehb. f., in *Bonpl.*, 1854, p. 93; *Hamb. Gartenz.*, 1860, p. 116.—Allied to *P. rosea*, but more slender and with smaller flowers. Native of Java, and probably not in cultivation.

17. *P. Parishii*, Rehb. f., in *Gard. Chron.*, 1865, p. 410; *Xen. Orch.*, ii., p. 144, t. 156; *Bot. Mag.*, t. 5815.—A tiny little gem, with short flower-spikes of white or cream-coloured flowers with a purple lip. This organ bears a curious fringe on its disc, and moves freely backwards and forwards from its jointed attachment. Native of Burma and Moulinein.

Var. *Lobbi*, Rehb. f., in *Ref. Bot.*, t. 85.—Differs from the type in the lip having two broad chestnut bands alternating with three narrow white bands. Native of the Eastern Himalayas.

18. *P. pallens*, Rehb. f., in *Welp. Ann.*, iv., p. 932.—*Trichoglossis pallens*, Lindl., in *Journ. Hort. Soc.*, v., p. 34; *Pact. Fl. Gard.*, i., p. 15.—*Stauroroglossis pallens*, Rehb. f., in *Hamb. Gartenz.*, 1860, p. 117.—A curious little species described from a plant which flowered at Chatsworth in 1850, but which seems to have since been lost sight of. Flowers nearly 2 inches in diameter, pale delicate green with a white lip; the latter organ oblong with a white shaggy crest.

19. *P. Reichenbachiana*, Rehb. f. and Sander in *Ga. Chron.*, n.s., xviii., p. 586.—Closely allied to *P. pallens*. The flowers are borne in racemes; sepals and petals whitish-green with brown markings; side lobes of lip orange and white, central lobe mauve-blue. Native country not stated.

20. *P. Devriessiana*, Rehb. f., in *Hamb. Gartenz.*, 1860, p. 116.—Described from a drawing made by the Dutch botanist and collector, De Vriese. The description is very imperfect, and points to an affinity with *P. cornu-cervi*, but differing in the front lobe of the lip, which is said to be narrowly oblate. Native of Java, but apparently only known from the drawing.

21. *P. cornu-cervi*, Bl. and Rehb. f., in *Hamb. Gartenz.*, 1860, p. 116.—*Polychilos cornu-cervi*, Breda, *Orch. Java*, t. i.; *Bot. Mag.*, t. 5570.—An interesting plant on account of its curiously flattened rachis. The flowers are smaller than those of *P. Luddemanna*, the sepals and petals greenish-yellow with transverse brown bars, and the lip creamy-white. The central lobe of the lip is short and much dilated, the front edge being somewhat crescent-shaped. Native of Java and Sumatra.

22. *P. pantherina*, Rehb. f., in *Bot. Zeit.*, 1864, p. 298.—Described from a dried specimen, and probably not yet in cultivation. It is allied to the preceding, but differing somewhat in the shape of the lip, the front lobe of which is described as retuse with an apiculus. The flowers are marked with red spots on a yellow ground. Native of Borneo.

23. *P. Mannii*, Rehb. f., in *Gard. Chron.*, 1871, p. 602.—A pretty species, with branched racemes of several flowers; the sepals and petals are yellow with cinnamon-brown blotches, the lip white with purple markings. It is allied to *P. cornu-cervi*, and was discovered by Gustav Mann in Assam.

24. *P. Boxallii*, Rehb. f., in *Gard. Chron.*, n.s., xix., p. 374.—A pretty species, allied to the preceding. The sepals and petals are sulphur-coloured, the former barred and blotched with brown, the latter with three longitudinal stripes of the same colour; lip white, front lobe crescent-shaped with blunt angles and a central tubercle, lateral lobes erect, disc with a short, bicuspidate

yellow lobe, with a mauve and white keel in front. Introduced by Mr. Boxall from the Philippines.

24. *P. violacea*, Teijsm. et Binn., in *Batav. Nat. Tijdschr.* xxiv. (reprint, p. 16); *Fl. Mag.*, n.s., t. 312; *Gard. Chron.*, n.s., xvi., p. 145, fig. 32; *Orch. Alb.*, t. 182.—*Stauntonia violacea*, Rehb. f., in *Hamb. Gartenz.*, 1862, p. 34.—A very handsome species, with erect spikes of large violet flowers, opening a few at a time, and remaining in perfection for a considerable period. The lip is thick and fleshy, the central lobe very deep purple, the side lobes erect, small, deep purple and orange colour. Native of Sumatra. The following varieties have been described:—

Var. *Murioniana*, Rehb. f., in *Gard. Chron.*, n.s., x., p. 234.—Flowers lemon-coloured, with purplish bars at the base of the lateral sepals; the base of the column and the middle part of the lip marked with the same colour.

Var. *Schrederiana*, Rehb. f., in *Gard. Chron.*, n.s., xviii., p. 680; *Fl. and Pomol.*, 1880, p. 140.—A fine variety, said to differ from the type in its larger and more brilliantly coloured flowers.

Var. *Bowringiana*, Rehb. f., in *Gard. Chron.*, n.s., xxii., p. 262.—A handsome variety, with pure light yellow flowers with purple markings at the base of the sepals and petals.

Var. *bellina*, Rehb. f., in *Gard. Chron.*, n.s., xxi., p. 262.—Much resembling the variety *Bowringiana*, but without the blotch at the base of the sepals and petals.

Var. *punctata*, Rehb. f., in *Gard. Chron.*, n.s., xxii., p. 262.—Sepals and petals light yellow, white at the base, with a disc of small purple spots on the inside of the lateral sepals.

Var. *chloracea*, Rehb. f., in *Gard. Chron.*, n.s., xxii., p. 262.—White, with purple disc on the lateral sepals inside the inner margin, and green tips to the sepals and petals.

25. *P. Valentinii*, Rehb. f., in *Gard. Chron.*, n.s., xx., p. 262.—A very pretty species, much in the way of *P. violacea*, but with smaller flowers; sepals and petals purple, or the petals white at base, with a few purple bands; lip mauve, white and yellow, much like the preceding species. Native country not stated.

26. *P. maculata*, Rehb. f., in *Gard. Chron.*, n.s., xvi., p. 134.—A beautiful small-flowered species, with palid sepals and petals with a few purple-brown blotches. Lip with a fleshy semi-terete purple central lobe, a yellow callus, purple anterior border, and numerous small spots. Native of Borneo.

27. *P. Mariae*, Burbidge, in *War. and Will., Orch. Alb.*, t. 80. (See also note under, t. 87).—A handsome species, with distichous, drooping, oblong, dark green leaves, and pendulous racemes of moderate-sized flowers. Sepals and petals white, transversely blotched with chocolate-red, and a magenta-purple spot or two at the base. Lip rosy-purple, with white edge, central lobe flat, and without hairs. Discovered in Borneo by Mr. Burbidge, and named in honour of that gentleman's wife.

28. *P. fuscata*, Rehb. f., in *Gard. Chron.*, n.s., ii., p. 6.—A handsome species in the way of *P. sumatrana*, but with smaller flowers. Flowers fleshy, light yellow, barred and mottled with brown; the front part of the lip purple, with an orange crest. Native of the Malayan peninsula.

29. *P. fasciata*, Rehb. f., in *Gard. Chron.*, n.s., xviii., p. 134.—Somewhat resembling *P. sumatrana* in the shape of the light yellow sepals and petals, which have numerous cinnamon bars; lip sulphur colour, except the central lobe, the front part of which is light purple and the base orange; without cushion of hairs. Leaves and roots like *P. Luddemanniana*. Native of the Philippines.

30. *P. Luddemanniana*, Rehb. f., in Mohl and Schl., *Bot. Zeit.*, 1865, p. 145; *Fl. des Serres*, t. 1636; *Bot. Mag.*, t. 5523; *Rev. Hort.*, 1872, t. 390.—A very handsome species, with short spikes of flowers. Sepals and petals transversely barred with amethyst-purple on a light ground, the front part of the lip violet, and bearing a number of erect hairs. Native of the Philippines. The following varieties have been described:—

Var. *pulehra*, Rehb. f., in *Gard. Chron.*, n.s., iv., p. 36.—Described as having flowers of a beautiful portwine colour, with the lower parts of the sepals, petals, and lip of a shining amethyst-blue.

Var. *delicata*, Rehb. f., in *Gard. Chron.*, 1865, p. 434.—A pretty variety, with narrow stripes of cinnamon on a light ground, the lower half of the segments barred with amethyst.

Var. *ochracea*, Rehb. f., in *Gard. Chron.*, 1865, p. 434; *Rev. Hort.*, 1872, p. 391, fig. a.—A form with light ochre-coloured bars on a pale yellowish ground.

31. *P. Corningiana*, Rehb. f., in *Gard. Chron.*, n.s., xi., p. 620.—A striking species, something in the way of *P. sumatrana*. Upper sepal with longitudinal purple-brown stripes and a few transverse bars at base; lateral sepals wholly purple-brown, with border and a few spots of yellowish-white; petals with longitudinal stripes and blotches; central lobe of lip rich purple-violet, with a

tuft of hairs on front middle line, and a yellow callus. Native country not stated.

32. *P. sumatrana*, Korth. and Rehb. f., in *Hamb. Gartenz.*, 1860, p. 115; *Bot. Mag.*, t. 5527; *Fl. des Serres*, t. 1644.—*P. zebrina*, Teijsm. et Binn., in *Batav. Nat. Tijdschr.* xxiv. (reprint, p. 15).—A very handsome species, with short erect spikes. Flowers light yellowish-white, with a few transverse brownish-red bars; lip fleshy, the front lobe covered with numerous short hairs. Native of Sumatra and Borneo. The following varieties have been described:—

Var. *sanguinea*, Rehb. f., in *Gard. Chron.*, n.s., xv.,



FIG. 56.—*PHALAENOPSIS SPEKEANA*: WHITE, BLOTCHED AND STRIPED WITH ROSE-MADDER.



FIG. 57.—*PHALAENOPSIS SPEKEANA* VAR. *CHRISTIANA*.

Back of flower: sepals, rose-madder; petals, ivory-white.



FIG. 58.—*PHALAENOPSIS SPECIOSA*: COLUMN, LABELLUM, AND POLLEN MASSES MAGNIFIED.

Column, white; labellum, rosy-purple, with two blotches of yellow on the side laciniae.

p. 782.—Differing in having the lateral sepals nearly wholly dark red with very few yellowish green markings.

Var. *punctulata*, Rehb. f., in *Gard. Chron.*, n.s., xvii., p. 628.—A variety with a few brownish-purple bars on the sepals and petals, and some mauve stripes on the lip.

Var. *Guerrieri*, *P. zebrina* var. *Guerrieri*, Teijsm. et Binn., *l.c.*, p. 15.—Sepals and petals described as striate with violet below and spotted above.

Var. *ilacina*, *P. zebrina* var. *ilacina*, Teijsm. et Binn., *l.c.*, p. 15.—Sepals and petals milk-white, with some lilac-coloured transverse lines and the central lobe of the lip lilac at the base.

33. *P. tetraspis*, Rehb. f., in *Gard. Chron.*, n.s., xv., p. 562; *Xen. Orch.*, ii., p. 156.—A singular species, the

flowers with the general shape of *P. sumatrana*, but shining waxy-white in colour without a spot. The front lobe of the lip bears a cushion of hairs at the apex. Native of the Andaman Islands.

34. *P. speciosa* (figs. 56, 57, and 58), Rehb. f., in *Gard. Chron.*, n.s., xv., p. 552; also xviii., p. 745, fig. 130-2; *Warn. and Will., Orch. Alb.*, t. 158.—

A handsome species, closely allied to *P. tetraspis*. Sepals and petals white, more or less blotched and striped with rose-madder. Front lobe of lip club-shaped, and papillose at apex, the side lobes small, erect, and with two yellow spots. Native of the Andaman Islands. The two following varieties have been described.

Var. *Christiana*, Rehb. f., in *Gard. Chron.*, xviii., p. 745, fig. 131.—Sepals and petals broader than type, the former rose-madder, the latter white.

Var. *Imperatrix*, Rehb. f., in *Gard. Chron.*, xviii., p. 745.—A larger form with rose-purple flowers.

There seem some doubts as to whether there may not be a species of *Phalaenopsis* in New Guinea. In *Wing's Southern Science Record*, vol. iii., p. 347, I find the following note by Baron Ferdinand von Müller:—"Concerning Papuan Orchids it may further be remarked that *Dendrobium Johnsoniae* should, perhaps be referred to *Phalaenopsis*, although the gibbous protuberance of the flowers is more developed than in the typical species of that genus, the labellum of other congeners being also not cirriferous; pollinia were not available for examination." *Dendrobium Johnsoniae* was discovered on the eastern peninsula of New Guinea by the Rev. James Chalmers, and was described by F. von Müller, in *Wing's Southern Science Record*, in May, 1883. The leaves are not known, as only a raceme of ten to twelve flowers was sent. These latter are described as large and pure white, except a rosy tinge over the labellum; the elongate-rhomboid sepals nearly twice as long as the lanceolate petals; the lip longer than the sepals, but shorter than the petals; the lateral lobes semi-ovate, and half to one-third the length of the ovate central lobe. The discovery of a *Phalaenopsis* in New Guinea need not create much surprise, as several other genera with a similar distribution are already known from there, but the point must remain unsettled until more perfect specimens are forthcoming. [Since the above was written, but after it had passed out of my hands, I have seen authentic specimens of *D. Johnsoniae*, and can affirm it to be a genuine *Dendrobium*. Three flowers and a leaf were sent by Baron F. Müller, of Melbourne, to Kew, from which I conjecture that he has obtained additional specimens from New Guinea. The flowers are very fine.]

EXCLUDED SPECIES.

P. Wightii, Rehb. f., in Mohl and Schl., *Bot. Zeit.*, 1862, p. 214, is now referred to *Doritis*.

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R. A. Rolfe, Herbarium, Royal Gardens, Kew.

WHAT TO DO WITH OUR SIKPLUS GARDENERS.—We call the following, in relation to this matter, from the last number of *Garden Work*:—"I think it has been advocated that every school should have its plot of ground, which should be cultivated by the scholars—indeed, form part of their daily course of instruction. Perhaps it seems hardly fair to saddle the masters with such duties; but we have an army of gardeners—the advertisements in the gardening press plainly indicate that the supply is greater than the demand. Could not the services of some of the more suitable amongst them be called into requisition as teachers of gardening in our schools? At any rate, it would afford them part employment. What benefit, too, would result to their pupils from a more intimate knowledge and practice of the science of horticulture!"

HOME CORRESPONDENCE.

Wild Fruits.—The Crowberry (*Empetrum nigrum*), Cranberry (*Vaccinium oxycoccos*), and Blackberry (*V. myrtillus*) are unusually plentiful this season, more so, indeed, than I have noticed for several years past. The Blackberry is collected by women and children on the mountain sides and sold in the neighbouring towns and villages for sometimes as low a price as 4d. per quart. They make delicious tarts and jam, which for flavour are almost unsurpassed. To see the Cranberry just now standing with its numerous pink berries the drier knolls of some marshy ground, is extremely pretty, but to partake of the deliciously cooling fruit is reviving and invigorating in a marked degree. For the fruit of the Crowberry we have not such a relish, indeed after wet weather it is somewhat insipid. *A. D. Webster.*

Judging Foliage Plants at Shows.—I was judging at a local flower show this week, and my co-judge and myself were puzzled at the words "best ornamental foliage plant." Can you or any of your readers explain it? Does "best ornamental" mean —1, the rarest and most valuable; or, 2, the best cultivated; or, 3, the most ornamental? My co-judge was rather inclined to 1; I was rather more inclined to 2, or a combination of 2 and 3. The secretary could only help us by saying that it was the usual form in all such schedules. *H. N. Ellacombe, Bilton Vicarage.* [The meaning of the framers of the schedule probably was that the prizes should be awarded to the best grown and most ornamental specimens, 2 x 3. "Rare" plants have usually a class apart. *Ed.*]

Ardisia japonica (p. 232).—You say of this pretty shrub, "It has the appearance of being nearly, if not quite, hardy." I suppose it to be quite hardy. I have had it here for a dozen years or more; but only lives, it does not grow at all. It was 3 inches high when it was planted, and it is the same now. Is there anything to make it grow? Mine is the variegated one [Probably the "rub" is there. *Ed.*]. *H. N. Ellacombe, Bilton Vicarage.*

Figs from Seed.—In the summer of 1883 I found five seedling Figs growing in an Onion bed, but whether they were the produce of home-grown or foreign Figs I cannot say. However, I am quite certain that they were seedlings, and they were put in pots, and are now about 2½ feet in height. Before the Onions were sown the ground was manured with the clearings of earth-closets. *Charles Ross, Welford Park, Newbury.*

—I observe in your paper of last week a query about Fig trees grown from seed. I have in my garden a seedling Fig tree about three years old. There is only one old tree in the parish, and it is half-a-mile from me. Surely in my case the seedling must have sprung from a foreign Fig thrown away in the rubbish-heap. *William Langley, Narborough Rectory, Leicester.*

—I read just now your note about seedling Figs, and it interested me a good deal. The following occurrence bears strongly on the remark of "A. P.":—"In the early spring, when my gardener was weeding one of the borders, he called out to me, 'Do you know what this is?' I did not pay very much attention to him, and after a hasty glance I said 'No.' He immediately added, 'It is a young Fig.' I then looked very carefully indeed at the object before me, and am as certain as I can be about anything of that sort, that it was a seedling Fig. I remember at the time inspecting it closely, and I have no manner of doubt upon my mind about the matter. I should say that a very large Fig tree is in my garden situated about 30 feet from the spot where this seedling was found, but it is in such fashion that no runner can possibly have come from it to the spot. The conclusion which my gardener and I came to was that the seed must have been dropped by birds. It puzzled me a great deal at the time, and though I quite understand the force of your scientific objection, I hope you will pardon my [Oh dear! yes; if pardon be necessary, which, however, we do not admit for a moment! *Ed.*] I say that there are sometimes more things than are dreamt of in our philosophy, and I verily believe this is one of them. It is only the matter of the greatest regret to me to have to add that the young Fig tree has disappeared from the scene. I went to look for it immediately after reading your note, but its place knows it no more. Since writing the above I have seen my gardener, and he tells me there were two seedling Fig trees about 9 inches high, and they thought they were in the wrong place, and so he pulled them up, and threw them away, and he was away from home. He was—as I am—quite sure as to what these seedlings were. *H. E.* [We do not question the possibility of the occurrence, we merely say that no satisfactory evidence has yet been brought

forward. It may well be that the seedling Figs alluded to by our correspondent were derived from imported Figs. It is not long since we heard of a number of Currant Grapes growing in the Essex marshes, near a sewage farm or some similar locality. Other communications on the same subject have been received, some of which will be published later on. *Ed.*]

Orchid Nomenclature.—I have been unable to reply to Mr. O'Brien's letter on pages 798-9, of June 19, pending my return home, as while away I had insufficient notes to refer to. I am glad that *Vanda coerulea* vesta is not the same as *V. c. Boxalli*. I reiterate that *Cattleya Percivaliana alba* had another name attached to it, for, in correspondence on this plant (before I wrote my letter which appeared in p. 767, of the June 12 issue), I heard that the flowers were sent by my informant to Professor Reichenbach, who named the plant *C. crocata*. The late Mr. Percival only bloomed one plant of this *C. Percivaliana alba* (?), therefore it is obvious that this individual plant did get two names, or rather its blooms, for neither the Professor nor the Royal Horticultural Society's Floral Committee saw the plant before them, for, on referring to the *Gardeners' Chronicle* of February 1, 1884, p. 219, I see it says, "a cut bloom." I do not for a moment dispute the information Mr. O'Brien gives in his letter of *C. crocata*, but it is perfectly clear to me that some one can know nothing about it (or, not know enough, at any rate), but whether it is Professor Reichenbach, the Royal Horticultural Society's Committee, Mr. O'Brien, or myself, I leave your readers to judge. *De B. Cranleigh, August 19.*

A Prolific Potato.—I planted 1 lb. of the Queen of the Valley Potato on May 10, and to my surprise, when I dug them on August 14, the produce was 62 lbs.; they were all sound and good, and nearly all of large size. *J. W. Mills, Milborne.* [It has been much exceeded, notably in the gardens of Provost K. C., Cambridge, September, 1860, when Mr. Castle, the gardener, lifted 142 lb. of Early Rose from 1 lb. of sets. *Ed.*]

Novel Method of Healing Barked Stem of Holly Tree.—On the south side entrance to a large and well managed nursery in the North of Scotland are two large and well balanced trees of variegated Holly, which form an object of attraction to all passers by. In the severe winter of 1879-1880 a large patch of bark was removed from the stem of one of them, most probably with the object of being converted into bird-lime. The large wound would undoubtedly in time have caused a considerable interruption to the uniformity of growth, and have spoiled the grand feature of the pair. The annoyance caused the owner some unhappy thoughts, but with his prompt conception and usual characteristic energy he was soon on the track of a remedy which has proved to be so effective as to be now scarcely observed, and which has kept the tree in uniform good health, notwithstanding its maltreatment six years ago. The remedy here spoken of was simply cutting the edges of the wound clean out and rounding the corners, and then by taking off a similar patch of bark from another tree of less value and applying it to the injured part, which was afterwards tightly strapped over, and covered with a good plaster of prepared clay, adhesion was soon effected. The plan is as simple as it is novel, and is worthy of being made generally known. *J. Webster, Gordon Castle Gardens.* [Perhaps the gentleman knew something of surgery, and had heard of the cure of ulcers by skin-grafting. *Ed.*]

Peach and Nectarine on the Same Shoot.—I hereby send you a bit of branch from a Barrington Peach, bearing a fully developed fruit, and touching it on the same branch, a fully developed Nectarine. I presume this is in order to ascertain your opinion on the matter. I may state that in the same house is a tree of Victoria, and also a tree of Albert Victor Nectarine. *John Garrid.* [Such cases occur occasionally, and show that the Nectarine was originally a sport from the Peach. We have figured examples of this in a former volume, and Darwin has collected numerous records of such cases. *Ed.*]

Peas: a Plea for the Older Varieties.—I think when some of the newer kinds, such as Telephone, Telegraph, and Gladiator, are found to be utterly useless in such a season as the present one, as I have found them, as well as others of your correspondents, and when older but well tried varieties, such as Criterion, Huntingdonian, Champion of England, British Queen, Supreme, Ne Plus Ultra, and Emperor of the Marrows, still maintain their position, and their good qualities, I think they deserve a little passing notice, as this has been a very trying season for Peas, and I never saw these doing better than at the present time, or freer from mildew.

And where Peas are in demand every day throughout the season, it would be a serious matter for the gardener were the newer kinds entirely depended upon for the supply, and not supplemented by the older varieties that I have named. The newer varieties, I grant, make a better appearance on the exhibition table, but few judges will pass over a dish of Ne Plus Ultra for them for flavour. I always make a sowing of the new varieties, and one of the old at the same time, for, no matter how bad the season may be, the old kinds named may be depended on to produce pods in plenty. I generally gather on the 20th of October, and the Marrows up to the end of October, in fact until they are cut off by frost. *Edward Ward, Hewell Gardens, Bromsgrove.*

Pea Prodigy.—I notice in the *Gardeners' Chronicle* of August 7 an account of this Pea. Now I have grown it this year by the side of both Telegraph and Telephone; it is a good Pea, a heavy cropper, and some of the pods are very fine, but there are many pods of smaller dimensions than is to be found on either Telegraph or Telephone. The Peas are of a large and long-shaped, but lack the fine sweet flavour of Telephone, and the uniformity of bearing of that sort. Now, however, we are in the middle of a week in coming into flower, and I predict, I think Mr. Keely cannot have had his Telephone from Messrs. Carter, as I did. I have tried all the new Peas of this year, and, having tested them all, can find nothing to equal Telephone as a second early. *F. Wood, Oak Lawn, Forest Hill.*

Telephone and other Peas.—I am sorry to see from Mr. Rust's note (p. 215, also p. 244, "W. H. D.") the bad account given of the above Pea. With us it has been a very large pod, very full—and it has kept the table supplied for a longer period than some of the older varieties. We grow a quantity of room, and so it to succeed Veitch's Perfection, of which we grow a large quantity. They were very good this season,—very heavy crops, well filled, as is generally the case with this splendid main crop Pea. Sturdy, which is just coming into bearing, is a great favourite, and never fails with us. It also has the good point of taking up but little room, and is very useful if sown at 10 or three different times; it also stands drought well. *Geo. Wyther, Teddesley Park.*

Grape and Peach Growing at Manresa House, Roehampton.—Peaches here, both in the houses devoted to this fruit and on the open walls, are again this year a wonderful crop. Early forcing, such as practised when the matchless tree of Grosse Mignonne at one time in existence at this place was in bearing, is not now carried out. In the earliest house the fruit was ripe at the latter end of June; there was a good second crop. The second house, a long lean-to, of considerable length and width, contains six large trees, which were bearing at just approaching the ripening stage, and which for quantity and weight was such as rarely met with. One tree, a Red Magdalen, covering 480 feet of trellis, carried seventy-two dozen fruit. The next tree, Stirling Castle, is only a little smaller than the last-named, and was bearing an equally heavy crop. The others, which include a Royal George Peach and an Elruge Nectarine, were alike bearing heavily. The condition of the trees, combined with the appearance of the fruit, gave promise of its attaining a size little if any below what is usually seen where the crop is much lighter. The third is a hip-roofed house, 156 feet long and 13 feet high, with an east aspect. Here the trees occupy the wall, and are carrying a crop like in quantity to those already mentioned. In front a Black Hamburg Vine, consisting of four rods trained horizontally along the lower part of the glass, so as to come more than 5 feet up the roof, is stretching out at a rate that will shortly enable it to reach the opposite end of the house; it was carrying a lot of handsome bunches that will come in late. Out-of-doors there are three walls each 210 feet long, the south side of which is covered with Peaches and Nectarines; the trees collectively are loaded to an extent which nothing short of the liberal feeding they receive, and the copious supply of water applied to the roots and overhead could enable them to bring up to the requisite size. But Mr. Davis has given a simple proof of what can be done in Peach growing, and is not likely to make mistakes in this direction. Pipes are laid down in front of the borders to which a hose can be attached at intervals, and in this way the trees get the large quantity of water they require, which may be said to rarely occur with outdoor Peaches in dry summers, and though this they are not able to mature anything like the weight of fruit they otherwise would. Another wall, over 100 feet long, running north and south, is planted on both the east and west sides with Peaches and Nectarines. The trees on the east side are this year bearing well, as they usually do; on the west side they do not succeed so well, some large standard Pears and Apples at a short distance interfering with them. Returning to

the indoor department, it is big Black Hamburg Vine which fills the 224 feet house has been used some-what this season. Mr. Davis having reason to suppose that the immense weight of fruit it has been let to carry was telling upon it, for though the crop has each season finished up as black as possible, still the last summer's wood was weaker than before. Last year it bore 807 bunches, which weighed 1025 lb. The present crop has been reduced to something over 600 bunches. In the adjoining house, 70 feet in length, the established Vines (Black Hamburg), which have all along borne well, are being gradually removed to make way for a single vine of the same variety, which, like the big one already noticed, is being trained horizontally from one end, and which will soon fill the whole. This Vine is carrying a heavy crop of large bunches; the size and substance of the leaves tell the vigorous state it is in. A leaf that I measured was 10½ inches across. Two houses, each some 70 feet long by 12 feet wide, are filled with Melons. Only one sort—a scarlet-fleshed variety—is grown. The plants in these houses were bearing heavily. In 1883, 700 Melons were grown in these two houses. In addition to the walls occupied by Peaches, already mentioned, there is a large extent on which Cherries, Pears, and Plums are grown; these run about 11 feet in height. The trees are comparatively young, and in a healthy, thriving state. A few years since they had reached the top of the walls, and to give them more room to extend. Mr. Davis has now cut uprights from 5 to 6 feet high fixed to the top of the walls, and on these stout wires were stretched. The trees have covered the additional space, and bear quite as well on the upper part, where necessarily they have not the protection which the walls give to the lower portion. *T. B.*

Amateur Bulb Dealers.—Gardeners are very often placed in positions of temptation, for solicitations are made to them for garden products from all kinds of persons and traders, legitimate and illegitimate. In too many instances temptations of this sort are intensified because salaries are too low, and gardeners are almost constrained to accept of the offer of a few shillings for some kind. Thus it presents to many men *pro ad* cheap and strong inducements to look out for themselves when they receive from amateur bulb-dealers, and possibly also from traders of unscrupulous tendencies, invitations to trade, and who privately but boldly offer to gardeners discount on their orders at the rate of 10 per cent., or 2s. in the pound. Of offers of this kind one has come to my notice—a duplicate probably of many similar ones received by gardeners all over the kingdom during the past few days. The dealer hails from a well-known midland town, and seems to combine dealing in bulbs and in jewellery. What association there is between bulbs and watches that the same person should embark in trade in both is not evident, and so far there seems little to connect them; when, however, this same trader intimates that he is in receipt of several tons weight of bulbs, it would seem as if jewellery could not occupy any considerable part of his business. The trader does not make it clear in his circular whether he departs from his legitimate vocation and enters into the business of bulb dealing from motives of public interest or private gain. He may have felt that the public have long enough groaned under the iron heels of home bulb dealers, and that it was his duty to afford them relief from bondage. It may be that jewellery as an article of trade is just now under a cloud, and that bulbs offered a more hopeful field for trading. Certainly the Dutch growers themselves have long since pretty well cut the home retail trade to pieces, so that the presumed bondage does not exist, and the public have ample opportunities to purchase where and how they please. But comparison of his prices with those of some good Dutch lists as offered so freely to home purchasers shows that our amateur trader has protected himself by some 20 per cent. increase, so that he can well afford to give to any purchaser favourable terms, and good value for the 10 per cent. discount, and put at the same time a good profit into his own pocket. As to secure this same tempting to per cent, the gardener must cause his employer to pay 20 per cent. higher prices than he would be called upon to pay from recognised dealers, the story needs no moral. *D.*

Nomenclature of Garden Plants.—Referring to your remarks under the heading of Nomenclature, *Gardeners' Chronicle*, Aug. 14, will you permit me to thoroughly endorse all you there state. The subject is one which is continually cropping up and demands that some notice shall be taken of it. As a seedsman (both wholesale and retail) I am constantly having my attention called to numbers of articles which one cannot fail to recognise, and which are being sent out by others under some new name, or more often still, with their own name attached, which is, and will continue to be extremely misleading to the public. I will give a couple of trials made at Chiswick and the attention which has been devoted so largely of late to the subject of no-

menclature it should not be necessary to resort to any other methods, even for the sake of a possible increase of trade. And when one remembers the great pains which are being taken to classify all the known varieties, I think the least we can do, as a matter of principle, is to abide by the decision of such eminently practical men as those who preside over the trial grounds of the Royal Horticultural Society. I would venture to suggest, as a partial remedy for the existing state of things, that at all our shows the judges (with whom lies the responsibility of giving awards), be empowered to withhold a prize from any variety which may be shown under a false name. I think this would tend in a measure to correct the existing evil and help to bring about a better state of things. *E. Wilson Serpell.*

Reports of Societies.

ROYAL HORTICULTURAL: August 24.

THE conservatory at the Society's Gardens, South Kensington, was on this occasion full to overflowing of vegetables and flowers, and "drew" unmistakably by reason of the major portion of the exhibits being furnished by the artisan and the cottager. But few really inferior productions were observed in the divisions contributed by these new workers. The permanent exhibition of hardy flowers belonging to Mr. T. S. Ware, the Lilies from the New Bulb Company, Colchester, the display of Roses by Messrs. W. Paul & Sons, and Messrs. G. Paul & Sons' hardy flowers and picture tree foliage, gave additional interest to the meeting.

Floral Committee.

Present: G. F. Wilson, Esq., in the chair; and Messrs. W. Bealby, T. Baines, H. Herbst, A. Perry, H. Bennett, C. Noble, A. F. Lendy, G. Duffield, J. Dominy, H. P. Pollett, J. O'Brien, E. Hill, H. Turner, M. T. Masters, and J. Walker.

The New Plant and Bulb Company exhibited a variety of *Cattleya superba* from Colombia; the sepals and petals are narrow, of a shade of rosy-purple, the lip being dark purple, and of a velvety appearance; the pseudobulbs corrugated, and about 6 inches in length; Impatiens Jerdoniae and *I. concolor*, the latter rose-pink and yellow; habit very dwarf.

G. Hardy, Esq., Timperley, Cheshire, showed *Cattleya gigas*, Hardy's var., a variety possessing a great lip of the richest purple tint.

Buchan, Esq., Wilton House, Southampton, showed the starry-flowered *Maxillaria setigera*.

Mr. Eckford, gr., Boreatton Park, Shrewsbury, contributed many varieties of Sweet Peas and Pansies, the latter varied, but devoid of merit.

Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, exhibited a quantity of blooms of hardy hybrid Gladioli, the finest being *Voltaire*, of a deep cerise with spots of yellow on the three lower segments; *Sanderi*, bright scarlet, spotted after the manner of a *Tydeus*, but the flowers wanting in substance; *Sceptre d'Or*, a primrose colour, with brown crimson spots on the throat; *La France*, light rose and dark crimson.

Mr. R. Dean, Ranelagh Road, Ealing, showed a very large strain of African Marigold, 4 inches in diameter, named "Dean's Mammoth"; and *Chrysanthemum hybridum* "Sunbeam," x *C. coronarium* and *C. segetum*; it has yellow rays and orange disc. It forms no seeds. Some *Gaillardia Lorenzana* and *Dianthus lacinatus* flowers came from the same exhibitor.

Mr. W. Noble, Bagshot, showed a spray of *Clematis Jacquinii*, exhibiting white and the normal purple flowers growing on it.

Mr. Blundell, nurseryman, West Dulwich, showed fine seedling Hollyhocks, of which the following were very nice blooms:—*Mary Anderson*, a primrose; *W. G. Head*, a crimson; *Princess Victoria of Wales*, very pale, flesh tint; and *Miss Roupell*, salmon-yellow.

Mr. King, gr. to P. Crowley, Esq., Waddon House, Croydon, showed *Chrysanthemum Madame De Grange*, a large white flower with reflexed petals—a good bloom, well grown.

Mr. C. Turner, nurseries, Slough, showed pompon *Dahlia Eccentrica*, in the flowers of which varying proportions of orange and crimson colours are found. A collection of forty-eight kinds of fancy and show Dahlias, beautifully fresh and finished blooms, and *Dahlia Bengo*, a new variety, of a rich crimson, and of perfect form.

Messrs. Paul & Son, The Old Nurseries, Chessington, exhibited a collection of cut flowers of hardy perennials, receiving a Silver-gilt Medal. Placed amongst the flowers were bunches of foliage of *Ulmus Rosae*, aurea, strong, healthy, and of a fine yellow tint; *Acer Negundo* robusta, a stronger variety than *A. N. variegata*; purple-leaved Birch, very distinct; well flowered shoots of *Catalpa syriacifolia*; *Prunus Pissardi*, in vigorous growth; some forms of silver-leaved Elder; *Ulmus campestris rubra*, with pretty bronzy foliage; *U. plumosus aureus*, with bold yellow-green leaves; a variegated form of the Turkey; and *Ceanothus pallidus*, with delicate light blue flowers.

Some twelve boxes of fair Roses for the season came from Chessington, amongst them being Bennett's Rose

Her Majesty, a plant carrying one large bloom. This is the first time this Rose has been seen in bloom here, since it was sold in 1883. Pompon and Cactus Dahlias and *Anemone japonica* also completed this display.

Messrs. Cannell & Sons, Swanley, showed cut flowers of single Dahlias, bouquet ditto, and many single varieties in bunches; amongst these latter Mr. Rose, a white, profusely striped with lake, came in for recognition. Bunches of Carnation *Pride of Penshurst* and *Salpiglossis* came also from the Home of Flowers.

Messrs. Webb & Brand, nurserymen, Saffron Walden, exhibited new Hollyhocks in great variety, showing both spikes and single blooms; the foliage and flowers were both healthy and well formed.

Messrs. W. Paul & Son, Waltham Cross, showed twelve boxes of bunches of Roses of exceedingly good quality for the season. A Silver Banksian Medal was awarded.

Messrs. Kelway & Son, Langport, Somerset, exceeded their previous efforts with Gladioli, the flowers set up being both numerous and of fine quality throughout, and, considering the distance travelled, very fresh looking. The best were Lady MacFarren, white, feathered very slightly with purple on the edge—large flowers, which were open on at least a foot in length of the spike; Lord Ashbourne, rosy-crimson, feathered with a darker shade—the flower bold and large; Empress of India, white, profusely feathered, flared, and scored with mauve—a large flowered spike 18 inches in height; Lady Salisbury, white, feathered slightly with crimson—flowers 3 inches across; Prince Edward of Saxe Weimar, scarlet, with a trace of orange, feathered at the edge with purple. A Silver-gilt Medal was awarded for this fine show.

The New Plant and Bulb Company made a brave display with *Lilium auratum* and a few other species. A Silver Banksian Medal was given for it.

Mr. Ware, Hale Farm, Tottenham, received a Silver Banksian Medal for a collection of hardy flowers of greatly larger dimensions and variety than usual; it was rich in Phloxes, Iceland Poppies, Lilies, Gaillardias, and Dahlias, both single, Cactus and pompon—Miss Limaker, a single-flowered Dahlia, with rosy-crimson flowers, the area surrounding the disc of a golden colour; and Amos Perry, another of the same class, of a port-wine colour, edged with crimson, being considered the best of the new varieties. *Dahlia Yellow Constance*, a Cactus variety, a bright yellow flower, with straight and fluted petals, was also good. Messrs. J. Carter & Co., Holborn, received a Silver Banksian Medal for varieties of Asters taken from the open ground and potted. They consisted of French *Prænum* *Chrysanthemum*-flowered, *Victoria Dwarf* German, and *Pyramidal* German. Planted three in an 8-inch pot, the plants made a good show at one end of the conservatory.

FIRST-CLASS CERTIFICATES.

To Messrs. Kelway & Son, for Gladioli Lord Ashbourne.

To Messrs. Kelway & Son, for Gladioli Empress of India.

To Messrs. Kelway & Son, for Gladioli Prince Edward of Saxe Weimar.

To Messrs. Kelway & Son, for Gladioli Lady MacFarren.

To Mr. Ware, for single Dahlia Miss Limaker.

To Mr. Ware, for Cactus Dahlia Yellow Constance.

To Messrs. J. Veitch & Sons, for hybrid hardy Gladioli *Voltaire*.

To Messrs. H. Cannell & Sons, for single Dahlia Mr. Rose.

To Mr. C. Turner, for pompon Dahlia Eccentrica.

Fruit Committee.

Present: T. Francis Rivers, Esq., in the chair; and Messrs. Harrison Weir, P. Crowley, F. Rutland, J. Burnett, W. Warren, W. Paul, C. Silverlock, J. Eilam, and G. Bunyard.

A collection of early Apples was shown by Mr. Taylor, gr. to Sir J. Lubbock, High Elms, Downe, Kent.

Some Sprouts, named the Jubilee, came from Mr. R. Gilbert, Bureleigh Gardens.

Three seedling Melons, named Combe Bank Seedling, were shown by Mr. Griffin, gr., Combe Bank, Kingston, but were too ripe to be judged.

The Cottagers' Show.

This exhibition of cottage garden produce quite exceeded that of any previous year in quality, and as far as the respective classes were concerned being almost confined to single dishes; the entries were extraordinary, giving the judges unusually difficult work. The most favoured exhibitors came respectively from Oxon, Bucks, Essex, and Kent, although some other districts were very well represented. Not a few of the exhibits, especially Potatoes, Runner Beans, Cabbages, Carrots, and Turnips, could hardly have been excelled by the best of private gardeners; thus showing that, consequent upon the admirable tuition given by the numerous shows of cottagers' garden produce held throughout the country, there is to be found, at least as far as vegetables are concerned, a degree of skill which bodes well for gardening in the future amongst the working classes. Whether all the exhibitors would be so situated as to be able to produce such good *vide* cottagers is a subject upon which it may be well not to inquire too deeply; still, appearances

favoured the assumption that the majority were working men.

Taking the classes in their order—

POTATOS

were very finely and numerous shown, no less than thirty-six lots of three dishes being staged in that class. Mr. Gibbs, Sevenoaks, was a good 1st, with handsome Bresse's Prolific, Vicar of Laleham, and Woodstock Kidney; Mr. Wellard, Eynesford, Kent, came next, with Radstock Beauty, Vicar of Laleham, and Adirondack; and the 3d included, with the two latter, good Reading Russet.

There were no less than forty-two single dishes of Potatoes, from which very fine Fillbasket, from Mr. Kirtland, Blethington, Oxon; Reading Russet, from Mr. North; and Vicar of Laleham, from Mr. Venn, of Maidstone, took the leading prizes.

PEAS.

Eleven lots, of two dishes, were staged. Mr. Gibbs coming 1st with very fair Telephone and Stratagem; Mr. North followed, with Ne Plus Ultra and Telephone; whilst Duke of Albany and Stratagem took 3d place for Mr. Kirtland.

Twenty-one single dishes competed—Stratagem, from Mr. Kentish, Hempstead, Herts, was 1st; Ne Plus Ultra, from Mr. North, 2d; and same from Mr. Neal, Aston Clinton, 3d.

ONIONS

were chiefly of autumn sowings, some very fine bulbs of the Giant Rocca, from Mr. Hasker, Colehill, Wilts, coming 1st; admirable White Spanish coming next, from Mr. Hall, Dartford; and other Roccas, from Mr. Nunn came 3d.

CABBAGES

came after—eighteen lots of three heads being staged, rather uneven, though mostly clean and good. Mr. Bunting, of Enfield, had the finest in good Enfield Market; Mr. Dormer, of Aldenham, Herts, coming 2d, with Daniell's Defiance; the Enfield again being 3d, from Mr. Hall.

LETTUCES.

Nearly all of the eighteen lots shown were Paris White, Mr. Dredge, of Bletchley, having the best; Mr. Dormer coming 2d.

RUNNER BEANS.

This was the best filled class, of which there were thirty-five dishes, a splendid dish of Ne Plus Ultra, coming from Mr. Kirtland, being 1st; Mr. Richardson, of Enfield, being 2d, with Girtford Giant; and Mr. North was 3d. Only seventeen lots of Broad Beans were staged, and these somewhat browned by exposure. The best came from Mr. Venn, Acton; and Mr. Munroe, Dingwall, N.B.

TURNIPS AND CARROTS

were very fine, clean and handsome, almost all being white. Messrs. Bunce, Tring; Smith, Eynesford; and Willard had the best, chiefly of the Snowball type. There were twenty-five bunches of the former and thirty-five of the latter, generally superb samples, some being specially so.

Mr. North had 1st place, with very handsome Long Surrey, perfect models; Mr. Kirtland coming 2d, with beautiful new Intermediate; and Mr. Nunn was 3d, with the same kind.

BEEF

were not so good, but fair samples came from Mr. Kirtland, Maidstone, and Mr. White, Wycombe.

CAULIFLOWERS.

Eleven lots were shown, Mr. C. Beckett, of Penn, Bucks, coming 1st, with good Autumn Giant; Mr. Dormer 2d, with Walcheren; and Mr. Munroe 3d.

CUCUMBERS

were in force, fifteen fruits being staged, but the sample was not first-rate. Mr. Castle, Maidstone; Mr. King, Enfield; and Mr. Smith, Eynesford, took the chief prizes.

VEGETABLE MARROWS

were again a great class, thirty pairs of all sizes and sorts being staged. Some neat medium-sized long white fruits were 1st, from Mr. Richardson; Mr. Gibbs being 2d; and Mr. Weal, Ealing, 3d.

TOMATOS.

Mr. Beckett had the best dish in Perpetual; Mr. Timbs, Amersham, 2d; and Mr. Jacob, Petworth, 3d.

FRUIT.

There were fifteen dishes of Apples in the one class. Mr. C. Hager, of Norwiche, took the best, Lord of London Suffield, and Mr. Strunge, Dulwich, having the best in Lord Suffield.

Six lots of three dishes were staged. Mr. Jacob coming 1st with good Lord Suffield, New Hawthornden, and Gloria Mundi; Mr. Strunge was 2d.

There were nineteen dishes of Gooseberries, red and white kinds being shown, the finest being Lancashire Lad, 1st, from Mr. Willard; and Mr. Harvey of Hertford, was 2d, with fine Whitesmith; Lancashire Lad again coming 3d for Mr. North.

Both red and white Currants were largely shown in the class for one dish, the best, a handsome sample, being from Mr. Dormer; Mr. Jacob being 2d.

Mr. Waghorn was 1st with red Cherries, Mr. Hentish

being 2d, and Mr. Crout, Maidstone, 3d. Of course all the samples were Morellos.

A miscellaneous class was well filled, the exhibits comprising collections of vegetables, Plums, Pears, and other fruit in considerable quantity.

The First National Co-operative Flower Show.

THE competition being confined to amateurs and the gardeners of members of the Agricultural and Horticultural Association, of which Mr. Edward Owen Greening is the Managing Director, took place in conjunction with the Cottagers' and Artizans' Show. It may be stated that the prize-money was furnished by the Association, the Royal Horticultural Society permitting the exhibition to take place in the conservatory. The general arrangements were directed by Mr. Barron, who had a band of stewards formed of members of the Association acting under him, and arranging the exhibits. As a first attempt the show must be considered not wholly unsatisfactory, although the competition was not generally very keen, and it is alleged that the judges who made the awards had some reason to doubt whether some of the exhibits, and especially the Cauliflowers shown in some of the classes, had not been purchased instead of being grown by the exhibitors. This is a practice which, if really indulged in, the executive of the Association should do its utmost to suppress. The prizes were in several of the classes disproportionately high compared with the nature of the exhibit; and if one great aim of the Association is to encourage cottage and allotment gardeners, meaning thereby, we presume, poor men in the receipt of weekly wages, professional gardeners in large private places should not be allowed to compete with the working men on equal terms. As it is the desire of the executive not only that the flowers shown should be encouraged by local branches, but also that one large aggregate exhibition should be held annually, the matter just referred to should be well considered before another schedule of prizes is issued.

Taking the schedule in the order of the various classes, forty-four in number, the awards of the judges were as follows:—

Peas, 4 peck.—1st, Mr. George Bull, West Haddon, Rugby, with Telephone; 2d, Mr. George Ledebour, Wilton, near Manchester, with Dr. Maclean.

Longpod or Broad Beans.—1st, Mr. Joseph Foxley, New Road, Mumford, Cheshire, with good Seville Longpod; 2d, Mr. F. Sexton, The Cottage, Northampton, with Windsor Beans.

Mr. W. Powers, 144, Victor Road, Pease, was 1st with Scarlet Runners, having a good dish; Mr. F. Sexton being 2d; and the last-named was the only exhibitor of three heads of Cauliflowers, having the 1st prize awarded to him.

Mr. C. Foskett, 2, Hamilton Villas, Morland Road, Pease, was 1st with three Cabbages, showing fine Enfield Market; Mr. Joseph Foxley being 2d, with the same.

Mr. James Adams, West Haddon, Rugby, had the best six Carrots, staging good Long Red Surrey; Mr. J. Sturch, also of West Haddon, being 2d.

Mr. E. Hurst, Heybridge, Maldon, Essex, had the best Beet, staging Covent Garden; Mr. W. Pewsey, Staines, being 2d, also with Long Red; Mr. J. Sturch 3d, with Egyptian Turnip-rooted.

Onions were largely shown. Mr. W. Cobbold, Heybridge, Maldon, was 1st, with good Triboli; Mr. F. Sexton being 2d, with the same; and Mr. George Ledebour being 3d, with White Spanish.

Mr. George Bull had the best six Turnips, Mr. F. Sexton being 2d.

Mr. J. Sturch had the best nine kidney Potatoes, staging good examples of Cosmopolitan; Mr. G. Mitchell, Haselmead Road, Lower Sydenham, being 2d, with Lapstone.

The classes for Cos and Cabbage Lettuces did not bring any competitors; doubtless all had gone to seed.

Twelve round Potatoes.—Mr. J. Adams, West Haddon, with Vicar of Laleham, 1st; Mr. G. Mitchell being 2d, with the same.

One Cucumber.—1st, Mr. J. Foxley; 2d, Mr. J. Sturch, with pretty good specimens of Telegraph.

Two Vegetable Marrows.—1st, Mr. J. Sturch; 2d, Mr. C. Kemp, King's Corner, Brompton.

Six Tomatos brought no entry.

Annuals, six distinct varieties.—1st, Mr. J. Sturch, with nice bunches of Stocks, Godetia Whiteley, Malope grandiflora, Antirrhinum, Scabious, and Candytuft; 2d, Mr. G. Bull, with Helichrysum, Zinnias, Verbenas, Scabious, Chrysanthemum coronarium, and Mignonette; 3d, Mr. Edmund Cooper, 57, Waddington Street, Norwich.

Stocks, double, sixpikes.—1st, Mr. J. Foxley; 2d, Mr. G. Bull; 3d, Mr. A. Martin, 188, Nelson Street, Norwich.

Asters, six cut blooms, any variety.—1st, Mr. J. Sturch, with some good quilled varieties; 2d, Mr. G. Bull, with quilled.

Bouquet of cut flowers from "One and All" seeds:

1st, Mr. A. Martin; 2d, Mr. G. Bull; 3d, Mr. E. Cooper.

Collection of vegetables, six kinds.—1st, Mr. F. Sexton, with Carrots, Potatoes, Cauliflower, Runner Beans, Onions and Marrows; 2d, Mr. W. Powers; 3d, Mr. C. Foskett, 8, Hampton Villas, Norland Road, Pease.

For the best exhibits grown with the "One and All" artificial manures nothing was shown good enough to justify an award being made.

It should be stated that all the exhibits in the above classes were open to members of Industrial Co-operative Societies for exhibits grown from seeds supplied by the Association.

The second section of the schedule of prizes was open to amateurs and the gardeners of members, the exhibits also to be grown from seeds supplied by the Association.

Peas, three dishes, three varieties.—Two good collections were staged, Mr. Bull being 1st, and Mr. Carter 2d.

Lettuces, three specimens of two kinds.—No competition.

Cabbages, three specimens of two kinds, one to be One and All, one Earliest of All.—No competition.

Three heads of Cauliflower.—1st, Mr. J. Dean, Titsey Gardens, Limsfield, Surrey; 2d, Mr. E. Hurst, Heybridge, Maldon.

Beans, Broad or Longpod.—Mr. J. Dean was awarded 2d prize for some Mazagan.

Scarlet Runners, fifty pods.—1st, Mr. G. W. Waugh, 41, Abbey Road, St. John's, S.E.; 2d, Mr. O. Goldsmith, the Gardens, Polesden, Dorking.

Melons, best brace.—1st, Mr. O. Goldsmith, Tomatos, best twelve.—1st, Mr. C. M. Carter, Upton Villa, Eastbourne, with fine Large Red.

Carrots, best six.—1st, Mr. C. M. Carter, with good Long Red Surrey; 2d, Mr. J. Dean, with James' Greentop.

Onions, twelve.—Mr. C. M. Carter was awarded a 1st prize.

Cucumbers, brace.—1st, Mr. O. Goldsmith, with Telegraph; 2d, Mr. C. M. Carter, with the same.

Vegetable Marrows, pair.—1st, Mr. O. Goldsmith; 2d, Mr. J. Dean.

Twelve kidney Potatoes.—1st, Mr. O. Goldsmith, with Rivers' Ashleaf; 2d, Mr. J. Whittaker, Hampton Hall, Shrewsbury, unnamed. Fine dishes of International Kidney and Miss Fower were passed over, because diseased.

Twelve round Potatoes.—1st, Mr. O. Goldsmith, with Schoolmaster.

Beet, six.—1st, Mr. J. Dean; 2d, Mr. O. Goldsmith.

Collection of vegetables, nine kinds.—1st, Mr. J. Dean, with Cauliflower, Potatoes, Carrots, Peas, Celery, Turnips, Scarlet Runners, Beet, and Tomatos; 2d, Mr. J. Gore, the Gardens, Glenleigh, near Hastings.

Stocks, six spikes.—1st, Mr. T. Austin, Kimberley Terrace, New Mills, Tring; 2d, Mr. G. W. Waugh.

Asters, six blooms.—Mr. J. Dean; 2d, Mr. C. M. Carter.

Twelve single Dahlias.—1st, Mr. G. W. Waugh—a rather poor lot.

Pansies, twenty-four blooms.—One exhibitor had twelve blooms, but the stand was passed over; and two dozen are too many to require at this season of the year.

Bouquet of hardy flowers.—1st, Mr. J. Gore; 2d, Mr. O. Goldsmith; 3d, Mr. C. M. Carter.

Collection of annuals, six distinct varieties.—1st, Mr. O. Goldsmith, with Godetia, Cyanus minor, Coreopsis Drummondii, Asters, Marigold, and Zinnia.

For the best exhibit grown with the "One and All" artificial manures no award was made.

In the miscellaneous class an extra prize was awarded to Mr. J. T. Barnham, 38, Parthenia Road, Fulham, for a collection of vegetables.

CHEADLE FLORAL AND HORTICULTURAL: August 20 and 21.

THE nineteenth annual show in connection with this Society took place on Friday and Saturday, August 20 and 21, on ground kindly placed at the disposal of the committee by Dr. Godson. The weather on the opening day was all that could be desired, and a good many visitors patronised the show. There was every appearance of a fine day on the Saturday. Given these conditions there is a certainty that large numbers would wend their way to the ground, for this year the display has taken such a hold of the district and inhabitants that the attendance on a fine Saturday is always reckoned by thousands. [We have been informed by a correspondent that these hopes were well fulfilled. Ed.] The show this year is a great improvement on any that have been held under the auspices of the Society, and that is saying a good deal, for previous displays have been very creditable, and the classes always well filled. The tent space required this year is as follows:—The group tent immediately on the left on entering the field was 183 by 36 feet, the fruit tent measured 96 by 36 feet, the nurserymen's

tent 65 by 30 feet, the tent for stove and greenhouse plants, Ferns, Caladiums, &c., was 200 feet by 50 feet, also a large one for the exhibition of bees and honey by the Cheshire Bee-keepers' Association. Two other tents were also in requisition for refreshments, showing altogether an area approaching 42,000 yards of open space. The schedule contained ninety classes, and the increased amount of money prizes offered in some of the more important classes had the effect it was hoped would follow such a bold venture. In the open classes some grand specimens of Palms, Ferns, and Crotons among foliage plants, and Ixoras, Dipladenias, Allamandas, and Ericas in the flowering, were to be met with. It is perhaps doubtful if, in any exhibition that has recently been held, a grander lot of Ixoras were ever got together. Mr. Cypher, who is as well qualified to give an opinion upon this point as any man in England, could not but express his pleasure and surprise at seeing so many gathered together in the large exhibition tent.

The fruit all through was of excellent quality. Black and white Grapes were numerous, fine in bunch and berry, and splendid bloom on the black varieties. The Peaches and Nectarines were good. Gooseberries unusually large. A capital lot of Melons were also staged. The many classes of vegetables were well filled. Strawberry plantings took place late, and so uniformly good were the stands that much time and discrimination were needed to apportion the awards in their true order and merit.

In the class for ten dishes of vegetables, twelve stands were placed upon the stages, many that secured no prize at all were better than sometimes we find the 1st prize awarded to at other good shows. It would be taking up too much space to go through the whole of the classes and note the exhibits in each group. Those that struck us as being most worthy must suffice for the whole.

PLANTS

Fifteen stove and greenhouse plants (open).—Mr. J. Cypher, Cheltenham, and Mr. K. Mackellar, gr. to J. Watts, Esq., Abney Hall, Cheshire, staged two grand collections. A considerable difficulty was experienced as to which was the more worthy, but at last the prizes fell in the order in which the names appear. The specimen of *Ixora Duffii* in this group had eleven trusses of its showy blossoms, several of them measuring 15 inches over. Mr. Mackellar's group contained a plant of *Ixora Williamsii*, 6 feet high by 4 feet in diameter, with 150 heads of bloom. These two collections occupied no less than 30 yards running length in the centre of the tent.

Ten stove and greenhouse plants (amateurs).—J. Leigh, Esq. (Mr. J. Kirk, gr.), was 1st, with *Ixora Fraseri* and *I. Dixiana*, each 4 feet by 4 feet, full of fine trusses. S. Baerlein, Esq. (Mr. G. Williams, gr.), Didsbury, was 2d. Here again were fine *Ixora* plants of Orange, 4 by 3 feet.

Six stove and greenhouse plants in flower.—The 1st prize was awarded to J. Leigh, Esq.; Mr. Mackellar was 2d.

Six exotic Ferns.—The 1st prize was awarded to S. Baerlein, Esq., who showed *Davallia polyantha* 8 feet through, and several good pieces of the ordinary exhibition species; Mr. Mackellar was 2d, showing among others, *Pteris scaberula* and *Alsophila capense*, in good form.

Zonal Pelargoniums in flower.—These were shown by Mr. J. E. Platt, Cheshire, who was 1st; and Mr. W. Haynes, jun., Sale, 2d.

Four bronze or tricolors were shown by H. Schill, Esq. (Mr. J. Coulson, gr.), 1st, with dwarf plants well coloured; Mr. Deakin, Cheshire, 2d.

A good display of table plants were shown; 1st prize being awarded to J. Hill, Esq., Rochdale; 2d, Mrs. Sykes, Edgeley.

Some splendid Begonias were staged, large in flower, and fortunately had travelled well. Mr. Mackellar was 1st, with three; and H. Schill, Esq., 2d. D. Adamson, Esq., Didsbury (Mr. J. Brierty, gr.), came to the fore with four Caladiums well grown and capital coloured; Mr. H. Schill 2d.

Mrs. Deakin was 1st with two pots of *Lilium auratum*; also for four hardy Ferns. In the latter class G. W. Mould, Esq. (A. Macdonald, gr.) was placed 2d, with plants of excellent culture and variety.

GROUPS OF PLANTS IN POTS, NOT EXCEEDING 10 INCHES, INSIDE MEASUREMENT

were shown by both nurserymen and amateurs; in the former Mr. J. Hooley, Edgeley, was 1st, with a very nice group; Messrs. W. G. Caldwell & Sons, Knutsford, coming in 2d. Among the amateurs Mrs. Sykes (Mr. J. Kemp, gr.) was successful, the 2d falling to S. Baerlein, Esq., whose display, though certainly little colour, was very prettily arranged. Six groups were made up in this class.

MISCELLANEOUS.

The latter gentleman was 1st, with six fine-foliage plants, also with twelve bunches of cut stove and greenhouse blooms, H. Schill, Esq., coming 2d;

these two stands contained splendid trusses of *Ixoras*, *Lagerarias*, *Ericas*, *Orchids*, &c.; in one bunch we counted no less than twenty-four fine blooms of *Miltonia spectabilis* roses.

Four *Adiantums*.—W. Hayes, Esq., was 1st, showing clean and healthy specimens; W. J. Parkyn, Esq., 2d.

Four *Dracenas*.—S. Baerlein, Esq., was 1st, Mrs. Sykes 2d; whilst the latter exhibitor was the only one with four pots of *Lilium lancifolium*, and was awarded 1st prize, the plants being strong, and full of bloom.

Celosias, Cockscobs, Petunias, Gloxinias, Balsams, were well shown, and in good condition. Cut blooms of Roses were shown by Mr. W. Millington and Mr. H. Schill; and Dahlias by Mr. J. Warburton and Mrs. Deakin.

Mr. J. Cypher was 1st with a stand for dinner-table decorations, and Mr. D. Adamson 2d.

Some nice bouquets were shown, Mr. S. Baerlein being 1st, Mr. J. Watts 2d.

FRUIT AND VEGETABLES.

Collection of six dishes of fruit.—Mr. Mackellar was 1st, having good Grapes, Peaches, Nectarines, and Melons; Colonel Dixon, Chelford, 2d.

Six dishes of out-of-doors hardy fruit.—Mr. W. Porter, Birkenhead, 1st; Mr. T. Koffey 2d.

Two bunches of Black Hamburgs. Mr. L. Raynes, Rock Ferry, 1st; Mr. J. Clegg, Chelford, 2d.

Two bunches of black Grapes, not Hamburg.—Mr. L. Raynes 1st, with splendid examples of Madresfield Court; Mr. J. Clegg 2d, with Gros Colmar.

Two bunches of white Grapes.—1st, Mr. Mackellar; 2d, Mr. J. E. Platt.

Largest bunch of Grapes.—Mr. D. Adamson 1st, Colonel Dixon 2d.

Mrs. Sykes was 1st with one Pine. Mr. G. W. Mould 1st with four dishes of culinary Apples. Mr. S. Lord 1st with white-fleshed Melon; Mr. J. E. Platt being 1st with scarlet-fleshed Melon. Mr. P. Colles was successful with a brace of Cucumbers. Colonel Dixon was 1st with a dish of Cherries and a dish of Peaches. With Nectarines Mr. D. Adamson was 1st; Mr. W. Porter winning with Raspberries, and Mr. Mackellar with dessert Apples.

Grand Tomatos were shown by Mr. J. Mason, Oakfield Nursery, Sale, and were awarded a Special Certificate. For a dish of Tomatos Mrs. Deakin was 1st.

Collections of vegetables, ten varieties.—Of these grand lots were staged. S. Lord, Esq. (gr., Mr. G. Walker), was placed 1st, with a fine lot; Mr. T. Roffey, Sandbach, coming in 2d.

Prizes were awarded to single plants of Orchids, stove and greenhouse plants in bloom, *Liliums*, *Bouvardias*, *Eucharis*, ornamental-berried plants, Japanese *Mazie*, *Yucca filamentosa* variegata, and early *Chrysanthemums*.

Stands of cut flowers were shown by several nurserymen, among them being Roses and cut blooms of herbaceous plants from Messrs. F. & A. Dickson, Chester; Dahlias, Roses, Begonias, and herbaceous plants, from Mr. J. Robson, Downs Nursery, Bowden; Roses, Gladioli, &c., from Messrs. Dickson, Brown & Tait, Manchester; also a good lot of a similar character from Messrs. Dickson & Robinson, Market Place; Messrs. W. & J. Mellor, Withington, had Asters, Pansies, and herbaceous blooms; whilst from Mr. W. Cordingley, Stockport, came beautiful *Gloire de Dijon* and *Niphetos* Roses, with Carnations and Picotees.

Capital groups of plants, not for competition, were staged by Mr. J. Hooley, Edgeley Nursery; Messrs. W. G. Caldwell & Sons, Knutsford; Mr. J. Burket, Heaton Norris; also by Mr. C. Gleave, Heaton Norris; and Mr. W. J. Williams, Heaton Mersey. These added much to the interest and attractiveness of the show.

The energetic and enthusiastic Hon. Secretary, E. D. Stone, Esq., who is not an exhibitor, but who is a thorough worker, not only deserves support, but has succeeded in enlisting the active co-operation of the leading gentry for miles around, and the hearty aid of a small committee, anxious to promote the objects of the Society, which is the encouragement of horticulture in the cottage, as well as in the gardens of patrons of more extended means and opportunities.

MAIDENHEAD: August 19.

AFTER being suspended for one season the committee of this Society have again, by offering an attractive schedule, brought together an exhibition of first-rate produce. There was throughout the show an absence of inferior productions, and the exhibitors of the district are to be congratulated for the excellent display that was made on this occasion.

PLANTS.

These were characterised by their fresh appearance and the absence of unwieldy specimens. Mr. Aitken, gr. at Richings Park, Slough, was a prominent exhibitor,

taking the leading prize for a group of flowering and foliage plants arranged for effect; these consisted of subjects well chosen for the purpose, and were arranged in a light and elegant manner, *Francia ramosa* and *Lilies* playing an important part. Mr. Taylor, gr. to J. Watson, Esq., Langley House, Slough, followed closely for the 2d place, with a pretty group, amongst them being some plants of *Crotons* that told well. The 3d prize was awarded to Mr. Elliott, gr. to J. Hibbert, Esq., the President of the Society, in whose grounds the show was held, for a group of bold form, *Gladioli* and *Liliums* being used freely.

Mr. Aitken repeated his former success by winning the 1st prize for six flowering and foliage plants with a well grown set of all-round plants; *Kentia australis*, a noble plant; *Croton Johannis*, finely coloured; and *Allamanda Hendersoni*, in good flower, were the most noticeable among others; Mr. Gates, gr. to Dr. Meadows, Poyle Manor, coming in a capital 2d, with six well grown plants.

Mr. Owen was awarded the 1st prize for six well grown tuberous Begonias of an excellent strain.

For a flowering specimen a fine plant in abundant bloom and fresh of *Erica Austriana* won the well-placed prize for Mr. Taylor; whilst an unusually well-grown example of *Laestromia indica*, with quantities of its bright pink panicles of flower, from Mr. Aitken, and a good plant with several spikes of flower of *Peristeria elata* from Mr. Gates, were bracketed equal 2d.

A fine plant of *Croton Queen Victoria* took 1st as a foliage specimen for Mr. Aitken; a healthy plant of *Cycas revoluta* pressing closely for 2d, from Mr. Taylor.

Two good collections of six Ferns were staged, the last named exhibitor winning with a set of well grown plants, among which were a finely developed specimen of *Pteris scaberula* and a *Gymnogramma Lauchiana*; in Mr. Lockie's 2d prize lot was another good *Pteris scaberula*, and a fine specimen of *Adiantum cardiophyllum*.

For eighteen fine-foliage plants in 8-inch pots, a very fresh lot coming from Mr. Wells, gr. to R. Ravenhill, Esq., Winkfield, took the 1st prize.

Several collections of dinner-table plants were staged, the best coming from Mr. Lockie, gr. to Lord Fitzgerald, Oakley Court, Windsor.

FRUIT.

This section constituted an important feature in the large marquee. Mr. Cakebread, gr. to Sir P. Rose, Rayners, taking 1st for Muscat of Alexandria finely coloured, likewise for Madresfield Court equally good, and for Foster's Seedling, in classes provided for Muscats, any other black and other white respectively; the same exhibitor being 2d in an exceedingly strong class of Black Hamburg, the 1st prize for which went to a set of three bunches of first-rate colour and berry from Mr. Wells.

For six kinds of fruit a strong lot came from Mr. Goodman, gr. to C. Hammersley, Esq., Bourne End, who had good Grapes and fine samples of Oullin's Golden Grape Plum; Mr. Cakebread came in a close 2d, staging Muscat Grapes, again in good order.

In the class of four dishes (Pines excluded) Mr. Lockie won with capital fruit, whilst the same number of dishes grown in the open air Mr. Goodman, another 1st with good samples, among which a dish of Old Windsor Pear, finely coloured, was conspicuous.

Peaches.—A fine dish of Stirling Castle Peaches in perfection won the 1st prize for Mr. Taylor, and an equally fine dish of Pine-apple Nectarines won the same position for Mr. Aitken.

VEGETABLES.

For Messrs. Sutton's prizes the competition was exceedingly keen, no fewer than twelve lots of nine dishes each were staged. Mr. Lockie won the 1st prize with an extra strong collection, among which we noticed Royal Windsor Cucumber, Trophy Tomatos, and Snowball Turnips, all finely shown; Messrs. Elliott, Goodman, Cakebread, and Aitken, following each other closely in the order named.

Potatos were shown in quantity in several classes, the tubers being clean, and of a good average size; Reading Hero among rounds, and Reading Ruby and Cardinal of the kidneys, were among the best shown.

Veitch's Standard Brier Celery, very fine, won for Mr. Gates the 1st prize, and Sutton's Perfection Tomatos the same position for Mr. Cakebread.

CUT FLOWERS.

These were composed of the chief things in season, Mr. Walker, of Thame, being strong in Asters, Dahlias, and Zinnias.

For three stands for the decoration of the dinner-table, Miss Temple won with choice material, boldly, yet effectively arranged, being very closely pressed by Mrs. Elliott, who took 2d place with excellent arrangements; these two exhibits were prominent features of the show.

Messrs. Sutton & Sons exhibited a brilliant collection of annuals, &c., not for competition; and Mr. Owen some choice Gladioli and Tuberous Begonias, &c.

TROWBRIDGE HORTICULTURAL.

In pleasant weather this Society celebrated its thirty-seventh annual exhibition in the usual show ground near the railway station. It is a very popular gathering, and, as is usual, there was a very large and attractive show, probably one of the best ever held in Trowbridge; the tents were full to repletion, and the judges had no easy task in making the awards. The attendance was very large, and over £300 was taken at the gates. It may be stated that the first exhibition was held in order to wipe off a debt on the old Mechanics' Institute, and this proved so successful that a balance of over £100 remained, and this sum was handed over to a committee of townspeople to carry out an annual exhibition, and they have continued to do this ever since. At the present time the Society has a reserve fund of £200. The Hon. Sec., Mr. James Huntley, has filled the post for the large number of twenty-three years.

PLANTS: STOVE AND GREENHOUSE.

Of these there was a good display. Mr. J. F. Mould, nurseryman, Pewsey, being placed 1st with nine good specimens, including three *Ericas*, viz., *Altonia turgida*, *Marnockiana*, *Austriana*, *Dipladenia amabilis* and *Brievleyana*, *Clarendon* *Balanarium*, *Allamanda Hendersoni* and *nobilis*, and *Ixora Pilgrimii*; 2d, Mr. J. Matthews, gr. to W. R. Brown, Esq., Trowbridge.

With six plants Mr. G. Tucker, gr. to Major W. P. Clarke, was a good 1st with *Stephanotis floribunda*, *Anthurium Scherzerianum* var. *Veitchii*, *Statice profusa*, *Rondeletia speciosa major*, *Ixora Fraseri*, and *Bougainvillea glabra*; 2d, Mr. H. Pocock, gr. to J. P. Haden, Esq., Trowbridge.

Mr. Matthews had the best three specimens, setting up in good character *Allamanda Hendersoni*, *Ixora Pilgrimii*, and *Erica McNabiana*; 2d, Mr. George Pym, gr. to Mr. Gouldsworth, Trowbridge.

In the class for a specimen plant displaying superior cultivation, Mr. Pym was 1st, with a well grown and flowered piece of *Cattleya Loddigesii*; Mr. F. Perry being 2d, with a good specimen of *Pilumnia nobilis*.

The best new or rare plant was *Croton Bergmanni*, shown by Mr. J. Mould; Mr. C. Richman, gr. to G. L. Palmer, Esq., Trowbridge, being 2d, with *Cattleya Dominiana*.

Heaths were rather small, but nicely grown and flowered; Mr. Matthews was 1st, with six specimens, Mr. Mould coming in 2d.

Gloxinias were decidedly good for the late season; Mr. G. Richman was 1st, with six; Mr. J. Hiscox gr. to H. B. Rodway, Esq., Trowbridge, being 2d.

Some small but nicely grown and flowered plants of *Aschimenes* were staged, Mr. G. Tucker being 1st, and Mr. H. Pocock 2d.

Here, as elsewhere, tuberous-rooted Begonias are rapidly improving as exhibition plants, single and double varieties being well shown, the chief honours being gained by Mr. J. Darbin, gr. to G. Tredwell, Bath; and Mr. A. A. Walters, Bath. The fine specimen *Petunias* usually seen at Trowbridge were again in strong force, trained to wire trellises, and carrying striking heads of capital flowers. Mr. Mattock, gr. to J. G. Foley, Esq., Timpsey Stoke, had the best; the Rev. C. C. Layard being 2d.

Cockscombs being good, Mr. M. Tiley, Bath, having the best.

The best *Verbenas*, trained like the *Petunias*, and making fine exhibition plants, were staged by Mr. Mattock, and the Rev. C. C. Layard.

Mr. Tucker had the best eight plants of zonal *Pelargoniums*, finely grown and bloomed; Mr. H. Pocock being 2d.

Large and bold specimens are always the rule at Trowbridge. Variegated *Pelargoniums* were also in good condition; Mr. H. Pocock had the best six, and Mr. P. R. Butler, Devizes, the best four specimens. Balsams were fresh and good.

FOLIAGED PLANTS.

The best nine came from Mr. Mould, who was strong in good bushes of *Crotons*, showing five, viz., *Johannis*, *Andreas*, *Queen Victoria*, *Sunset*, and *Majestic*, *Cycas revoluta*, *Kentia*, *Fosteriana*, *Cocos Weddelliana*, and *Dracena Shepherdii*; 2d, Mr. W. C. Drummond, nurseryman, Bath.

Coleus were numerous and good, well grown and coloured; Mr. J. Matthews had the best six, Mr. Geo. Pym being 2d.

FERNS AND MOSSES

are shown in groups of fifteen, and there is always a very keen competition for 1st honours; on this occasion Mr. Geo. Tucker was awarded the 1st prize; Mr. J. Coke, gr. to A. P. Stancourt, Esq., Trowbridge, being 2d. These groups greatly help the show

and being generally medium-sized, well developed specimens, they take up a good deal of space. *Caladiums* were also in good form; Mr. Matthews was 1st, and Mr. H. Pocock, 2d.

FUCHSIAS.

No praise can be too high for the fine specimens shown by Mr. Matthews on this occasion. It very rarely happens that Mr. Lye cannot show, but from some cause he did not put in an appearance on this occasion. Mr. Matthews' 1st prize six plants, 8 feet in height, and correspondingly broad, consisted of the following dark varieties:—*Charming*, The Hon. Mrs. Hay and Noel's Favourite; light, *Beauty of Trowbridge*, *Marchioness of Bath* (white coriolled), and seedling, 2d, Mr. H. Pocock, with smaller but remarkably well grown and flowered specimens. Mr. Matthews had the best four also, his dark varieties being Noel's Favourite and the Hon. Mrs. Hay; light varieties, *Rose of Castille* and *Arabella*; Mr. G. Tucker being 2d. The *Fuchsias* shown by amateurs and cottagers, though smaller in size, were perfect as well grown and flowered specimens. Among amateurs, Mr. H. Perkins had the best four; among cottagers, Mr. F. Slade was 1st with the same number of plants.

CUT FLOWERS.

There is always a good show of *Dahlias* at Trowbridge, the Society having made them a specialty for years past. The best twenty-four varieties, single blooms, came from Messrs. Keynes, Williams & Co., Salisbury—a fine lot of flowers, consisting of C. E. Wyatt, Mrs. Gladstone, Prince Bismarck, Henry Walton, Burgundy, Muriel, Victor, Illuminator, Harry Keith, Colonelist, Immacul., Rosy Mon., James Cocker, Royal Queen, William Rawlings, Henry Bond, Joseph Ashby, Thomas Hobbs, Harry Turner, John Wyatt, Mr. P. Wyndham, Sir C. Mills, Mrs. George Paul, and seedling, 2d, Mr. Thomas Hobbs, Lower Easton, Bristol, with smaller but fairly good blooms.

In the class for twelve varieties, Mr. G. Humphries, Chippenham, was 1st; and Mr. H. Bush, Bath, 2d, with rather small, nice flowers. Messrs. Keynes, Williams & Co. had the best twelve fancy varieties, staging *Gaiety*, *Pelican*, seedling, *Heckford*, sport from *Gaiety*, Mrs. Saunders, Rebecca, Hercules, John Forbes, The Rev. J. B. M. Camm, Salamander, and Miss Letty Large, 2d, Mr. G. Humphries.

The Society's Certificate of Merit was awarded to the following seedling *Dahlias*, shown by Messrs. Keynes & Co.:—*Victor*, rich maroon, very fine form and excellent centre; *Defiance*, pale ruby-scarlet, perfect in petal, centre and outline; and *Colonist*, fawn, tinted with gold, the petals slightly suffused with magenta, and having a nice edge of magenta-purple: a very novel and distinct flower. Messrs. Keynes & Co. also had *Illuminator*, shaded crimson, the tips of the petals orange and gold, large, full, but somewhat reflexed, yet very bright and novel; *Crimson King*, bright crimson; and *Golden Eagle*, yellow ground, pencilled and edged with crimson-purple—novel and distinct.

Single *Dahlias* were shown in stands of twelve blooms. Mr. A. A. Walters, florist, Bath, was 1st, and Mr. W. J. Jones, gr. to W. J. S. Pope, Esq., Bath, 2d; but a certain number of blooms should be stated in the schedule—some exhibitors had but one of each variety, others had five or six flowers.

The best twelve bunches of pompon *Dahlias* came from Messrs. Keynes & Co.—an excellent lot, consisting of *Dora*, Catherine, Darkness, The Khediva, Lady Blanche, Royalty, Golden Gem, Gem, E. F. Jungker, Favourite, White Aster, and a seedling, red tipped with white.

ROSES.

These were a good feature for the season of the year. The best twelve varieties, three trusses of each, came from Mr. J. Mattock, Oxford, who had Maurice Bernardin, Horace Vermet, Merville de Lyon, Duchess of Bedford, La France, Emile Hausberg, Catherine Mermet, Madame Victor Verrier, Perle des Jardins, Xavier Olibo, and Marie Van Houtte. Mr. S. P. Budd, Bath, was 2d; and Messrs. Geo. Cooling & Son, Bath, 3d.

With twenty-four single blooms, distinct, Mr. Mattock was again 1st, with good examples of *Horace Vermet*, *Souvenir d'un Ami*, *Alfred Colomb*, *Innocenta* *Pina*, *Dupuy Jamain*, *La Haye*, *Marie Verdier*, *Duchess of Bedford*, *Charles Darwin*, *Madame Berard*, *Duchess of Teck*, *Catherine Mermet*, *Devienne Lamy*, and *Jean Duser*, 2d, Messrs. Geo. Cooling & Son; 3d, Mr. H. J. Gibbs, Salisbury.

In the amateur class, Mr. Budd had the best trebles; Mr. G. Warden, the Gardens, Clarendon Park, Salisbury, being 2d.

ASTERS.

Both the quilled and flat-petalled varieties were numerous and fine. Messrs. A. F. Walters & Co. Cooling & Son, and G. Garraway, all of Bath,

appear to have strains of quilled *Asters* of great beauty and variety; they were much superior to anything we have before seen this season. Hollyhocks, Gladioli, Pansies, *Pelargoniums*, *Carnations* and *Picotees*, *Verbenas*, &c., all in a cut state, were numerous and good.

In the class for twenty-four varieties of cut flowers, Mr. Iggliden, Marston House Gardens, was 1st with a remarkably good stand; Mr. F. Perry, Shirehampton, Bristol, being 2d.

In the amateurs' and cottagers' divisions cut flowers were also remarkably good.

MISCELLANEOUS.

One interesting feature was special prizes for British wild flowers collected within twelve miles of Trowbridge, and botanically named. Mr. John Shellard, Combe Hay, was 1st, with an excellent collection; Miss Mann, Trowbridge, being 2d.

Collections of hardy annuals, in twelve varieties, for which special prizes were offered, were also well shown.

Table decorations of garden and also of wild flowers, bouquets, memorial wreaths, and button-holes, were in excellent character; indeed, the cut flower classes would of themselves have made an exhibition of an extensive and superior character; owing to such a large increase in the number of entries, they were inconveniently crowded.

FRUIT.

The fruit department was the only one in which the show may be said to have shown a falling off. The best collection of ten dishes, Pine excluded, was shown by Mr. A. Miller, gr. to W. H. Long, Esq., M.P., Rood Ashton, Trowbridge, who had very good Black Hamburgh and Foster's Seedling Grapes, *Violette Hative* and *Hale's Early Peaches*, *Eldrige Nectarines*, *Moor Park Apricots*, *Brown Turkey Figs*, and two varieties of Plums; 2d, Mr. H. Prosser, gr. to A. Laverton, Esq., Westbury, whose collection was a poor one compared with Mr. Miller's, but the 2d prize, being low in amount, it was awarded.

Some good Grapes were staged. In the class for any Black, not Muscat, Mr. C. Warden, gr. to Sir F. H. Bathurst, Bart., Clarendon Park, Salisbury, was 1st, with very good Black Hamburgh; Messrs. D. Evry & Sons, Bath, being 2d, with *Alcote*.

The best two bunches of white Grapes, not Muscats, were Buckland Sweetwater, from Mr. A. Young, gr. to A. Thomas, Esq., Clifton, Bristol; Mr. Iggliden being 2d, with Foster's Seedling, nicely turned out, but a little small in berry.

In the class for Black Muscats Mr. H. Clark, Roundway Park, was 1st, with fairly good Madresfield Court; Mr. Iggliden being 2d with the same variety. The 1st named had the best two bunches of White Muscats, good alike in bunch and berry; Mr. J. Loosemore, gr. to W. Cowper, Esq., Clifton, being 2d.

Mr. Thomas King, gr. to R. Valentine Leach, Esq., Devizes Castle, was 1st, with a dish of six Peaches, staging excellent Dr. Hogg; Mr. T. Keevil, Bockington, being 2d, with Barrington.

The best dish of six Nectarines came from Mr. Iggliden, who had excellent fruit of Lord Napier; 2d, Mr. Thomas King, with Balgown.

Melons were well shown, but did not call for any special remark.

The Rev. C. C. Layard had the best dish of Moor Park Apricots; Mr. G. Tucker being 2d.

A good number of Plums were shown, among them some excellent fruit of Green Gage; Mr. G. Garraway being 1st, and Mr. M. Tiley, Bath, 2d.

Culinary Apples were very good indeed, the leading sorts being Lord Suffield, New Hawthornden, Emperor Alexander, Warner's King and Tower of Glamis. Dessert Apples were decidedly good.

The best Dessert Pears were represented by Jargonelle, Williams' Bon Chrétien, Windsor, and Muir-fowl's Egg.

The best table decoration, composed of fruit and flowers, came from Mr. E. T. Hill, Westbury.

In the cottager's department hardy fruits were extensively and finely shown.

The show of vegetables in all the divisions a large one; so largely were they contributed that it was difficult to find room for them. Mr. A. Miller had the best collection of nine dishes; Mr. Thomas Evry, Bath-easton, being 2d.

In the gardeners' division Cucumbers, Cauliflowers, Potatoes, Onions, Peas, Carrots, Parsnips, Celery, Turnips, Cabbages, French Beans, Marrows, and herbs were in rare form.

In the cottagers' tent the display was even more striking. One class was for a basket of Potatoes of various kinds. One cottager had a collection of thirty-eight varieties in a long shallow box; another had one with nearly thirty varieties, many, it is to be feared, unworthy the garden room afforded them. Potatoes in single dishes of half a peck were seen to the best advantage. The leading coloured round varieties were—The Dean, Vicar of Laleham, Reading Russet, and Emperor; the leading coloured kidneys—Prize-

taker, Reading Ruby, Beauty of Hebron, and Wonderful Red. The leading white round was Schoolmaster; and of white kidneys—Chancellor, Woodstock Kidney, and International. The judges must have had a heavy task, and they well deserved the luncheon given them by the committee at the close of their arduous labours.

BASINGSTOKE HORTICULTURAL: August 19.

The tenth annual exhibition of the above Society was held in "The Goldings," a space specially well adapted for a flower show. The show on the whole was a capital one, the only classes which showed any falling off were one or two devoted to plants, owing to possible exhibitors being at other shows. Still there was enough to make an attractive exhibition. Black Grapes were excellent, while the vegetables in all the classes were of very superior character, particularly the collection of twelve in the open class. Cut flowers were of much merit, and the various eperges, &c., were dressed with much taste.

PLANTS.

The principal class for plants was that where the 1st prize was given by the President, W. W. Beach, Esq., M.P., for a collection of twelve to be either in or out of bloom. Mr. Bowman, gr. to C. Hoare, Esq., Hackwood, was placed 1st, with a freely flowered specimen *Eucharis amazonica*, *Allamanda Hendersoni*, a healthy *Cycas revoluta*, and a well coloured *Croton Veitchii*, as his best; Mr. J. Dauncey, gr. to J. B. Stone, Esq., Backfield, was 2d, his best being *Cocos Weddelliana* and *Allamanda Schottii*.

A special class, provided by Major J. May, for gardeners in smaller places than the preceding class, brought out even better specimens than did the former, the conditions being the same. Mr. B. Tripp, gr. to S. Field, Esq., Goldings, easily carried off 1st honours with *Latania borbonica*, of good size and healthy; *Areca lutescens*, and a richly flowered and nicely coloured specimen of *Chomandra Balfouriana* as his best plants; Mr. Thompson, gr. to Captain Boland, Down Grange, was 2d, he also having clean healthy plants.

Single specimens were freely shown, Mr. Bowerman taking the lead with *Eucharis amazonica*, in capital condition; 2d, Mr. T. Weaver, gr. to W. W. Beach, Esq., M.P., Oakley Hall, Basingstoke; while three equal 3d prizes were also awarded.

Mr. Weaver staged the best exotic Ferns, his six specimens being all in the best health possible; Mr. Bowerman 2d, Mr. Thompson 3d.

GROUPS.

For the best group, arranged for effect, Mr. Weaver was easily best; the plants used were of a rather larger size than those generally chosen for the like purpose, still they were used judiciously, and all were in capital condition; some fine plants of *Pancratium fragrans*, in small pots, with one immense spike to each, made a feature in this group, which was neatly margined with *Caladium argyrites* and *Maidenhair Fern*. Mr. B. Tripp, gr. to S. Field, Esq., was 2d, but his plants were arranged too flatly, giving the group a too even appearance; otherwise the plants were in capital condition for the purpose. 3d, Mr. T. Holdaway, gr. to Major J. May.

CUT FLOWERS.

Asters were in strong force, both the quilled and the plain sections. For the former Mr. Kneller, gr. to W. S. Portal, Esq., Malshanger, was 1st, staging *Betteridge's* varieties in good condition; 2d, Mr. Lye, gr. to W. H. Kingsmill, Esq., Lydmonton; 3d, Mr. Thompson.

Mr. Kneller was again 1st, staging good flowers in the plain-flowered section.

Mr. Bowerman had the best twelve bunches of cut flowers, which included good *Ixoras*, *Lapagerias*, and *Stephanotis*.

FRUIT.

The best collection of eight varieties was staged by Mr. Weaver, his best dishes being Buckland Sweet-water and Black Hamburg Grapes, *La Favorite* Melon, and excellent Morello Cherries; 2d, Mr. Thompson.

For the best six dishes, *Pines* excluded, Mr. Jones, gr. to H. Harris, Esq., Steventon, Basingstoke, who had good Black Hamburg and Foster's Seedling Grapes, *Pine-apple* Nectarines, Morello Cherries, and *Jargonelle* Pears; 2d, Mr. G. Best.

For these bunches Black Hamburg Grapes, Mr. Bowerman was easily 1st, staging excellent samples, large both in bunch and berry and well finished; 2d, Mr. Jones, equal in quality, but lacking a trifle in size; 3d, Mr. Weaver.

For three bunches any other Black Best was taken, with very fine Black Prince; 2d, Mr. Jones; and 3d, Mr. Lye.

Mr. Weaver staged the best three bunches of white

Grapes, Muscats excluded, with Buckland, Sweet-water, good both in berry, bunch, and colour; 2d, Mr. Kneller, with bunches having larger berries, but not so well coloured; 3d, Mr. G. Best. Mr. Dauncey had the best green-flesh Melon and Nectarines, while the best scarlet-flesh Melon and Plums were staged by Mr. Bowerman.

VEGETABLES.

The best collection of twelve varieties was staged by Mr. Bowerman, and grand they were, so clean were the samples, it would be difficult to surpass them as a whole; Mr. Dauncey followed with an excellent collection; 3d, Mr. Lye. Mr. Dauncey had the best collection of nine varieties of Potatoes, medium sized, even, clean samples. In the class for spring sown Onions, some extra good Rousham Park were shown by Mr. Kneller for 1st prize.

Messrs. Sutton & Sons, staged, not for competition, an excellent assortment of cut flowers of annuals and perennials, which were much admired.

NARBOROUGH, ENDERLEY AND DISTRICT HORTICULTURAL.

The fifth annual show was held on Thursday, August 19, when the exhibits were pronounced by the judges to be above average. The weather was most unfavourable, and as a consequence a heavy loss falls upon the Society. Some excellent Roses were shown by Messrs. Perkins & Sons, of Coventry, and Mr. Frettingham, of Beeston Nurseries, Nottingham. Mr. Warner also sent some fine Dahlias and Roses for non-competition. The cottagers' class was excellent, and the vegetables and fruit of the other classes very fair for the season. Mr. Redford, gr. to J. G. Simpkin, Esq., showed some very fine Grapes. A special prize, given by Messrs. Harrison, seedsmen, of Leicester, for Potatoes, drew forth a strong competition, and the exhibits were admirable. Mr. Davies, gr. to Captain C. G. Drummond, of Enderby Hall, and Mr. J. Exton, gr. Narborough Hall, staged some plants, &c., for non-competition, *W. L.*

Obituary.

ROBERT LORD.—Cultivators of the Carnation and Picoete, and especially those who are exhibitors at the three leading exhibitions held annually, will learn with pain of the death of Mr. Robert Lord, of Hole Bottom, Todmorden, which took place on the 18th inst., after a brief illness. Mr. Lord, who had been to the annual meeting of the Carnation and Picoete Union—of which he was a promoter and active supporter—at Oxford on the 3d inst., unhappily contracted a chill on his return journey, which resulted in inflammation of the brain and death.

Mr. Robert Lord was born at Todmorden on January 2, 1818, and he commenced growing Carnations and Picoetes at the age of fourteen, and subsequently cultivated the Tulip, show Auricula, Pink, Pansy, Dahlia, &c., but latterly, Carnations, and Picoetes and Auriculas only were grown by him. But he was a representative florist in the best sense of the term. Trained to the sister art of music—for up to the year 1880 he followed the profession of a teacher of singing—having in the prime of life an excellent tenor voice, which placed him in the front rank of local musicians; gifted with a keen sense of the beautiful, a rare power of accurate observation, his work was of the highest order, and his judgment solid and matured, in him florists had an example worthy of all admiration. He had made Hole Bottom—a strange misnomer for a site 600 feet above the immediate valley, but it was an old disused quarry—an historic name for the beauty of its productions; and as he lay so near to his end his flowers were obtaining 1st honours as recorded in our last week's report, at the annual exhibition of the National Carnation and Picoete Society (Northern Division) at Manchester on the 14th inst.

Mr. Lord was the raiser some ten years since of a batch of beautiful Picoetes, which hold, and are likely to continue to hold, so long as they can be grown, a first place in the estimation of the intelligent florist. Writing of one of these—*Zerlina*—in his descriptive list, recently published, Mr. Dodwell says:—"Last upon my list, but amongst the very first in my regard, from the same pod of seed with Alice, Ann Lord, Minnie, and Fanny, it is impossible, as I have previously said of these flowers, to exaggerate their excellence or over-exalt their quality. Raisers in all generations may strive, as they assuredly will, and they may develop new forms and shades of colour, or combinations of colour; but

they will never surpass the richness of quality, stoutness of substance, distinctness of markings smoothness of edge and surface, symmetry of form, or breadth of petal which distinguish them and other fine varieties. No one with even a smattering of knowledge of the wonderful diversity possible to Nature, and the beauty to be found in her productions, could think of putting a limit to her power, but in the directions indicated, it may be permitted for the finite to speak with confidence." He also raised rose-tinted Carnation Mrs. Dodwell; and the following Picoetes in addition to those named:—*Red F. D. Horner*, *Nymph*, *Cynthia*, *Miss Lord*, *Miss Lee*, and Mrs. Lord. His old and attached friend, Mr. E. S. Dodwell, named after him one of the best scarlet bizzars he has raised.

About five years ago Mr. Lord commenced business as a grower of Carnations and Picoetes in conjunction with his son Tom, by whom, in conjunction with his family, the business will be carried on in the future. This season they have fully a thousand pots contain 3000 to 4000 plants.

For many years he was the choir-master of the Musical Union, and afterwards of the Musical Society of Todmorden. He also taught singing in the Messrs. Fieldens' Schools, and for a long period of forty-three years he was choir-master at the Unitarian Chapel, *R. D.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, AUGUST 25, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.		HYGROMETRIC DEDUCTIONS FROM GLAISHER'S Tables 7th Edition.	WIND.	RAINFALL.	
	Mean Reading Reduced to 32° Fahr.	Difference from Average of 40 years.	Highest.	Lowest.				
	Range.	Mean for Departure of Mean from Average of 40 years.	Dew Point.	Average Direction.				
Aug.	In.	In.	In.	In.	In.		In.	
19	29.98	+0.10	64.0	54.0	0.58	98	N.W.	0.10
20	30.06	+0.26	68.0	58.0	0.58	8	N.W.	0.00
21	30.01	+0.10	70.0	60.0	0.63	9	N.W.	0.00
22	29.85	+0.04	75.0	65.0	0.64	4	N.E.	0.00
23	29.84	+0.03	75.0	65.0	0.61	0	N.E.	0.00
24	29.77	+0.05	74.0	64.0	0.58	4	N.E.	0.03
25	29.87	+0.03	75.0	65.0	0.53	70	N.	0.00
Mean	29.90	+0.08	71.1	53.4	0.71	83	N.W. N.E.	0.10

Aug. 19.—A very dull day, the air nearly saturated with water.

— 20.—A fine day.

— 21.—A very fine day.

— 22.—The morning was dull, afterwards fine and bright.

— 23.—A fine day.

— 24.—A fine warm day.

— 25.—A fine day throughout, at times close and warm.

LONDON: Atmospheric Pressure.—During the week ending August 21, the reading of the barometer at the level of the sea increased from 30 inches at the beginning of the week, to 30.17 inches by the morning of the 15th, decreased to 29.87 inches by 9 P.M. on the 16th, increased to 30.25 inches on 9 A.M. on the 22nd, and was 30.03 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 30.11 inches, being 0.22 inch higher than last week, and 0.13 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 73° on the 21st; the highest on the 18th was 62°. The mean of the seven high day temperatures was 66° 9.

The lowest temperature in the week was 48° on the 21st; the on the 16th was 56°. The mean of the seven low night temperatures was 51° 6.

The greatest range of temperature in one day was 25° on the 21st; the smallest was 10° on the 16th and 19th. The mean of the seven daily ranges was 15° 3.

The mean daily temperatures were, 60° 8 on the 15th; 61° on the 16th; 57° 4 on the 17th; 57° 7 on the 18th; 58° 5 on the 19th; 58° 4 on the

W.—Hy M.—B.—W. H. B.—J. C. A.—W. E.—T. W. M.

FLOWERS AT CHRISTMAS.

**SUTTON'S
BULBS for EARLY FORCING**

ROMAN HYACINTHS—
SINGLE WHITE, finest selected.
SINGLE BLUE, second size.
EARLY NARCISS—
DOUBLE ROMAN.
PAPER-WHITE.

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With Coloured and other Illustrations,
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"POETICUS ORNATUS, earliest."
ALSTOMERIA AURANTIACA.
AULUM MOLY.
COLCHICUM AUTUMNALE ALBUM.
"VERATRI-FOLIUM."
AUTUMNALE, 8-pl.
LEUCOCYUM AESTIVUM.
PULCHELLUM.
ORNITHOGALUM UMBELLATUM.
SCILLA CAMPANULATA.
"CAMPANULATA ALBA."
"CAMPANULATA ROSEA."
"CAMPANULATA, red and white."
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YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.
SPHAGNUM MOSS, 8s. 6d. per sack.
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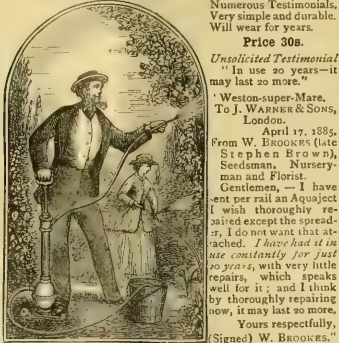
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JOURNEYMAN, Inside and Out.—Age 23; good character from last and previous employers.—C. CANDLEY, 4, Lenster Street, Cleveford 34, Paddington, W.

JOURNEYMAN, in the Houses —Age 18; five years in present situation.—GARDENER, Shenton Hall, Nuneaton.

JOURNEYMAN, in the Houses or other-wise.—Age 24; five years' experience. Fourteen months' good character from last situation.—A. A. FOULTER, Finchampstead, Wokingham, Berkshire.

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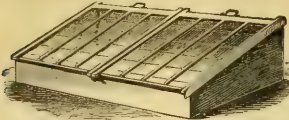
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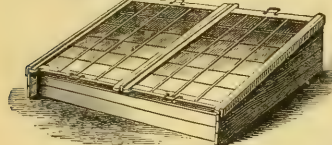
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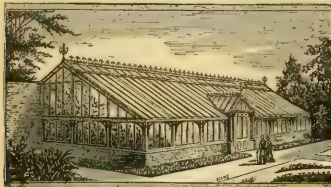
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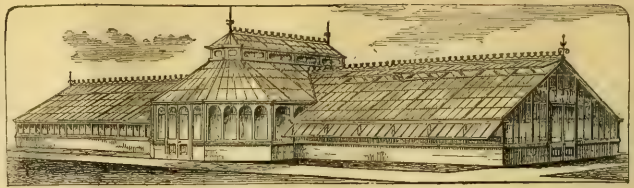
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W. RICHARDS, 41, WELLINGTON STREET, STRAND, W.C.

GARDENERS' CHRONICLE.

Established 1841.

No. 662.—VOL. XXVI. { NEW SERIES. } SATURDAY, SEPTEMBER 4, 1886.

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SCOTCH SUBSCRIBERS TO THE GARDENERS' CHRONICLE
who experience any difficulty in obtaining their Copies regularly, are particularly re-quested to communicate with the Publisher,
W. RICHARDS, 41, Wellington Street, Strand, W.C.

GARDENERS' CHRONICLE OFFICE TELEGRAMS.
NOTICE to Correspondents, Advertisers, Subscribers, and Others. The Registered ad-vice for Foreign and Inland Telegrams is "**GARDCHRON, LONDON.**"

ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.
NOTICE 1.—COMMITTEE MEETINGS. Fruit and Floral, at 11 A.M., in the Conservatory, on TUESDAY NEXT, 7, September 7. **SHOW OF GRAPES, DAHLIAS, &c., on** September 7, 7, and WEDNESDAY, September 8, 8. Open to Fellows at 12 o'clock, and the Public at 1 o'clock. On Wednesday, 10 A.M.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY.
The AUTUMN FLOWER SHOW will be held within St. Andrew's Hall, Granville Street, Glasgow, on WEDNESDAY, Friday September 4, and Tickets of Admission to be had from the Treasurer, Mr. Chas. Macdonald Williamson, 104, West George Street, any of the Directors, or at my office here. Member's Ticket, 2s. 6d. each.

FRANCIS GIBB DOUGALL, Secretary.
167, Canning Street, Glasgow.

NATIONAL CHRYSANTHEMUM SOCIETY. Royal Aquarium, Westminster, S.W.
GRAND EXHIBITION OF DAHLIAS, GLADIOLI, Early CHRYSANTHEMUMS, &c., THURSDAY and FRIDAY, September 9 and 10. Schedules free on application to

FRAMPTON PARK NURSERY, Hackney, E.
Revised Official "CHRYSANTHEMUM CATALOGUE," now ready, 6d. per Copy.

THIRD ANNUAL APPLE AND PEAR SHOW
at EXETER, OCTOBER 21 and 22, 1886.
43 Classes open to all England.
ONE HUNDRED AND FORTY PRIZES.
No entrance Fees.
For Schedules and Rules, apply to
J. I. PENGELL, Hon. Sec.
Guildhall, Exeter.

Hardy Perennial Chrysanthemums, MAXIMUM and ULIGINOSUM
(see illustrations *Gardeners' Chronicle*, August 28).
Plants, 9d. each; six for 5s. 6d. per dozen; 50s. per 100.
Cash with order for delivery in October.
S. COOPER, The Nurseries, Hadleigh, Suffolk.

Camellias, Azaleas, Rhododendrons, Palms, Orchids, &c. Plants grown specially for English use.
C. VUYLESTEKE, NURSERYMAN,
Loosdrecht, Ghent, Belgium.
Wholesale CATALOGUE now ready, and may be had free on application to
Messrs. R. SILBERRAD and SON, 25, Savage Gardens, Crutched Friars, London, E.C.

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CLEMATIS, WHITE JACKMANNI,
and Charles Noble is its Raiser.
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EUPHORIA, HOYA, PLUMBAGO, &c.
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Ferns—Ferns—Ferns.
H. B. MAY now offers an immense stock of Ferns, consisting of all the most useful varieties for ornamental pots, or for growing on: 15s. per 100, cash with order.
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See illustration of this Plantation in this Journal of July 10.

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is now ready.
The first consignment is to hand, in excellent condition. The NEW ROSE, FRUIT TREE, and CONIFER CATALOGUE is in the Press.
The Royal Nurseries, Slough.

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A. HILL and CO., 52, Hart Street, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity. A. H. & Co., giving personal attention to all consignments, are thus enabled to obtain the highest market prices. All Cheques forwarded weekly. Bankers and good Trade references. Boxes and Labels supplied.

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North Row, Covent Garden, London, W.C., REQUIRE any quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatoes, Cucumbers, choice Flowers, &c.

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W. UNWIN, FRUIT SALESMAN, has
REMOVED to Larger Premises in the Market, and is open to RECEIVE CONSIGNMENTS of PEACHES, GRAPES, and TOMATOES in any quantity.
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ALFRED LODGE, Brougham Hall Penrhir.

WANTED, CUTTINGS OF GERANIUMS,
for bedding. Send names and particulars to
JAMES DICKSON and SONS, Newton Nurseries, Chester.

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T. T. DAN and SON, Rose Park Nursery, Upper Tooting, S.W.

WANTED, strong CUTTINGS of Flower of Spring, Mrs. Follock, McMahon, &c., GERANIUMS. Price per 100, to
J. E. DIXON, Seed Grower, &c., Gainsborough.

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The above are the most handsome new flowering plants of the year. They are now being sent out, and can be seen in flower at
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Roses—Roses—Roses.
THE LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, have a large and fine stock of TEA and other ROSES in all the leading varieties; also a fine stock of MARECHAL NIEL, GLOIRE DE DIJON, and other CLIMBING ROSES in pots. Circular with prices on application.
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To the Trade Only.
NUTTING and SONS have just received their Consignments of DUTCH and other BULBS, which they import from best Growers only. These Bulbs are very fine, large and sound; far superior to anything that is being sold at auction sales.
Wholesale CATALOGUE on application.
106, Southwark Street, London, S.E.

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ADIANTUM FRAGRANTISSIMUM
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DUTCH BULBS.
First Quality Only.
CATALOGUES may be obtained from
H. VAN DEN HAAG, 110, Newington Green Road, N.
They have never had better Bulbs, and have been able to see them three years running.—*The Earl of Tankerville's Gardener.*

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RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

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TO THE TRADE ONLY.—A few hundred
ADIANTUM TENERUM, A. CONCINNUM
LATUM, out of boxes, from 12 to 15 inches, 12s. per 100. Cash with order. Package included.
MAIRIS and CO., Weston in Gordano, Bristol.

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LILIU HARRISII and CANDIDUM.
DOUBLE WHITE ITALIAN HYACINTHS.
NARCISUS PAPER WHITE and DOUBLE ROMAN.
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AZALEA MOLLIS, for forcing.
AZALEA MOLLIS, splendid 2-yr. seedlings, at 5s. 1s. 10s. **AZALEA INDICA, HOETIA JAPONICA, RHODODENDRON, FIGUS, KENTIA, LATANIA PALMS,** in store pots. All very well grown and cheap. To be had from
O. BURVENICH DE WINNE, Genbrughe, near Ghent, Belgium. CATALOGUE to be had free on application to
WATSON and SCULL, 99, Lower Thames St., London, E.C.

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PAUL and SON have now ready for delivery, in 60-pots and Runners of all the best varieties, including the new first earlies Pauline and King of the Earlies, and the new large Perpetual Strawberry, Roi Henry, probably most useful for autumn growing in pots. Descriptive LIST, with dates of ripening carefully noted up to date, post-free on application.
The "Old" Nurseries, Cheshunt.

LOVEL'S STRAWBERRY RUNNERS.—
Strong, healthy, and well-rooted, from leading varieties. LIST on application.
Sample of Plants, post-free, 3d.
W. LOVEL and SON, Strawberry Growers, Driffield.

STRAWBERRIES.—A Descriptive
CATALOGUE forwarded post free on application.
THOS. RIVERS and SON, Nurseries, Sawbridge, Herts.

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To Florists, Seedsmen, Horticultural Builders, &c.
PLANTS, FLOWERS, FRUITS and Vegetables a Specialty.
WM. J. WELCH begs to call particular attention to his productions for
ILLUSTRATING BOOKS, MAGAZINES, CATALOGUES, and for ADVERTISING PURPOSES.
For Specimens see *Gardeners' Chronicle*, 1883 to 1886.
ADDRESS, 25, Wellington Street, Strand, London, W.C.
BEESON'S MANURE is the best for all Horticultural Purposes. Sold in tins, 2s. 1s. 6d., 5s. 6d., and 10s. 6d., or cwt. bags, sealed, 17s. each. By all Nurserymen or Grocers, or direct from **Charles Beeson, Bone Mill, Sheffield.** Also pure CRUSHED BONE MEAL, any size, and guaranteed of the best quality.

SALES BY AUCTION.

Dutch Bulbs.

Every MONDAY, THURSDAY, and SATURDAY.
GREAT UNRESERVED SALES.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every MONDAY, THURSDAY, and SATURDAY, at 11 o'clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other BULBS from Holland, in excellent quality, and lot to suit the Trade and Private Buyers.

On view morning of Sale, and Catalogues had.

Ewell.

By order of the executors of the late Mrs. R. C. Price.
MESSRS. PROTHEROE AND MORRIS are instructed to sell by AUCTION, on the Premises, Parkside, Ewell, Surrey, on MONDAY, September 6, at 1 o'clock precisely, the whole of the well-grown STOVE and GREENHOUSE PLANTS, many fit for decorative purposes, and successfully shown at the local shows, including fine Crotons, large Palms, Eucharis, Maidenhair, and other Ferns, a few Orchids, specimen Coleus and Fuchsias, Lapageria alba and rosea, Begonias, Chrysanthemums, small GREENHOUSE garden FRAMES, and UTENSILS, garden ROLLER for pony, POULTRY, two store PIGS, and numerous other effects.

On view the Saturday prior to Sale. Catalogues had of Mr. BUSH, the Gardener on the Premises; and of the Auctioneers, 67 and 68, Cheapside, E.C.

Buckhurst Hill, near the Station.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. R. South, to sell by AUCTION on the Premises, Queen's Road, Buckhurst Hill, on TUESDAY, September 7, at 2 o'clock precisely, 100 specimen EUPHARIS AMAZONICA, very fine plants in pots 8 and 12 inches; 200 specimen CAMERARIA, 5 to 8 feet, principally double whites, large white AZALEAS, 300 well furnished Maidenhair FERNS, in 32 and 48 pots, and other PLANTS.

May now be viewed. Catalogues may be had on the premises, or of the Auctioneers, 67 and 68, Cheapside, E.C. and Leytonstone.

Chelsea, S.W.

CLEARANCE SALE of unusually well grown STOVE and GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed to sell by AUCTION, on the Premises, The Nursery, Beaufort Street, Chelsea, S.W. (about a mile from Chelsea Station), on TUESDAY, September 7, at 12 o'clock precisely, without reserve, the whole of the beautifully grown GREENHOUSE and DECORATIVE PLANTS, a large portion of which are admirably adapted for furnishing, comprising Plants in variety; two Araucarias, 14 feet, large Eucharis, Ficus, magnificent specimen; Aspidistras, one grand plant, measuring 5 feet through; 100 Maidenhair Ferns, 200 Azaleas, 100 green Euonymus, 10,000 flower-pots, and various other items.

On view two days prior to Sale. Catalogues may be had on the Premises, or of the Auctioneers, 67 and 68, Cheapside, E.C.

Chigwell.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. J. W. Steele & Co., to sell by AUCTION, on the Premises, The Excelsior Nursery, Chigwell, on THURSDAY, September 9, at 12 o'clock precisely, a large quantity of well-grown STOVE and GREENHOUSE PLANTS, including 14 grand specimen Stephanotis, large trained palms, about 40 smaller plants; 250 Gardenias, 300 Roses, all finely grown, 60 named Chrysanthemums, specimen Azaleas, 80 Eucharis grandiflora, 60 Bouvardias, best sorts; Jasmines, &c.; also 30 head of POULTRY.

On view two days prior to Sale. Catalogues had of the Premises, principally of Messrs. B. and of the Auctioneers, 67 and 68, Cheapside, E.C., and Leytonstone.

Friday Next.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to sell by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, September 10, at Half-past 12 o'clock precisely, a large quantity of imported and other ORCHIDS, including Vanda Hookeri, a splendid lot of Cypripedium Stove, Hookeri, Dendrobium heterocarpum (Ceylon variety), Cologne pandurata in fine order, Odontoglossum Pescatorei, Eulophia scripta (a good lot), a new Angreum from Madagascar and many valuable Orchids from the East.

On view morning of Sale, and Catalogues had.

Friday Next.

DENDROBIUM DEAREI, fine healthy lot.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE by AUCTION, on FRIDAY NEXT, September 10, by order of Mr. F. Sander. On view morning of Sale, and Catalogues had.

Great Horticultural Sale Week.
ANNUAL TRADE SALE of WINTER-FLOWERING HEATHS, GREENHOUSE PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS respectfully give notice that they have arranged these Sales to take place as follows:

MONDAY, September 13, Great Sale of DUTCH BULBS, at PROTHEROE AND MORRIS' ROOMS.

TUESDAY, September 14, at the BURN ASH LANE NURSERY, LEB, by order of Messrs. B. Maller & Sons.

WEDNESDAY, September 15, at the LEA BRIDGE NURSERIES, by order of Messrs. B. Maller & Sons.

THURSDAY, September 16, at the BRUNSWICK NURSERIES, TOTENHAM, by order of Mr. John Maller.

Great Sale of DUTCH BULBS, at PROTHEROE AND MORRIS' ROOMS.

FRIDAY, September 17, at the LONGLANDS NURSERY, SIDCUP, by order of Messrs. Gregory & Evans.

A special Trade Sale of ORCHIDS, by order of Mr. F. Sander, at PROTHEROE AND MORRIS' ROOMS.

SATURDAY, September 18, at the DYSON'S LANE NURSERY, EDMONTON, by order of Mr. H. B. May.

Sale of DUTCH BULBS, at PROTHEROE AND MORRIS' ROOMS.

Catalogues may be had ready, of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C., and Leytonstone.

Lea, Kent, S.E.

GREAT ANNUAL TRADE SALE to commence punctually at 11 o'clock, in consequence of the large number of lot.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. B. Maller & Sons to sell by AUCTION, on the Premises, the Burnt Ash Lane Nurseries, Lea, S.E., adjoining the Lea Railway Station, on TUESDAY, September 14, at 11 o'clock precisely, without reserve.

25,000 WINTER-BLOOMING HEATHS.

beautifully grown and remarkably well set with bloom-buds, including 15,000 Erica hyemalis, 500 Gracilis, and large quantities of Melanthera, Ventricosa, Persicaria erecta, Cavendish, and other best kinds; also a large quantity of small Erica hybrid, for growing on 2000 SOLANUM CAPSICATUM, TRUM, unusually well berried; 6000 BOUVDARIES, including Lemons New Doubles; 5000 GENISTAS, very fine; 1000 CYCLAMEN PERCUM, 500 ADIANTUM CUNEATUM; 3000 LOMARIA GIBBA, true, compact variety; and other FERNS; 500 EPACRIS, well grown; a quantity of Rosa Marilandica and other ROSAS; a fine English-grown CAMELLIAS, AZALEAS, GREVILLEA ROBUSTA, PALMS, FICUS ELASTICA, GREENHOUSE PASSIFLORAS, POINSETTIAS, AMPELOPSIS VEITCHII, a fine one of RAUCARIA EXCELSA, STEPHANOTIS, and other stock.

May now be viewed. Catalogues may be had on the Premises, or of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

N.B.—Messrs. P. & M. desire to call the attention of intending Purchasers to the stock to be offered as above. The Plants are remarkably well-grown, fit for immediate sale, and the whole will be found in an equally good condition as in former years.

Lea Bridge Road Nurseries, Leyton.

Annual Sale of winter-blooming and other HEATHS, remarkably well grown, and including HYEMALIS, GRACILIS, HYBRIDA, and others; 1000 EPACRIS, of the choicest kinds; 4000 CYCLAMEN PERCUM, Fraser's superb strain; 4000 GENISTAS, 4000 NOSTRE ROSES; 4000 SOLANUM CAPSICATUM, in berry; 4000 BOUVDARIES, well set; healthy young plants of LAFAGERIA, ROSA SUPERBA, CLEMATIS IN-DIVISA, LOBATA, and other greenhouse Climbers; a beautiful lot of HOLLYHOCKS, named sorts; 1000 early flowering and other CHRYSANTHEMUS; 5000 Marchal NURSERY, and other greenhouse Climbers; a large quantity of fine plants of AMPELOPSIS VEITCHII; 3000 CLEMATIS JACKMANNI and others, a splendid lot of variegated IVIES, 5000 GENISTAS for growing on, and other stock.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to sell the above valuable stock by AUCTION, on the Premises, The Lea Bridge Road Nurseries, Leyton, (a few miles from the Hoe Street Station, Great Eastern Railway), on WEDNESDAY, September 15, at 11 o'clock precisely, in consequence of the large number of lots.

May be viewed. Catalogues may be had on the premises; or of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C., and Leytonstone.

Tottingham, N.

Great Annual Trade Sale of Winter Flowering Heaths, Stove and Greenhouse Plants, &c. To commence punctually at 11 o'clock, there being upwards of 1200 lots.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Maller, to sell by AUCTION on the premises, The Brunswick Nursery, Tottingham (close to White Hart Lane Station, G. E. Ry.), on THURSDAY, September 16, at 11 o'clock precisely, without reserve, 25,000 winter-blooming HEATHS, beautifully grown, and abundantly set with flower buds, including Hyemalis, Gracilis, castra, Wilmorea and other best kinds.

1000 Epacris, in best varieties	4000 Tree Carnations, best va-
3000 well grown Ferns, includ-	ing varieties
Adiantum, true	5000 Solanums, remarkably
1000 double white Primulas	well berried
500 Crotons, beautifully col-	5000 Bouvardias, including the
oured	new doubles
500 Ficus elastica	4000 Genistas.

Thousands small Erics, Genistas, Ferns, &c., for growing on; large Camellias and Azaleas for cutting, Golden Euonymus, and the usual great variety of Stove and Greenhouse Plants suitable for the Trade and extensive buyers.

May now be viewed. Catalogues may be had on the premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C., and Leytonstone.

N.B.—The whole of the Stock is in first-rate condition, the Erics being especially well set for flower.

Sidcup, Kent, S.E.

GREAT ANNUAL TRADE SALE of Winter-flowering HEATHS and other PLANTS, forming one of the largest collections ever submitted to the Public. The stock of Heaths is unrivalled (without doubt the finest lot ever offered by Messrs. Gregory & Evans), the plants being particularly well grown, beautifully set with flower, and worthy of inspection by intending purchasers.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Gregory & Evans to sell by AUCTION, on the Premises, the Longlands Nursery, Sidcup, on FRIDAY, September 17, at 11 o'clock precisely (there being upwards of 1200 lots), an enormous quantity of unusually well grown WINTER-BLOOMING HEATHS and other PLANTS, including—

20,000 Erica hyemalis, well set	500 Erica Cavendishii
superba	10,000 Genistas
4,000 Erica Gracilis	2,000 Tea Roses, splendid
4,000 melanthra	3,000 Solanums
4,000 ventricosa and pers-	2,000 Adiantum cuneatum.
spicosa, of sorts	

Thousands of small HEATHS for growing on, &c.

The stock is now on view. Catalogues may be had on the Premises, or of the Auctioneers, 67 & 68, Cheapside, London, E.C., and Leytonstone.

Upper Edmonton.

The FIRST ANNUAL SALE of 30,000 beautifully grown GREENHOUSE and other PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. H. B. May, to sell by AUCTION, on the Premises, Dyson's Lane Nursery, Upper Edmonton, on SATURDAY, September 18, at 12 o'clock precisely, 30,000 GREENHOUSE and STOVE PLANTS, remarkably well grown and in the best possible condition, comprising 15,000 Tree Carnations, including a valuable lot of Miss Joliffe, Andalusia, Lucifer, &c.; 2000 Tea Roses in Pots, of the best sorts; 3000 variegated Ives, 1000 Clematis, finest varieties; 500 Ferns, beautifully grown, and including Adiantum cuneatum, Farleyensis, Pacotti, &c.; Ferns, crata Myia (a lovely new Fern), Davallias, and others; 1000 Ampe-lopsis Veitchii, 500 Azaleas, Fielder's White; and 4000 MISCELLANEOUS, including 1000 English-grown CAMELLIAS, EUPHARIS, Double PRIMULAS, DRACENAS, GENISTAS, MYRTLES, &c.

May now be viewed. Catalogues may be had on the Premises, or of the Auctioneers, 67 & 68, Cheapside, London, E.C., and Leytonstone.

Preliminary.

The Cranston Nursery and Seed Company, Limited. In Liquidation. The King's Acre Nurseries, Hereford.

EXTENSIVE CLEARANCE SALE of the whole of the remarkably well grown stock, extending over 120 acres of ground, and which is now in splendid condition, particularly the Fruit Trees.

Important to Noblemen, Gentlemen, and the Trade contemplating planting, to see the following:

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Liquidator to sell the whole of the above by AUCTION, on the Premises as above, on OCTOBER 4, and four following days. An inspection is invited of the stock, and to convey an idea of its magnitude, the following items may be mentioned:—60,000 FRUIT TREES, Standard, Dwarf-trained, and in Pyramid.

130,000 CURRANTS and GOOSEBERRIES.
500,000 FOREST TREES.
70,000 CHERRY and APPLE STOCKS.
100,000 SEEDLING ASH and OAK.
200,000 QUICK.
15,000 LAURELS, 7000 ACUBAS, 400 English YEWs, thousands of CONIFERS, &c.

Further particulars will appear in due course.

Preliminary Notice of Forthcoming Sales

OF NURSERY STOCK.

Important to Gentlemen and the Trade intending to Plant during the coming Season.

MESSRS. PROTHEROE AND MORRIS beg to announce that they have fixed the following dates:

OCTOBER 5, at the UPPER TOOTING PARK NURSERY, Upper Tooting Park, S.W., by order of Mr. C. Young.

OCTOBER 13 and 14, at the ELVASTON NURSERIES, Borrowash, Derby, by order of Messrs. Barron & Son.

OCTOBER 27 and 28, "Two Days' Sale at the AMERICAN NURSERIES, Leytonstone.

OCTOBER 30, at the NURSERIES, Kilburn, by order of Mr. J. B. Goubert.

OCTOBER 20 and 21, at the NURSERIES, Brixton, by order of Messrs. Ponsford & Son.

NOVEMBER 2 and 3, at the NURSERIES, Groombridge, by order of Mr. J. Hollamb.

NOVEMBER 8, at the HALE FARM NURSERIES, Tottenham, by order of Mr. T. Ware.

NOVEMBER 14, at the NURSERIES and LING NURSERIES, Maidstone, by order of Messrs. Frost & Sons.

NOVEMBER 9 and 10, at the ROYAL NURSERIES, Ascot, by order of Messrs. J. Standish & Co.

Other Sales are in course of being fixed, and will be announced in future Advertisements.

Central Auction Rooms and Estate Offices, 67 and 68, Cheapside, E.C.

Catalogues—Important Notice.

MESSRS. PROTHEROE AND MORRIS have compiled permanent Lists of those to whom their Catalogues are forwarded regularly, with a view to bring before the notice of probable buyers all classes of Sales.

Gentlemen wishing to have their names entered on these Lists are requested to forward their full Addresses with a note of the particular requirements, when Catalogues will be posted free of charge.

Central Auction Rooms and Estate Offices, 67 and 68, Cheapside, E.C.

Bulbs—Bulbs—Bulbs.

MR. J. C. STEVENS will sell by AUCTION, at the Great Room, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, first-class Bulbs from Holland, lot to suit all Buyers.

On view morning of Sale, and Catalogues had.

Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his NEXT SALE of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 28, and he will be glad to Gentlemen to inspect the stock, and to convey an idea of its magnitude, the following items may be mentioned:—

Palace Gardens, Armagh.

IMPORTANT SALE by PUBLIC AUCTION of CHOICE STOVE and GREENHOUSE PLANTS, LAWN MOWER, &c.

MR. M. A. BELL has been favoured with instructions from G. D. Beresford, Esq., to sell by PUBLIC AUCTION, at the Palace Gardens, Armagh, on MONDAY, September 28, at 12 noon, an immense collection of choice STOVE and GREENHOUSE PLANTS, including—Azaleas, Dracenas and Crotons in variety, Hibiscus, Camellias, Begonias, and others; 1000 English-grown Daisies, Centaureas, Colous, Isoplexis, Aloes, Rhododendron ciliatum, Geraniums, Bouvardias, Camellias, Citrus, Double White Primulas, Farnesias, and others; 1000 Specimen Tree Ferns, and other Plants too numerous to mention.

Entrance by Dobbin Street Gate. Terms:—Cash, and purchasers to pay Auction Fees.

M. A. BELL, Auctioneer, Armagh.—August, 1886.

City of Ghent, Belgium.
PUBLIC SALE of the superb
COLLECTION OF ORCHIDS belonging to M. Auguste
van Ghent, Sen., of Ghent. The SALE will take place on
TUESDAY and **WEDNESDAY**, September 7 and 8, at
10 A.M. and half-past 2 P.M., in the Great Hall of the "Maison de
Commerce," 9, Chaussée de Bruxelles, 1000, Brussels, Belgium, and
under the direction of **JULES DE COCK**, Nurseryman,
of Ghent, of whom Catalogues may be obtained.

**Six Days' Sale of
THE WHOLE NURSERY STOCK,
GREENHOUSES, &c.,**
belonging to: John Stewart & Sons, Dundee and Broughty
Ferry, N.B.
MONDAY, Sept. 12, to SATURDAY, Sept. 18.
The Stock includes 50,000 SWEET BRIER, 200,000 BIRCH,
100,000 PINUS MARTIA, 15,000 LABURNUM,
100,000 PINUS MARTIA, 15,000 LAURELS, 15,000 MANETT
STOCKS, 50,000 PRIVET, 20,000 FRUIT TREE STOCKS,
100,000 STANDARD LIMES, 100,000 AUSTRIAN
PINES, 100,000 ARAUCARIAS, 5000 AUCUBAS, 10,000
HOLLIES, 1000 PURPLE BEECH, 10,000 CURRANTS,
20,000 GOOSEBERRIES, GREENHOUSE and HER-
BACEOUS PLANTS, &c.
Catalogue on application.
ANDREW MONCUR, Auctioneer, Dundee.

To Nurserymen and Gardeners, &c.
TO BE DISPOSED OF immediately
Possession, a good and increasing BUSINESS, consisting
of Lease of Premises, Glasshouses, Stock, &c. To be Sold a
Bargain.
Particulars apply by letter, to A. Z., Florist, *Gardener's
Chronicle* Office, 41, Wellington Street, Strand, W.C.

To Nurserymen, Fruit Growers, &c.
FOR SALE, situate in the Parliamentary
Borough of Bristol, a large and well appointed
BUSINESS PREMISES, well stocked and in full working
order, comprising nearly 20 Acres of Freehold Land, three feet
and land tax redeemed, with all Minerals, which include large
and valuable beds of Pennant Stone with Coal underlying. The
House, built six and a half miles from the city, has a
floor, entrance hall, drawing-room 27 feet by 16 feet, dining-
room, 18 feet by 16 feet, breakfast-room, two kitchens, larder,
cattle pen, and office, 15 ft. 6 in. by 16 feet; Pantry, 6 feet by
10 feet; Room-house, 6 feet by 16 feet; Farmery, 6 feet by
12 feet; Cucumber-house, 6 feet by 14 feet; range of three
Fruit-houses, 120 feet long; Store, Propagating-house,
Tomato-house, range of Pits, &c., with several hundred hand-
glasses. The whole is heated by two large boilers, and from
3000 to 4000 feet of hot-water pipes.

The other buildings consist of two nearly new Cottages,
stabling for three horses, potting sheds, Mushroom-house,
64 feet by 15 feet; range of lofts used as fruit-rooms, &c.,
about 180 feet long; 1000, 18 ft. 6 in. by 16 feet. The Working Site is too large
and varied to put in an advertisement, and includes many
thousand Standard, Pyramid, and Bush Fruit Trees; of Pears
alone there are over 1000 standard and pyramidal trees of the
choicest and best bearing kinds; also large numbers of Cherry,
Apple, and Plum trees of the best cropping sorts.

The greater part of the fruit trees have been planted nearly
twenty years, are in full bearing, and the crop of fruit is very
heavy and valuable.

Photographs of house, &c., with fuller particulars, or to view,
apply to **GEO. HARDING**, The Grove, Fishponds, Bristol.

**To Gentlemen, Nurserymen, Farmers, Builders,
AND OTHERS.**

TO BE SOLD (in consequence of the owner
retiring from business), by Private Treaty, as a going con-
cern, **THE HOLLY NURSERIES**, Bold, near Warrington,
established almost a century; comprising a handsome new-
erected Brick and Stone Dwelling-house, with a large garden
with three entertaining Rooms, entrance Hall, Staircase, five
Bedrooms, large Kitchen and Scullery with Nursery over, four
Cellars and Out-offices, standing on an elevated site with taste-
fully laid out Walks and Ornamental Grounds and Shrubberies.

THE NURSERY LAND, containing about 22 acres, is well
stocked with thousands of choice Flowering Shrubs and Ever-
greens, including Gold and Silver Hedge, and other fine Hollies,
from 1 to 14 feet high; Forest, Fruit, and Ornamental Trees,
Roses, Thorns, Privet, &c. There are three strong Green-
houses, Propagating Frames, loose Lights, &c.

THE FARMSTEAD consists of above 18 acres of rich arable
land, with or without the growing crops thereon, together with
a detached Dwelling-house, with two sitting and five Bedrooms,
Ornamental and Kitchen Gardens, Ranges of extensive Out-
buildings, Shippings, Stabling, newly erected Cat-shed of large
size, and other Out-offices; also six well tenanted Cottages with the
appurtenances thereto.

The whole comprises about 40 a. 2 r. 36 p. of well drained
FREEHOLD LAND, in full heart, in a ring fence, with front-
age at least half a mile, to the two main roads from Liverpool
St. Helens, and Warrington. Situate one mile from the Farn-
worth and the Clock-farm Stations on the London and North-
Western Railway, and 1½ miles from Warrington; it is well
situated for a Public Pleasure Garden.

A view and all particulars may be had from the proprietor,
JOHN STEAD, on the Premises, also from Messrs.
ROBERT DAVIES, SHARP AND KIRKCONNELL, Solicitors,
Warrington; or from Messrs. **ARTINGSTALL AND HIND**,
Auctioneers, Manchester.

Little Postbrook, South Hants.
3½ miles from Fareham Railway Station.
**TO MARKET GARDENERS, FLORISTS, FRUIT
GROWERS, AND OTHERS.**

TO LET, with immediate possession, solely
in consequence of the death of the Manager, a range of
30 VINERIES, GREENHOUSES, ORCHARD, CUCUM-
BER, and TOMATO HOUSES, covering about 1½ acre.
The Houses are heated by 3 Boilers, and work on the most
economical principles. With the above will be Let 14 acres of
LAND, of the finest quality, partly planted with Orchard
Trees, now in full bearing. There is a good Manager's House,
and 1 Cottage. The climate is most suitable, and one of the
best in England for the growing of Fruit, Roses, Cut-flowers,
or for Market Garden purposes. The whole of the plant and
stock may be taken by valuation in the usual way.
Further particulars may be had of C. B. SMITH AND
GOLDSMITH, Farnham and Portsea, Hants.

TO LET, on easy terms, a good LAND-
SCAPE and JOBBING BUSINESS, with Homestead.
Established 1870.
T. BROUGH, Gloucester Lodge, Richmond Hall, Surrey.

Vincent Nurseries, near Plymouth.
TO BE LET, from Lady-day next, for a Term
of 7, 14, or 21 years, these well-known NURSERIES,
for many years so successfully carried on by the late Mr. Poney,
and since by Mr. Serpell, situated about a mile from Plymouth,
over 8 Acres in extent, with a Dwelling-house, Two Gardeners's
Cottages, large Greenhouses, Mand-pit, &c.
Apply to **WOOLCOMBE AND FRIDHAM**, Solicitors,
Plymouth.

**Fifty Nurseries, Market Gardens, Florist and Seed
BUSINESSES** to be DISPOSED OF
MESSRS. PROTHEROE AND MORRIS'S
HORTICULTURAL REGISTER contains full
particulars of the above, and can be obtained, gratis, at
67 and 68, Cheapside, London, E.C.

To Landed Proprietors, &c.
A. MCINTYRE (late of Victoria Park) is
now at liberty to undertake the FORMATION and
PLANTING of NEW GARDENS and PARK GROUNDS
and REMODELING existing GARDENS. Plans prepared.
115, Lustria Park, Stamford Hill, N.

STRAWBERRY PLANTS, for Forcing and
Planting.—The Best Varieties, the Best Plants, and the
Cheapest in the Market.
Apply **R. GILBERT**, High Park, Stamford.

PALMS, for Table and Conservatory Decora-
tions, &c.—*Latania borbonica*, *Seafortia elegans*, and
Phoenix reclinata, seedlings, 12 inches high, 4s. per doz.; 25s.
per 100; *Latania borbonica*, *Seafortia elegans*, *Areca lutea*,
Euterpe edulis, *Phoenix reclinata*, and *Corypha australis*,
20 inches high, 12s. per dozen; less quantity, 1s. 3d. each.
Packages and Parcels post-free for cash with order. A few
large Feathery PALMS cheap, to clear.
GARDENER, Holly Lodge, Stamford Hill, London, N.

**CHEAP, STRONG, SOUND
BULBS.**

ROMAN HYACINTHS, extra strong, 12s. 6d. per 100.
NARCISSUS, extra strong, 9s. per 100.
PAPER WHITE NARCISSUS, extra strong, 9s. per 100.
FINE NAMED HYACINTHS, for pots, in sorts, 5s. per doz.
" " for borders, 16s. per 100.
" " CROCUS, in sorts, 2s. per 100; 15s. per 100.

CATALOGUES free on application.
Special Prices for Large Quantities.
FINE TOBACCO PAPER and **TOBACCO**, 1s. per pound.
JOHN SHAW, Jun., Bulb Importer and Seed Merchant,
10, The Downs, Bowdon, Cheshire.

**A. B. C.
BULB GUIDE.**

Prepared with very much care, containing much reliable
information upon Bulbs generally, including the
following families:—

**HYACINTHS, TULIPS, CROCUS, SNOWDROPS,
CHIONODOXAS, GLADIOLUS, &c.**

Very extensive lists of varieties of these are included, consist-
ing of nearly every variety which can be considered worth
growing.

IRIS.—Of these I hold one of the finest collections in the
world, six pages are devoted to this family alone.

HELLEBOES, or CHRISTMAS ROSES are a great
specialty at Tottenham. The collection is very complete, and
the plants are exceptionally good. I have thousands of fine,
strong, healthy clumps of the varieties *major*, *maxima*,
candicans, *Madame Fourcade*, and many others.

DAFFODILS and LILIES

constitute Part II. of my Bulb Catalogue,
Twenty-six pages being devoted to them. Both families are
cultivated by me most extensively, my collection including
almost every variety in cultivation. These have been shown
most extensively during the present season at the Great
London Shows, and have been very much admired, and have
done much to assist in securing for me the many Awards it
has been my pleasure to receive.

Copies of this most complete and interesting Catalogue may
be had gratuitously upon application to

**THOMAS S. WARE,
HALE FARM NURSERIES,
TOTTENHAM, LONDON.**

BULBOUS FLOWER ROOTS
A VERY EXTENSIVE
& VERY SUPERIOR STOCK
EMBRACING
HYACINTHS LILIES CROCUS TULIPS &c
FREE BY POST OR RAIL
PRICE CATALOGUE POST FREE
JAMES DICKSON & SONS
"NEWTON" NURSERIES
108 EASTGATE ST. CHESTER

**DAHLIAS
IN FULL BLOOM.**

MY LARGE COLLECTION

of these are now at their

best, and would well repay a visit

from any of the Trade interested

in them.

Frequent Trains from Liverpool

Street to Tottenham, Hale, or Seven

Sisters Stations.

THOMAS S. WARE,

Hale Farm Nurseries,

TOTTENHAM, LONDON.

SPECIAL NOTICE

B. S. WILLIAMS

Has this year been favoured with the Orders for the
whole of the **BULBS** required for the
following London Parks, &c., viz. :—

HYDE PARK.	HAMPTON COURT.
REGENT'S PARK.	FINSBURY PARK.
VICTORIA PARK.	SOUTHWARK PARK.
BATTHESEA PARK.	VICTORIA EMBANKMENT.
KENNINGTON PARK.	LEICESTER SQUARE.
KENNINGTON GREEN MUSEUM.	CHelsea EMBANKMENT.

His Tender, in open competition, having been accepted
by Her Majesty's Commissioners of Works and
the Metropolitan Board of Works.

EARLY ORDERS ARE SOLICITED FOR

HYACINTHS for Pots and Beds.
TULIPS " "
NARCISSUS " "
CROCUS. " "
ANEMONES.
ANEMONES.
RANUNCULUS.
FRESIAS.
LILiums.
SNOWDROPS, &c., &c.

Special quotations will be given for large
quantities on application.

Illustrated Bulb Catalogue

Is Now Ready, and will be forwarded, Gratis and
Post-free, to all applicants.

VICTORIA and PARADISE NURSERIES,

UPPER HOLLOWAY, LONDON, N.

The *Daily Telegraph* of August 20, 1886, in a Leading Article, states:—"Tomato growers in the Channel Islands seem in a fair way of making fortunes. There is no doubt the time is near when the market will be as well supplied with Tomatoes all the year round as Cucumbers."

THE GUERNSEY AND JERSEY FRUIT AND PRODUCE COMPANY, LIMITED.

Registered under the Joint Stock Companies' Acts, 1862 to 1883, whereby the liability of the Shareholders is limited to the amount of their Shares.

CAPITAL £20,000, IN 4,000 SHARES OF £5 EACH.

First Issue of £15,000 (3,000 Shares) without premium, a number of which have been already taken up privately. Payable £2 10s. on Allotment, and it is not intended at present to call up more than £2 10s. per Share.

LONDON BANKERS—CAPITAL AND COUNTIES BANK, Head Office and Jersey.
GUERNSEY BANKERS—COMMERCIAL BANKING COMPANY, High Street.
LONDON OFFICE—4, Tokenhouse Buildings, Bank of England. **GUERNSEY OFFICE—Glasshouses and Vineries, Courtill de Jacques.**
MANAGER—HENRY DE JERSEY. **SECRETARY—EDWARD OXENFORD PRESTON.**

THE GUERNSEY AND JERSEY FRUIT AND PRODUCE COMPANY (LIMITED) has been established for the purpose of Growing Fruit and the Produce generally of the Channel Islands, and also for Receiving such Produce from Growers and Supplying the same direct to Consumers and Retail Establishments. The Trade has hitherto been almost entirely in the hands of private growers, except two local companies which have paid their shareholders from 12 to 20 per cent. dividends, and it is well known to be of a most profitable character.

The Directors with confidence recommend the operations of this Company, for which there is a fine opening, as an unusually safe and remunerative investment—safe, because nearly the whole of the Company's capital is being invested in first-class land in Guernsey, and Glasshouses for the Cultivation of Grapes, Melons, Tomatoes, Beans, and other Choice Fruits, which are supplied from the Channel Islands into England.

The property of the Company will increase in value with the growth of the Vines.

As showing the Profits derived from dealing in Fruit and Garden Produce of the Channel Islands, the Directors are informed one of the two Companies in Guernsey has paid its Shareholders dividends at the following rates:—

1880, 10 per cent.	} Extensive building operations took place during these years.
1881, 11 "	
1882, 12 1/2 "	
1883, 15 "	

The only other Vinery Company which commenced operations recently has paid its Shareholders 12 per cent.

Applications for Shares, stating number required, can be made to the Secretary of the Guernsey and Jersey Fruit and Produce Company, 4, Tokenhouse Buildings, Bank of England, London, E.C.; or to the Company's Bankers. Prospectuses and any information desired will be supplied on application.

Upon a fair estimate, the Directors anticipate a dividend of at least 10 to 12 per cent. on the year's sales.

The Sales of Tomatoes from one house only, for the week ending August 7, amounted to a quarter of a ton. The Directors have erected on the Company's Estate, to secure the coming winter crops, which prove very remunerative, the following:—

One 200 feet House.	Six 200 feet Houses.	One 180 feet House.
Two ditto.	Seven ditto.	Two ditto.
Three ditto.	Eight ditto.	Three ditto.
Four ditto.	Nine ditto.	Four ditto.
Five ditto.	Ten ditto.	Large Vinery, 45 feet wide.

Total, fourteen long Span Glasshouses and large Vinery, making a total of about 30,000 square feet of Glass.

The *Horticultural Times*, June 20, refers to the Company as follows:—

"The development of Market Gardening in the Channel Islands has often been dealt with by us, and we are glad to learn that efforts are being made to still further prove what, under high culture, the land will produce. The Guernsey and Jersey Fruit and Produce Company is a striking example of this. Incorporated only last February—when its estate did not contain a single glasshouse—it has now 30,000 square feet of glass erected! Having as local manager one of the most successful growers in Guernsey, with economical management, half the capital only called up, and nearly the whole of the capital invested in freehold land and houses, and of progressing value, this venture will, we predict, succeed. It has started in the right spot, under the right management, and is raising the right sort of produce. As we write, we have specimens of the Company's first Tomato consignment before us—grown without heat—and we can vouch for their excellent quality. Colour and size are almost perfect."

THE DARLINGTON GOLD MEDAL DRESS FABRICS

Are now supplied direct from the Manufactory, at Wholesale Price, there being no Intermediate Profits whatever.

HENRY PEASE & CO.'S SUCC'RS,
SPINNERS AND MANUFACTURERS,
and Sole Makers of the Celebrated

GOLD MEDAL
DARLINGTON DRESS FABRICS,

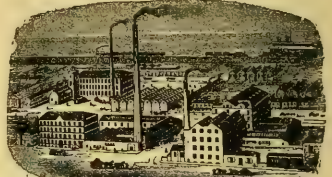


Ladies are at liberty to change any goods for others preferred within seven days, and should not fail to see our large box of Autumn and Winter patterns, post free.

As worn by H.R.H. the Princess of Wales, and which are supplied to the public from their own mills at an immense saving, invite Ladies in any part of the world to send DIRECT TO THEM for Patterns, post-free, of their new makes for the Autumn and Winter Seasons, which embraces every variety of material a lady can possibly desire, and of which the *Daily News* says:—

"The union of warmth to lightness, so necessary to health in these materials brought to perfection. The fineness of the wool of which they are composed—English Wool, be it understood—imparts the admirable quality of draping in those soft folds now so essential from the point of view of fashion."

These fabrics were awarded, at the all-England competition, the ONLY GOLD MEDAL, at the BRADFORD TECHNICAL EXHIBITION opened by the Prince of Wales. Also the Highest Prizes at the Exhibitions of 1851, 1862, &c., and wherever exhibited.



AS AN ADDITIONAL GUARANTEE TO LADIES that we are the actual Manufacturers, and not Advertising Drapers or Self-styled Manufacturers, we subjoin the following Certificate, viz:—

"Having examined THE 'RECORD OF WAGES' paid by you, we hereby certify that the number of workpeople employed in the PRODUCTION OF YOUR MANUFACTURES was, on August 13, 1886,

ONE THOUSAND AND TWENTY-SIX.
 —MONKHOUSE, GODDARD & Co, Chartered Accountants, Middleborough and London, August 16, 1886."

SPECIAL ATTENTION is directed to our celebrated CROSS-WARP SERGES, which, alike, resist the effects of weather and sea, 10½d. to 3s. per yard; for Men's and Boy's wear (including the "Clerical" Serge), these will be found "clear away" the best value procurable, 2s. to 8s. 6d. per yard (56-in. wide). Our GOLD MEDAL CASHMERES, in all the New Colourings, from 1s. 9d. to 3s. 11d. per yard. NEW and FASHIONABLE COSTUME CLOTHS in great variety, from 6½d. to 5s. per yard, including "THE LOWSTOCK," "THE ASHEHURST," "THE DAMIETTA," "THE KHAIBER," "THE SHUMLA," "THE TARAPACA," "THE PANAMA," "THE HOLSTEIN," "THE ZEELAND," &c.

CHARMING NOVELTIES in SKIRTINGS, including "THE YESSO," "THE NINGPO," "THE FOO-CHOO," &c.

THE DARLINGTON BLANKETS (sent on approbation) are warranted Pure Wool. Money returned if not approved of. In all sizes and four different qualities. THE DARLINGTON MEN'S UNDERCLOTHING (Pants and Vests), all Pure Wool, are made on our own premises. Sent on approval.

Address—HENRY PEASE & CO.'S SUCCESSORS,
SPINNERS AND MANUFACTURERS, THE MILLS, DARLINGTON. Established, 1752.

Please mention "Gardeners' Chronicle," in sending for Patterns.

CARTERS' EARLY BULBS FOR FORCING.

To produce Beautiful White and Coloured Flowers for Christmas Decoration.

CARTERS' Earliest White Roman HYACINTHS. The Largest Bulbs of the Year. *We do not keep a Second Size.*

Per 100, 15s. 1; per dozen, 1s. 3d.

CARTERS' Double Roman NARCISSUS.

Per 100, 10s. 6d.; per dozen, 1s. 6d.

CARTERS' Paper-white NARCISSUS.

Per 100, 10s. 6d.; per dozen, 1s. 6d.

CARTERS' Red and Yellow VAN THOL TULIPS.

Per 100, 4s. 6d.; per dozen, 9d.

CARTERS' Extra Large SNOWDROPS.

Per 100, 2s. 6d.; per dozen, 6d.

ALL PARCELS CARRIAGE FREE.

For further particulars, see

Carters' Illustrated Catalogue of Bulbs,

GRATIS AND POST-FREE.

Carters

Seedsmen by Royal Warrants to H.M. the Queen, and His Royal Highness the Prince of Wales.

237 High Holborn, London, W.C.

SPECIAL CASH OFFER.

PLANTS in Flower and Bud.

GARDENIAS, 1 to 2 feet high, and bushy, in 48's, showing bud, 21s. 2 to 24s. per dozen.

TREE CARNATIONS, in bud and flower, six varieties, in 48's, 18s. per dozen.

BOUQUARDIAS, fine plants, in six varieties, in 48's and 32's, 12s. to 18s. per dozen. Package extra.

JOHN STANDISH AND CO., Royal Nurseries, Ascot.

FLOWERS AT CHRISTMAS.

SUTTON'S BULBS for EARLY FORCING ROMAN HYACINTHS—

SINGLE WHITE, finest selected.

second size.

SINGLE BLUE.

EARLY NARCISSI—

DOUBLE ROMAN.

PAPER-WHITE.

"The Bulbs you sent me are splendid. A more perfect lot it would be difficult to find."—Mr. A. DREWERY, Gardener to A. H. Easton, Esq., Patrington.

For full particulars, see

SUTTON'S BULB CATALOGUE, With Coloured and other Illustrations, Gratis and Post-free.

SUTTON & SONS, THE QUEEN'S SEEDSMEN, READING.

STRAWBERRY PLANTS.

The Three Best Sorts.

PRESIDENT, Well-established, in small pots, 7s. 6d. per 100, 7s. 6d. per 1000; out of pots, 5s. per 100, 45s. per 1000.

SIR JOSEPH PAXTON, VICTORIAN H. DE THURY, Cash. Extra plants for carriage.

prepared for forcing or planting out. Sure to produce heavy crops next year.

H. L. HARDY, Stour Valley Seed Grounds, Bures, Suffolk.

EARLY FORCING AND OTHER FLOWERING BULBS

of finest quality, in endless variety, at moderate prices.

Catalogues gratis and post-free on application.

LITTLE & BALLANTYNE,

THE QUEEN'S SEEDSMEN, CARLISLE.

WEBBS' BULBS.

FREE BY POST OR RAIL.

FOR EARLY FORCING.



ROMAN HYACINTHS.

Early White, selected roots 2s. 6d. per doz.

Ditto 15s. per 100.

Finest named Hyacinths 1.6s. to 12s. per doz.

POLYANTHUS NARCISSUS.

Double Roman 3d. each, 2s. per doz.

Paper White 3d. each, 2s. per doz.

EARLY TULIPS.

Duc Van Thol, single, scarlet & yellow, 1s. per doz., 6s. 100

Ditto 9d. per doz., 5s. 100

WEBBS' BULB CATALOGUE,

Beautifully Illustrated, and containing Complete Culture Instructions. Now ready, price 6d., Post-free.

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THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 4, 1886.

MOOR PARK.

THIS Park, close to Rickmansworth, Herts, derives its fame from several owners who were either great historic figures or wealthy men who lavished money on its adornment. The park of 600 acres, which is now most beautifully set with timber trees of great size, was enclosed by royal licence in the fifteenth century, by one of the most magnificent and ambitious members of the great family of Neville, George Neville, Archbishop of York, and brother of Earl Warwick, the King-maker. A wonderful garden, with terraces and fountains, clipped trees, and smooth bowling-greens, but few flowers, still a wonderful garden for England in the Middle Ages, and well described in Lord Lytton's *Last of the Barons*, was here formed by that accomplished prelate. The next great owner was another towering churchman, Cardinal Wolsey, who lived here in state, leaving a name which is still attached to an old and hollow Oak beneath which he is said to have reclined himself.

The Moor, or More as it was sometimes called, was then forfeited to the Crown, and afterwards leased to the Countess of Bedford, who created a second edition of amous gardens, which Sir William Temple, owner of the other Moor Park, near Farnham, extolled as the best of that time, describing the Moor as "the sweetest place that I have ever seen in my life." The Duke of Monmouth, the eldest of the numerous sons of Charles II., that father of a great many of his people, as one of the wits said, was the next distinguished owner. He was the first M.F.H., collecting a pack of hounds which were trained to hunt the fox—a novel sport two hundred years ago. After his execution his duchess is absurdly said to have decapitated the Oaks in the park to spite the Royal Navy. Unhappily, after an early marriage, when the Duke was twelve years old, they had been separated for years, and some other cause than the one assigned must be sought for the pollarding of some of the Oaks near the house, which are now, like the pollarded Burnham Beeches, the most sturdy and picturesque in the whole collection of noble specimens which form the boast of Moor Park.

Mr. Styles, a wealthy speculator, bought the place of the Duchess, to whom the estate had been restored after the forfeiture consequent on the high treason of her husband, and expended £150,000 on the house and gardens. This was the third edition of the later, and the latest of the former. A fourth edition of the gardens and grounds, at a cost of £80,000, was due to Lord Anson, the great sailor, who destroyed, so far as he could, all traces of Mr. Styles around the house, and built a temple, yet standing, which he dedicated to the winds. The accomplished Horace Walpole came down here and complained, like the caustic scold he was, of the scooping out of the ground on the north front by "Capability" Brown, who removed the

obstructing earth which hid the distant view. I was not aware of the "scooping" at the time of my visit, but I admired, as all must do, the unimpeded view adown what seemed a natural valley, great Oaks flanking the hollow, and then afar a delightful rural landscape, the valley of the river Colne and the tower of Watford Church in the distance.

Of the Grosvenors who followed the before-named and other owners, and now hold possession—"Long may they reign!"—the second earl of Grosvenor, who was created Marquis of Westminster in 1831, purchased Moor Park in 1828, and very greatly improved it for its present owner, the venerable Lord Ebury, his third son, who was long known to the country as Lord Richard Grosvenor. So much for the peers! Now for the plants, small and large. One of the largest trees of its kind in England, if not quite the largest, is the famous Spruce in the old pleasure garden. The trunk divides near the base into three great boles, bearing an immense mass of foliage, and reaching a height of at least 100 feet, while the size of the tree, or rather the group of parent and offspring, is increased by the growth of a numerous progeny, which have sprung, Banyan-like, from the ends of the drooping branches at a distance of 20 feet from the main trunk. Some Conifers not unfrequently exhibit this kind of reproductive energy, but one would hardly expect to find a family of Spruces rising in this way around the parent stock, on dry, high ground, freely exposed to sun and air. This particular tree may have been planted by Mr. Styles, or even by the Duchess of Monmouth, and many of the Cedars of Lebanon, Yews, and deciduous trees in this same shrubbery are probably of the same date; but its choicest ornaments are of later date, and were planted by the Marquis of Westminster and Lord Ebury. Many of the exotic Conifers derived from both hemispheres during the last half-century or more are represented in the form of large specimens; and as Rhododendrons and Kalmias grow here like weeds, the beauty of the spot, with its pond and peacocks, smooth open lawns, and Lord Anson's temple in the midst, can be imagined. There are little gates and side entrances into the old pleasure-grounds, but no doubt when the Queen and Prince Albert visited Moor Park in 1846, the Queen Dowager joining them from Cassiobury, where she resided from 1846 to 1849, the royal party entered by the broad flight of steps. From the top of this grand approach you look down upon the four-storeyed house at a little distance, and around upon a beautiful and undulating park, which can hardly be matched for the size and beauty of its timber. We may suppose that the royal party would then be escorted by a long and winding path to the highest ground of the shrubbery, and that royalty, a little fatigued by the exertion, would admire from among the trees the wondrous fair landscape that lies around—Watford, a warm patch of red among the trees; the spires of St Alban's, and Harrow-on-the-Hill, whose ambitious steeple is seen from almost everywhere.

There are 20 acres of this hill and arboretum, which probably rose bare-backed or only plainly planted in Wolsey's time, and the shades of green in May, when each deciduous tree wore a new robe, and each evergreen a renovated cloak, were delicious. There are Cedars and Araucarias—how different their hues! Here are bright green Thuias, pale green Chestnuts, and paler Oaks. To catch all the tints from sombre Yew to light deciduous Cypress, an artist must mix his colours skilfully. But the most gorgeous colours in the grounds were on the necks and tails of several male peacocks, strutting about among their hens. They seem very obliging birds when they are asked to do what it is known they delight in. If you say at the proper moment, when the hens are attentive and rivals not far off, "Display your tail, beautiful bird," it is done at once; and then if you approach too close, and command the creature to desist, he will shut up his extended fan and recommence the exhibition further off! The hens sit well here among the shrubs, and a common family consists of five young ones.

An Italian garden, not too formal to be nicely planted with shrubs, divides the north front of the house from the park, and passes, without interposing fence, into a less formal stretch of planted lawn enveloping the west front, and sloping away to a delightful fernery, a most pleasant retreat at the

further corner of the garden. The Cedars of Lebanon here are of first-rate size, and many notable evergreens, trees and shrubs, with one among them which is not so often met with as it deserves, the Hemlock Spruce—a common tree, but one of uncommon beauty when grown to a large size, as is another common tree, the English Elm, a noble specimen of which stands on the lawn, where it sheds its small leaves in the season and makes a great litter, but is worth all the labour it occasions, being so thoroughly English and so stately. The largest of two great Portugal Laurels on the terrace is 31 feet in diameter.

THE FRUIT GARDEN.

It is time to pay a brief visit to the kitchen gardens, which are remarkable, and bespeak in their appearance the watchful skill of Mr. Mundell, the presiding genius of the varied horticulture of Moor Park. In these days one becomes somewhat hardened to the achievements of gardeners under glass. I saw five vineries and four Peach-houses and others in excellent condition, and I must confess to have found nothing more interesting in the various houses and pits than the choice collection of hardy Ferns in one of them, notwithstanding the Orchids and other rarities. Even among the exotic Ferns there are few more beautiful than a large specimen of *Polystichum plumosum*, an exquisite plant, with most delicate foliage. Mr. Mundell has the Axminster variety of this hardy Fern. Even flowers may not always detain an admirer who may happen to be on the wing, but few would resist lingering in one of the houses here which is entirely devoted to blossoming plants, and presents always the gayest possible appearance. An experienced and accomplished duchess bearing a great historic name, and passing through this house during my call, complimented Mr. Mundell on his "beautiful flowers," and as a gardener who pleases the ladies, and especially the duchesses, achieves success, I will give the names of a few of the most useful plants in this house. Hanging from the roof above is *Clematis indivisa lobata*, which had produced a continuous supply of pure white flowers since February, a period of ten weeks, at a time when flowers, especially white ones, are most valuable. Another most useful plant for those who are called on to supply loads of flowers for decoration is a Fielder's White Azalea, a fine specimen of which stands here 8 feet high and 6 feet through, and was still covered with pure white blossoms, after having yielded baskets and baskets full of cut flowers during many weeks past. This second crop of flowering plants, the Azaleas generally and the Camellias having been removed, includes *Calceolarias*, *Deutzia gracilis*, *Rhodantea*, *Sikkim Rhododendrons*, *Geniata*, *Eupatorium*, the Ball of Fire *Tropaeolum*, *Salvias*, and many others, and among them the common white *Arum* of cottage windows lifts its pure white blossom, too beautiful to be abashed even amid the highest aristocracy of Flora's court. The next floral display, when the present one has passed, will consist of *Pelargoniums*, tuberous-rooted *Begonias*, zonal *Pelargoniums*, *Schizanthus*, *Fuchsias*, and others. *Chrysanthemums*, which are first-rate here, and of many choice sorts, including 150 varieties, will follow.

Mr. Mundell's house in the gardens, looking due south, is thickly covered with white and yellow, Banksian Roses. On a neighbouring wall *Weigela Laysmanni aurea* makes a conspicuous display. The soil consists of a warm gravel-loam resting on chalk 20 feet deep, and the whole of the kitchen garden slopes to the south. Aspect and soil are both suited to the ripening of fruits and the health of tender plants. The extent of the garden is 8 acres, lofty walls enclosing 5 acres, while the space devoted to wall fruit is increased by a lower division wall across the centre. On one of the high walls are a number of fan and standard-trained Apricots, the offspring of the original Moor Park Apricot which Lord Anson introduced and which died in 1846. These were well set with fruit after producing many bushels last year. The trees which produced the 517 varieties of Apples which were sent to the Apple Congress border the central walk of the garden and occupy very little room, being admirably trained on the Paradise stock in the form of bushes, hollow as a goblet in the centre, and none of them exceeding 5 feet in height. All the fruit trees are admirably trained. Some of the walks are lined with pyramidal Pear and Plum trees, and the upper walk, running parallel with the Apricot wall, and with a lean-to Peach-house built against the same wall, is margined

with umbrella-trained Pear trees. This system of training is especially adapted to trees with slender branches and a weeping habit, such as *Josephine de Malines*, *Winter Nelis*, and the old *Seckle Pears*, which all weep freely.

In passing through the lean-to Peach-house I admired the robust growth of the *Roses*, *Gloire de Dijon*, and others, trained up the pillars with stems as thick as a man's wrist. A quantity of *Fuchsias* at the back in pots were removed into the house of perpetual blossoms in July. Strawberries are well grown here, in proof whereof a pound weight per diem had been gathered since March 1—eleven weeks. The price of this fruit in London had been 12s. and 14s. per pound.

Twelve gardeners are employed here, and the young men are made comfortable in a capital well managed bothy, where the horticultural papers are taken in. I must not conclude without mentioning the Moor Park Horticultural Society, which is highly successful in promoting good gardening in the neighbourhood. *H. E.*

New Garden Plants.

PHAIUS HUMBLIOTII, *Rehb. f.*

If you can forgive this plant for being a *Phaius* whose flowers are not as lasting as those of certain *Vandas*, *Miltonias*, or *Cattleyas*, then you must admit its beauty. It would appear to be very scarce. I had last year a flower from Mr. Peeters, St. Gilles, Brussels, and now I have a raceme at hand, kindly sent me by Sir Trevor Lawrence, Bart., M.P., P.R.H.S. Both the sepals and petals are rather broad, nearly as in *Warrea tricolor*, and *Aganisia cyanea*, and the lip shows large lateral side lacinia and a broad, nearly reniform, wavy mid lacinia. The sepals and petals are of a fine purple. The petals outside have a longitudinal white stripe, divided by a narrow purple line. Side lacinia of the lip with brown stripes and bars on a white ground outside, brown inside, mid-lacinia light purple. A white line runs over the middle underneath. The callus is clavate, sulcate at the base, running with its narrow end on to the disc of the central lacinia, hairy at the base, fine yellow. Column whitish, with green top. Sir Trevor declares it "second only to *Phaius tuberculatus*." The leaves and bulbs are in habit and general appearance like those of the old *P. grandifolius*, but the former are not so large or nearly of such firm texture, and are paler in colour. The bulbs are much smaller, and throw roots from their upper surface. The flower-spike springs from the underside of the mature bulb, a little in front, but not in connection with the young shoot. The delicate leaf-texture makes the leaves a toothsome morsel for thrips, &c. All those remarks are Sir Trevor's. *H. G. Rehb. f.*

CYPRIPEDIUM CONCOLOR (*Parish*) CHLOROPHYLLUM.

Mr. R. Eichel (gardener to J. Charlesworth, Esq.) kindly sends a leaf and flower of a *Cypripedium* imported by Mr. F. Sander, and collected by his excellent traveller Mr. Foerstermann (whose remarks about *Vanda hastifera* I quoted when I spoke of *Vanda Lindeni*, p. 70). The flower is full of small spots, and the leaf is free from any marbling. Mr. Foerstermann, who was present when the box arrived, told me he found specimens with green leaves, others with little marbling, but the majority with well marbled leaves. *H. J. Rehb. f.*

CYRTOPERA REGNIERI, *n. sp.**

A stately riddle of *Cyrtopera flava*, Lindl., bearing a raceme of fine, large, chrome-yellow flowers. The peduncle stands at the side of the shoot of young oblong-lanceolate leaves. Both sepals and petals are lanceolate acute, all falcate. The lip is of unusual shape, being oblong-lanceolate, with a wide blunt angle at each side in the middle. It forms, with the lateral sepal, a conical, retrorse, compressed chis,

* *Cyrtopera Regnierii*, n. sp. — All *Cyrtopera flava*, Lindl.: pseudobulbus trigonatus oblo. sp. tumidi articulo; foliis lanceolato-oblongis acutis; pedunculo alato racemoso; sepalis petalisque falcatis, la. oblo. oblongo a. utrinque medio semiovato auriculato, mento conico compresso retrorso. Flores pulchre flavi. Cochinchina. Regnier legiti vivacem misit. *H. G. Rehb. f.*

thus being widely distinct from the rather well-known *Cyrtopora flava*, Lindl., which I once received fresh from the Royal Exotic Nursery of Messrs. J. Veitch & Sons. Column trigonous. Anther transverse, with two blunt, very short horns. Flowers not quite so large as those of the just named *Cyrtopora flava*. It was discovered in Cochín China, by Mons. Regnier, horticulturist, who has now got it flowering at his establishment at Fontenay-sur-Bois, and whose name it justly bears. Mons. Regnier has also in flower the red-lipped *Yanda Roxburghi*, R. Br., from Cochín China. *H. G. Rehd. f.*

THE COLONIAL EXHIBITION.

No. IX.

INDIA (continued).—Next to the native shops referred to in our last notice the seed and grain trophy is perhaps the most popular; standing, as it does, in the centre of the court, it cannot fail to be seen, if not actually admired by all. The seeds used in the decoration of the trophy are very varied, and they are here arranged more for effect than actual use, patterns being worked out according to colour. As this aspect of the trophy, however, is not within our province to criticise we will briefly notice some of the seeds used in carrying out the design, and this may be the more interesting, as the seeds are not named, and, indeed, from the nature of the design, it would be impossible to do so. The following are amongst the seeds used:—The Physic Nut (*Jatropha curcas*), the oil of which is a powerful purgative. The plant is a bush or shrub, native of tropical America, but introduced and now grown in most tropical countries. These seeds are about three-quarters of an inch long, and of a dirty black colour. Here are also the seeds of the Gingelly, Benne, or Teel (*Sesamum indicum*), the oil of which is very extensively used in India for culinary and a variety of other purposes. The oil is brought to this country in very large quantities, and used as a lamp oil, in soap making, and for mixing with Olive oil. Cold drawn Sesamum oil is used in France and Italy for salads, and the lamp-black used in China and Japan for making the best Chinese ink is produced by burning Sesamum oil. The seeds are small, somewhat flattened, and Pear-shaped, and vary considerably in colour, from a dingy white through various shades of brown to black. The combined violet and green tints of the Pistachio-nut (*Pistacia vera*) causes it to be distinct in appearance from its neighbours. In consequence of its pleasant taste the Pistachio-nut is eaten in large quantities, not only in India but on the shores of the Mediterranean. Sometimes they are cooked and eaten with salt and pepper. The oil has a very agreeable smell, and is occasionally used in perfumery, or for scenting soaps. Pistachio-nuts can be obtained in this country, but are not so well known as they deserve to be.

Another well-known oil-seed, which is in itself edible, is the Ground-nut or Monkey-nut, as it is sometimes called (*Arachis hypogæa*), an annual herb, probably of American origin, but now grown very largely in all warm climates, both as a food and for the sake of the oil contained in the seed, but more especially for the latter purpose. The oil is of a sweet limpid character, and is much used as a substitute for or mixing with Olive-oil, and also for making pomades, soaps, burning in lamps, and for various other uses. The Ground-nut is well known for its habit of pushing its young fruit under the surface of the soil and there ripening, from which habit its common name is derived.

In the genus *Bassia* the best known species are *B. latifolia* and *B. longifolia*; both of these have shiny brown seeds, with a broad rough scar on one side running the entire length of the seed, which averages from 1 to 1½ inch. The former species is a large deciduous tree, common in the forests of Central India, and cultivated and self-sown throughout India generally. Gamble describes the oil obtained from this species as having a greenish-yellow colour, and says it "is eaten by the Gouds and other Central Indian tribes, and is now used to adulterate glue, and in soap-making. It solidifies at a low temperature, but melts at a temperature of 110°, and though it keeps well in a cold climate, in a hot one it soon becomes rancid, and separates into two parts—a clear fluid oil above, and a thick brown substance below. One seed of oil is obtained from four seeds of kernels." The tree is generally known as the Mahwa, and is

celebrated for the fleshy flowers or corollas, which are eaten as food, or distilled for the spirit which is obtained from them.

Bassia longifolia is a large evergreen tree growing in South India and Ceylon, and known in each country respectively as Illupi and Mee. From the seeds an oil is expressed which is used for similar purposes to the last named, as are also the flowers. Amongst other oil seeds shown in the trophy are the Castor (*Ricinus communis*), the varieties of which are very numerous, some of the seeds being of a reddish or chocolate-brown colour, while others are nearly black. They also vary much in size, from a quarter to half an inch or even five-eighths of an inch long. The castor oil of commerce is obtained either by simple expression or by expression with a certain amount of heat; that obtained by the first process, known as cold-drawn castor oil, is the best. The Castor-oil plant is originally a native of India, but is now widely dispersed through tropical and warm countries, in the form of which it grows to a height of about 40 feet, becoming much smaller in warm climates, while in colder climes it is known as an annual.

Sunflower (*Helianthus annuus*), and Linseed (*Linum usitatissimum*), both of the brown and white varieties, are here shown; besides many varieties of food seeds and grains, such as Lentils (*Lens esculenta*), Dolichos Lablab, green grain (*Phaseolus mungo*), ordinary grain (*Cicer arietinum*), Job's Tears (*Coix lacryma*), Maize (*Zea Mays*), &c.

Of the very extensive collection of fibres, which has attracted a considerable amount of attention amongst specialists, it would be difficult to speak without a very extended notice; it will, therefore, suffice to draw attention to the Glenrock Company's exhibits of China-grass (*Bemheria nivea*), and fabrics made of the fibre, showing what can be done with this useful Nettle. The leaves of Puya fibre, from Maoutia Puya, will also attract attention, indicating as it does what might prove to be an excellent paper material, if not a textile. In India it is used for making cloths and fishing-nets. Close to this are fine samples of Ehabagrass (*Pollinia eriopoda*), a very strong grass, much used for ropes and cordage. Dr. Watt says it is "largely used in the tract between the Jumna and the Sarda, and is particularly abundant in the Garwhal Himalayas."

Amongst products interesting to the pharmacist, some fine samples of Cinchona bark will attract attention, especially one of Cinchona Ledgeriana, from a seven years' old plant, and some stems with moss-renewed bark. *John R. Jackson, Curator, Museums, Royal Gardens, Kew.*

MARKET GARDENING AT ST. NEOTS.

If any one desire to study market gardening on an extensive scale, and at the same time see it well done, he cannot do better than start at Hitchin, and working his way into Bedfordshire, through Biggleswade and Sandy, and then into the borders of Huntingdonshire at St. Neots, he will come upon abundant illustrations of an exceedingly interesting and instructive character; and not only is market gardening well done, but also under varying aspects. When at St. Neots recently I had an opportunity of looking through the extensive market gardens of Mr. Isaac Hall, of Eynesbury, close to St. Neots, who tills about 150 acres, the whole of it devoted to vegetable and none to fruit culture. At Eaton Ford, close by, his brother, Mr. John Hall, cultivates 250 acres, and as in both cases the work is well done, they are large employers of labour in the district. A great deal of the produce goes to London, but the majority goes to the North, finding outlets in the great industrial centres where the consumption of vegetables is very large. The vegetables are packed in good sized packets and forwarded by rail, both North and South; and the business done at St. Neots and other stations must be something enormous. Vast quantities of manure are brought from London by rail; the soil is well enriched, and large crops of fine vegetables is the result.

Potatoes are largely grown: great quantities of Myatt's Ashleaf for early crops, also International Kidney, Beauty of Hebron, Schoolmaster, and Magnum Bonum. The soil is well adapted for Potato culture, and, indeed, for all vegetables; it is of a somewhat adhesive sandy loam, 2 feet or so in depth, with gravel beneath. Rain passes quickly from the

surface. I can quite understand that in a season of great drought the crops would suffer a good deal; on the other hand, a good rain twice a week at this season of the year, with intervals of hot sunshine, must be of great advantage. Nothing could look better than the Potato crops—not a trace of disease was to be seen, and the produce was good all round.

Before the Myatts are dug, Brussels Sprouts are planted between the rows, and where the earliest crops had been dug the plants of Brussels Sprouts were almost touching each other, so great a progress had they made.

Beds of Bedfordshire Champion, or Wood's Ridge Cucumbers, are a great sight. The seeds of Cucumbers are sown in the open ground in the month of May in beds about 9 feet in width, and between each pair of beds is a line of Rye some 2 feet in width; this affords an excellent protection, and the Rye is sown early so as to get up and form shelter by the time the Cucumbers seeds are putting forth their first leaves. Vegetable Marrows are similarly grown; but the beds of Marrows are 13 feet in width; the seeds are put in May in the same manner as Cucumbers, with lines of Rye between the beds, running from east to west. Two types of Marrow are grown—one the ordinary long white, with its vigorous trailing stems, the other is known as the Bush Marrow. This is a singular type, making an erect bush-like growth, and throwing up several very strong leaves, and forming clusters of fruit in the very heart of the plants. These plants can be grown a yard or so apart, and they are found to vary in the character of the foliage. Some have almost entire leaves; others have them deeply cut; in some cases the fruit are white, in others, green, in others mottled. Any spaces between the plants caused by failure of seeds to germinate, &c., are filled up by planting Veitch's Autumn Giant Cauliflower.

Red Cabbage, for pickling purposes, must be in large demand, for here was a huge pile of the Red Drumhead variety, the Cabbages of great size already, measuring fully 1 yard across the leaves. The Intermediate Onion, a half globular-shaped variety that looks like a selecting from the White Spanish. The seed is sown broadcast in spring with Parsley—very thinly, and when the Onions are pulled, then there is a plantation of Parsley that comes in very useful for consumption during autumn and winter, when it is in demand. I should think there were from 9 to 12 acres of Intermediate Onions.

Scarlet Runner Beans are a leading feature, and could be seen in large breadths, 4 acres or so in extent, the leading shoots are pinched out, which causes the plants to branch freely. The seeds are sown at the usual time between rows of Myatt's Kidney Potato, and they afford protection to the young plants as they come through the soil. In any cases where the Beans fail to grow plants of Veitch's Autumn Giant Cauliflower are put in. Beds of Potatos 10 feet or so in width are placed at intervals between the Beans, and by leaving out two rows of Beans here and there space is afforded to get carts down between to load. I may state that at the time of my visit the Rye grown between the lines of Marrows and Cucumbers was being cut and dried ready for threshing; the straw being soft and yielding, is sold to manufacturers for stuffing horse-collars.

Here were really wonderful beds of Parsnips of great size, and of a quality apparently impossible of being surpassed. The Covent Garden, a Pine-apple Beet, rightly selected, is also largely grown, and making striking patches of colour among the green-leaved crops. Huge beds of James' Green-top, or Intermediate Carrot, were being pulled; the seeds are sown fairly thick, and during the last weeks in July and the early part of August the Carrots fit for market are pulled out, and the small ones left, which speedily grow in size, and furnish later crops. Jerusalem Artichokes are largely grown; the crop is treated exactly as they do Potatos, but planting is done earlier—generally in February.

Enormous beds of pickling Onions are grown, and the seed is sown in February and March at the rate of from 20 lb. to 30 lb. to the acre. The Bedfordshire pickling Onion appears to be a selection from the White Spanish that bulbs early, and the picklers are pulled and marketed at the end of July and onwards. White Spanish or Reading Onions are grown to a very large extent. I saw one piece of nearly 6 acres, and so good did they seem that the newer varieties, so called, must be good to

be improvements upon the strain of selected Reading Onion grown about here. The Sandy and Biggleswade districts especially are famous for their Onion growing, and large quantities of seed of White Spanish Onion are harvested in the county of Beds, and sold to the London wholesale trade.

The foregoing is a rapid sketch of a representative Bedfordshire market garden. The wonderful order in which the ground is kept was a noticeable feature; but few weeds were seen unless in the midst of crops, where they could not be hoed up without injury. Constant and rapid cropping is the order of the day, and this in association with high culture. From such a market garden goes out annually vegetable food for thousands of mouths in the great industrial centres. *R. D.*

ROSE SHOWS.

ROSE showing, since the formation of the National Rose Society, in 1876, now ten years ago, has become so general, has penetrated to all parts of the kingdom, and has so increased the interest that is felt in the growth of the flower, that anything connected with these exhibitions must be of interest to a wide *clientèle*. The societies affiliated with the National Rose Society adopt the rules of the National, and although in the drawing up of their schedules they may differ from the parent society, yet in the main the idea which pervades them, *viz.*, giving an opportunity to all growers to have a fair chance of competing—is generally acknowledged and acted upon.

During the ten years of its existence the Society has year after year elaborated its schedule—a numerous and painstaking committee have diligently and earnestly revised it, until now it requires very little more than to say ditto to its last year's schedule, and therefore, if I take exception to one or two of its prizes it is not because they were wrongly conceived, or are in themselves objectionable, but because experience has, I conceive, shown that they would be better expunged from future schedules. Already the Society has acted on the principle, that where after some years' trial a class does not seem to be sufficiently popular, it should be done away with, as in the case of suburban Roses, as they seemed more likely to encourage the growth of Roses in the neighbourhood of London, than to offer special prizes for flowers grown within 8 miles of Charing Cross. This was done, and in the first year or so fairly creditable flowers were exhibited; but after that the exhibitors were so few in number that it was determined to do away with it, while a cup offered for some suburban Teas has never yet been won. In advocating the abolition of certain prizes now offered, I should not be deviating from the principle already acted upon by the Society, and for the same reason should like to see two of the classes in the present schedule expunged.

There is first of all, the prize for a basket of Tea and Noisette Roses. This prize, it is true, was kindly offered by Messrs. Paul & Son, and in order that all might start on terms of equality, a very pretty basket was supplied by them to intending exhibitors, with moss to arrange the flowers in. I believe that to the givers of the prize, and to the general public, the result has been disappointing—the competition has been very limited indeed—this year there were fewer exhibitors for it than at provincial shows where the same attempt has been made, and I hope I shall not be accused of a want of gallantry if I say they were all more or less disappointing. I do not call a basket of Roses gracefully arranged when the flowers are wired, and I feel that it hardly falls within the designation; nor do I think swaddling the legs of the basket in moss and then sticking Roses into them, which must fade in a few hours, enhances their beauty; but in truth all arrangements of Roses only, wherever I have seen them, are more or less disappointing; no double flower lends itself well for the purpose—hence it is that the single Dahlia became so popular for this purpose.

Who that compares the effect of the most beautiful of Truffaut's Asters with the single Marguerite, or the most splendidly built-up double Dahlia, however brilliant its hue, with Paragon or Cervantes, but will acknowledge this; and let a bouquet of single flowers be placed alongside the most carefully arranged bouquet of Roses, and in nine cases out of ten the palm for beauty will be given to the single flowers. I do not mention the single Rose, because unhappily I have always found

them too shortlived. The prettiest stand of Roses I ever saw arranged was some years ago at Reigate, composed solely of the wild Brier, but before the day was half over the flowers had all faded. There are, I believe—so my friend Mr. Girdlestone tells me some which stand better, but they are not generally known. Perhaps the donor of this prize would not object to transferring it to something else which would be more likely to benefit the Rose.

Another prize that I think might with safety be abolished is that for six new Roses for amateurs. The object of offering these prizes is, I opine, that we may have an opportunity of seeing what novelties are likely to take their place in the cherished list for exhibition; in the case of nurserymen we do have that opportunity, but I cannot say that in the amateur class it is very edifying. You get either Roses that are on half the stands of the show, or else such poor specimens of new ones that they teach us nothing—indeed, I believe there is a general feeling of disappointment amongst amateurs that the nurserymen's stands in the class are not more effective than they are. The exhibition of the National this year quite bears me out: there were but two stands placed in competition; the first contained five out of the six which were thoroughly well known to all growers of Roses, and the other stand was not considered deserving of a 2d prize, and had only a 3d awarded to it.

Before discussing the subject of prizes at the National's exhibition, I may refer to a controversy which has been going on in the *Journal of Horticulture* with regard to the grievances of small exhibitors. A great deal of what is vulgarly called "bosh" has been written on the subject, and a suggestion made that divisions should be created for those who do not employ a gardener regularly—a suggestion which I hope most devoutly the committee will never entertain. I know from experience what heartburnings these classes create in some prominent societies which have adopted them; and nothing, I believe, could be more detrimental to the Society's interests than importing such a class into its schedule.

There are one or two prizes given at prominent shows which the National does not recognise, and which I believe would be better left out, because of the difficulty of deciding on them; one of these is that for the best box of Roses in the show; one such prize at Moreton-in-the-Marsh was given this year of the value of £10—a most demoralising amount, and which was ultimately divided between two stands. I say the difficulty of deciding; upon what principle is it to be done? Would a box of six in any case have a chance against a box of seventy-two which was up to the mark? In this case it fell between two boxes, one of seventy-two, and the other of twenty-four. The judges went for it by points. They awarded the number of points, allowing three as the highest to each bloom, and then divided them by the number of blooms. In this they were as nearly as possible equal. Then in the box of seventy-two there were three blooms inferior to any three in the twenty-four, while there were four or five in the twenty-two superior to anything in the twenty-four; and after a long discussion and examination the course I have mentioned was adopted; it was not done for the purpose of making things pleasant for both parties, because I am sure it would not have had that effect—each competitor would consider himself aggrieved, and think that he ought to have had the full prize—but simply from the impossibility of determining. Of course the system of judging may have been considered faulty, but I believe that those who like the plan would be very thankful to be informed of a better one. However that may be, provincial societies may take it into their consideration, whether they might not bestow the amounts thus given in some better way, especially as the National does not recognise it.

There is another prize which is often given, which is, I think, of a very questionable character—that for the best Rose in the show, or in the amateur classes. That is not the plan adopted by the National. There the medals are given for the best hybrid perpetual, and also for the best Tea or Noisette, and to them no objection can be made; but it is different where the two kinds of Roses are present together, and one had to decide between, let us say, a grand bloom of Marie Baumann and an equally fine bloom of Souvenir d'Elise; is it not perfectly clear that there can be no comparison between the two? Suppose that a medal were to be offered at an agricultural show for the best animal in the exhibition—horse, cow, sheep,

or pig, would not the absurdity at once strike one? And yet I believe it would not be a bit more incongruous to put a horse in competition with a bullock than to put a Tea Rose to compete with a hybrid perpetual. The individual taste of a horsey judge would doubtless lead him to prefer his favourite animal to any bullock, however systematically "finished"; and so the lover of a Tea Rose would, probably, place the hybrid perpetual in the background, and give it to his favourite, although the one might be as absolutely faultless as the other. Hence societies would be wise, I think, to offer their medals for one or the other, or both, but not to confuse them together.

I have, as I think may be inferred, made these observations in no captious spirit, but with a sincere desire to benefit Rose showing; and I think it says something for the care with which the schedules both of the National and of its affiliated societies are drawn up, that these are the only classes to which I think exception can be made. There is one other subject in connection with it that I would advert to, and that is whether, considering the vastly increased growth and great popularity of the Tea Rose, more liberality might not be shown in the classes devoted to it. Rose growers are beginning to find out that it is not nearly so tender as it was supposed to be, that being partly due to the general substitution of dwarfs on the seedling Brier, and to the greater vigour of the newer varieties. Everywhere that I have gone this year I hear of gardeners grubbing many of their hybrid perpetuals, and substituting Tea Roses; and when one considers their extreme beauty and lasting powers, I do not wonder at it. Our gardens now are not, I will say, a blaze of bloom with them, but full of other sweet and delicate blossoms, while the hybrid perpetuals, only here and there show a gorgeous bloom which the hot sun soon disfigures. I am not sure, too, whether larger classes might not be made for them; and if the National set the example I have little doubt that the affiliated societies would follow suit, and thus afford to all lovers of the flower greater satisfaction at future exhibitions. *Wild Rose.*

TUBEROUS-ROOTED BEGONIAS.

In no garden, public or private, have I seen tuberous-rooted Begonias grown so extensively and well as they are this year in the beautiful gardens at Madresfield Court. I refer more particularly to the several beds which are filled with these showy and most easily managed plants in the charming flower-bed opposite the Court. The plants are furnished to the ground with healthy foliage, and covered with large flowers, ranging in colour from brilliant scarlet to pure white, and the shades of colour being arranged respectively in masses; the effect thus produced, when contrasted with the masses of pink, mauve, blue, &c., is very telling. As many people experience not a little difficulty in raising a stock of tuberous-rooted Begonias, and afterwards growing and flowering the plants satisfactorily, a few remarks respecting the method of procedure practised by Mr. W. Crump, who has made many improvements in the gardens at Madresfield within the last three years, may, therefore, be instructive to not a few readers of the *Gardeners' Chronicle* who desire to succeed in the culture of the plants in question. It is as follows:—The plants, when taken from the flower garden towards the end of September or early in October, according to circumstances, are laid in closely together in a cold pit, burying the tubers slightly under the surface of the soil, and allowing the stems to die off gradually. The only protection they receive during the winter is a sufficient thickness of Fern or dry litter to prevent frost from reaching the tubers, the sashes being removed for use elsewhere until spring, when they are replaced, and the protecting material having been previously removed, the tubers gradually start into growth, and a free circulation of air being allowed between them, at bedding-out time a sturdy lot of plants is secured. The floral display resulting from two or three lights of surplus stock plants thus treated fully demonstrates the soundness of Mr. Crump's practice, and in itself it is well worth a visit to see at the present time, as also are the plants subjected to pot culture in the greenhouses.

Where it is desirable to increase the stock it is a good plan to divide the tubers, retaining an eye or two on each division, and after they have been ex-

posed to the light for a week or ten days, to harden the wounds, to plant them in a frame placed on a gentle hotbed in spring, leaving sufficient air on to prevent the buds or eyes from starting into growth before root-action has taken place, which would be disastrous in its consequences, inasmuch as the growth so made would only continue so long as the sap stored up in the piece of tuber lasted, when it would collapse in consequence. *H. W. W.*

HISTORY OF CELERY.

If we consider cultivation as embracing only the removal of a plant to fertile soil and its protection from injury from crowding, the only marked effect of the continuance upon a plant through itself and its offspring seems to be embraced in the one word expansion, *i.e.*, increase of size. If we enlarge the meaning of cultivation so as to embrace selection and the

grown in Europe. John Bauhin, whose *History of Plants* was published in 1650, many years after it was written (he died in 1613), states the Water Melon to be so large that one could scarcely embrace it with the two hands, "quos fere ambabus manibus ambias." Margravius, whose *History of Natural Productions of Brazil* was published in 1648, describes the Water Melon as being as large as one's head, "magnitudine capitis humani." That our present types of fruit were then known is evidenced in many ways, but can be given succinctly by Caspar Bauhin's statement in his *Pinax*, edition of 1623, that some have a green skin, others a skin spotted with dingy white; the flesh of some red, of others white; the seeds black, red, and tawny in varieties. Ray describes the fruit as round, or globose, or even elliptical. In modern times we have fruit so large that my arms cannot embrace the oval, and a weight of 96 lb. has been claimed, probably with justice.

In seeking for a good illustration of the stability of

It is supposed to be the Selinon of the *Odyssey*, the Selinon heleion of Hippocrates, the Eleioselinon of Theophrastus and Dioscorides, and the Helioselinon of Pliny and Palladius. It does not seem to have been cultivated (Bodæus and Scaliger's Theophrastus, ed. 1644, p. 804; Ruellius' Dioscorides, 1529; Pliny, *Grandsagne*, ed. Palladius; Gesner's *Script. rei rust.*), although by some commentators the word interpreted as Smallege has a wild and cultivated sort. Nor do I find any clear statement that this Smallege was used as food, for sativus means simply planted as distinguished from growing wild, and we may suppose that this Apium, if Smallege was meant, was planted for medicinal use. Targioni-Tozzetti (*Hort. Trans.*, 1854, 144) says this Apium was considered by the ancients rather as a funeral or ill-omened plant than as an article of food, and that by early modern writers it is mentioned only as a medicinal plant. This seems true, for in the books in my library I find that Fuchsius, 1542, does not

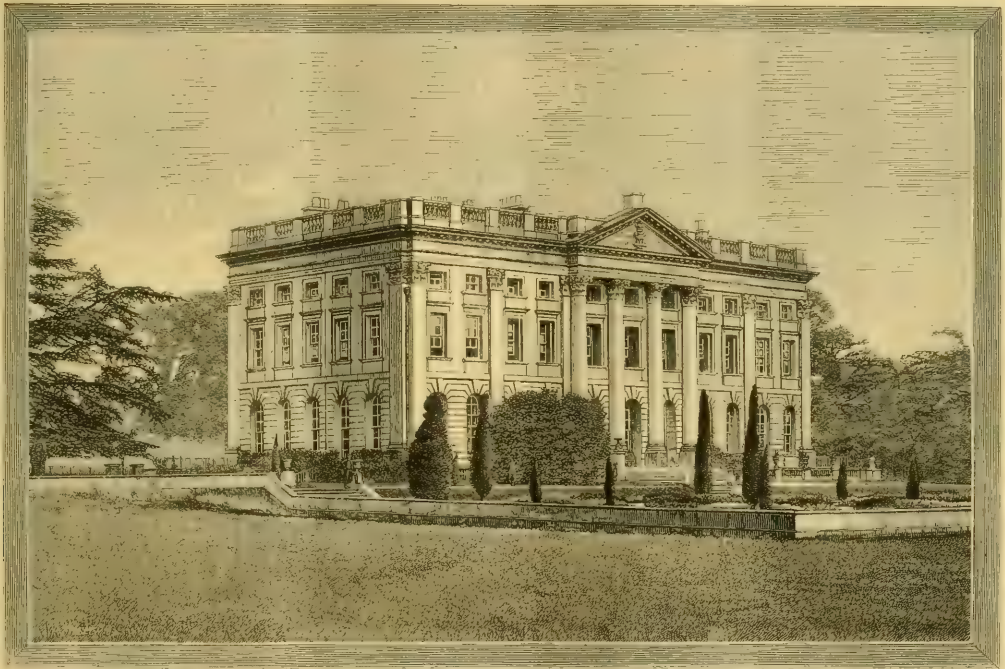


FIG. 59.—MOOR PARK. (SEE P. 293.)

cross-fertilisation of the flowers which yield seed for future use, the subject becomes more complicated, and we find it difficult in all cases to connect the sequence of cause and effect. One fact, however, through careful observations, seems undoubtedly true, that by selection alone, without the assistance of the break caused by a cross-fertilisation, changes in our plants are extremely slow, and many generations are required to obtain and fix any change other than increase, which is sufficient to be noted by the casual eye. In support of this view we can direct attention to the little change that has been produced by centuries of culture in those plants which represent but improved forms of a wild species, such as the Parsnip, Scorzonera, Salsify, &c., among roots; and we may also call attention to the stability of type-form during centuries of culture in the Egg Plant, Pepper, and I may even add the Pumpkin. Perhaps one of the most interesting instances of increase of size without change of type can be seen in the Water Melon. The old herbalists figure this fruit of small size, but, as is very likely, only small varieties were commonly

type joined with a change produced by cultivation and selection I have taken the Celery, as this vegetable seems to be of modern origin, and the variations from the wild plant have been apparently deemed great, although really but slight, except in expansion produced by freedom of growth and changes which have slowly accumulated through selection.

The Celery has originated from the Apium graveolens, L., a plant of marshy places, whose habitat extends from Sweden southward to Algeria, Egypt, Abyssinia, and in Asia to the Caucasus, Beloochistan, and the mountains of British India (De Candolle, *Origine des Plantes Cult.*, 71), and has been found in Fuegia (Ross, *Voy. to the South Seas*, ii., 298; Apium antarcicum, *Cook's Voy.* ed. 1769, i., 28), in California (Nutt., *Journ. Acad. Phila.*, n.s., i., 183), and in New Zealand (Forster, *Pl. Exc.*, 67).

* Cardanus, however, in his *De Rerum Varietate*, 1556, apparently refers to a Water Melon, "Magnitudo quandoque tanta, ut homo expansis brachiis vix una amplecti queat;" but then Cardanus was dealing with wonderful things. He calls it "Asguria, qua melopeponem ob ita Galenus vocat, quod non distincta sit canalibus ut pepon sed rotunda ut pomum."

speak of its being cultivated, and implies a medicinal use alone, as did Walafridus Strabo in the ninth century; Tragus, 1552, likewise; Pinæus, 1561; Pena and Lobel, 1570; also Ruellius' Dioscorides, 1529; Camerarius' *Epitome* of Matthioli, 1586, says planted also in gardens, "Seritur quoque in hortis;" and Dodonæus, in his *Pemptades*, 1616, speaks of the wild plant being transferred to gardens, but distinctly says not for food use. According to Targioni-Tozzetti (*Hort. Trans.*, 1854, 144), Alananni in the sixteenth century speaks of it, but at the same time praises Alexanders for its sweet roots as an article of food. Bauhin's (1623) name, Apium palustre and Apium officinarum, indicates medicinal rather than food use; and J. Bauhin's name, Apium vulgare ingratus, does not promise much satisfaction in the eating. According to Bretschneider (*Botanicon Sinicum*, 78), Celery, probably Smallege, can be identified in the Chinese work of Kia Sz-mu, the fifth century, A.D., and is described as a cultivated plant in the Nung Cheng Ts'an shu, 1640. We have a mention, however, of a cultivated variety in France

by Olivier de Serres in 1623 (Ponce, *La Cult. Maraich.* also Heuze, *Les Plantes Alimentaires*, i., p. 5), and in England these were sold in 1726 for planting for the use of the plant in soups and broths (Townsend, *Seedsman*, 1726, 37); and Miller (*Bot. Offic.*, 1722) says, in 1722, that Smallage is one of the herbs eaten in the spring to purify the blood. The cultivated Smallage is even now grown in France under the name of *Celeri a couper*, differing but little from the wild form. The number of names that are given to Smallage indicate antiquity, such as—Arabic, *Asali*; Italian, *Apio*; German, *Eppich*; Spanish, *Ferexil daga*; French, *Ache* (Pinæus, 1561); Egypt, *Kerafs* (Porsk.); English, *Smallage*, &c.

The prevalence of a name derived from one root indicates a recent dispersion of the cultivated variety. Vilmorin (*Les Plantes Potagères*, 72) gives the following synonyms:—French, *Celeri*; English, *Celeri*; German, *Sellerie*; Flanders, *Selderij*; Denmark, *Selleri*; Italy, *Selano*; Spain, *Apio*; Portugal, *Apio*; and M Intosh (*Book of the Garden*, ii., 150) gives for the Spanish, *Apio hortensis*. The first mention of the word *Celeri* that I have observed is in Walsfridus Strabo's poem, entitled "Hortulus," where he gives the medicinal uses of Apium, and in line 335 uses the word as follows:—

"Passio tum Celeri cedit devicta medelæ."

—the disease then to *Celeri* yields, conquered by the remedy, as it may be liberally construed; yet the word *celeri* here may be translated quick acting, and this suggests that our word *Celeri* was derived from the medicinal uses. Strabo wrote in the ninth century, having been born A.D. 806 or 807, and dying in France in 840. Targioni-Tozzetti (*Book of the Garden*, ii., 150) says it is certain that in the sixteenth century *Celeri* was already begun to be grown for the table in Tuscany. I cannot find any mention of *Celeri* in Fuchsius, 1542; Tragus, 1552; Matthioli's *Commentaries*, 1558; Camerarius' *Epitome*, 1558; Pinæus, 1561; Pena and Lobel, 1570; Gerard, 1597; Clusius, *Rar. Plant.*, 1601; Dodonæus, *Pempt.*, 1616; or in Bauhin's *Pinax*, 1623. Parkinson's *Paradise*, 1629, mentions *Sellerie* as a rarity, and names it Apium dulce. Ruy in his *Historia Plantarum*, 1656, says the Smallage transferred to culture becomes milder and less ungrateful, whence in Italy and France the leaves and stalks are esteemed as delicacies, eaten with oil and Pepper. The Italians call this variety *Scleri* or *Ccleri*. The French also use the vegetable and the name. He adds that in English gardens the cultivated form often degenerates into Smallage. Quintyne, who wrote (Eng. ed., 1704) prior to 1697, the year in which the third edition of his *Complete Gardener* was published, says, in Fia ce "we know but one sort of it." *Celeri* is mentioned, however, as Apium dulce, *Ccleri* italicum in *Hort. Reg. Par.*, 1665 (Tournef., 1719, 305); in 1778 Mawe and Abercrombie note two sorts of *Celeri* in England, one with the stalks hollow and the other with the stalks solid; but in 1726 Townsend (Tournef., 1719, 305) distinguished the *Celerics* as Smallage and *Sellerie*, and the latter he says should be planted "for Winter Salads, because it is very hot." Tingburgh (*Hort. Culinar.*, 1764, 25) says *Celeri* is common among the richer classes in Sweden, and is preserved in cellars for winter use. In 1806, McMahon (*American Gardener's Calendar*) mentions four sorts in his list of garden esculents for American use. It is curious that no mention of a plant that can suggest *Celeri* occurs in Bodæus and Seeliger's edition of Theophrastus, published at Amsterdam in 1644.

The summary of our investigation hence is, that we find no clear evidence that Smallage was grown by the ancients as a food plant, but that if planted at all it was for medicinal use. The first mention of cultivation as a food plant that I note is by Olivier de Serres, 1623, who calls it *Ache*, while Parkinson speaks of *Celeri* in 1629, and Ray indicates the cultivation as commencing in Italy and extending to France and England. Targioni-Tozzetti states, however, as a certainty that *Celeri* was begun to be grown in Tuscany in the sixteenth century. The hollow *Celeri* is stated by Mawe (Mawe and Abercrombie, *Gardener*, 1778) to have been the original kind, and is claimed by Cobbett (*American Gardener*) even as late as 1821 as being the best.

The first *Celerics* grown seem to have differed but little from the wild plant, and the words *Celeri* and [cultivated] Smallage were apparently nearly synonymous at one time, as we find cultivated *Ache* spoken

of in 1623 in France, and at later dates *Petit Celeri*, or *Celeri a couper*, a variety with hollow stalks, cultivated even at the present time for use of the foliage in soups and broths. Among the earlier varieties we find mention of hollow-stalked, stalks sometimes hollow, and solid-stalked forms; at the present time the hollow-stalked forms have become discarded. Vilmorin (*Les Plantes Potagères*) describes thirteen sorts as distinct and worthy of culture in addition to the *Celeri a couper*, but in all there is this to be noted, we have but one type.

A curious circumstance is that Smallage took on the appearance of *Celeri* before its use was commonly recorded, if at all, as a salad plant, as is evidenced by reference to old authorities. The figure (not here reproduced) is substantially the same as that in Fuchsius, 1542; Tragus, 1552; Pinæus, 1561; Tabernemontanus, *ic.*, 1590, or Gerard, 1597, and Dodonæus, 1616, and is taken from Matthioli's *Commentaries*, 1558; this represents the common expression of the herbalists as to the appearance of Apium palustre at this time. The second picture is from Camerarius' *Epitome* of Matthioli, 1586, and represents the form we call *Celeri*, but hollow-stalked, as at first noticed. The third picture is taken from Decaisne and Naudin's *Manuel de l'Amateur des Jardins*, and represents the unblanched plant of one of our most improved varieties. These pictures suggest the same ideas that I have previously shown to hold true for the Dandelion, viz., that our improved strains originated from natural sources, and are not cultural in their beginnings.

Take the wild Smallage, transfer to fertile soil and protect from crowding, and we should expect increase of size to the plant; earth up for the purpose of blanching and we should expect to gain increased weight to the leaf-stalks; a long-continued selection of the best plants for seed-growers would gradually succeed in forming the solid stalked; the growing of varieties from the earliest seed would tend towards earliness; the occasional growing through accident from unripe seed would tend towards obtaining a curled-leaf form with dwarf habit, &c. We may hence say that all our *Celerics* in form are not changed from the original except in unessential points correlated with size and selection. In quality *Celerics* have tended to become milder, until now some of our varieties, such as the Boston Market, are of a very delicate taste, far different from the sort spoken favourably of by Townsend in 1726 as very hot and very slow growing.

It is probable that some original variation in quality discovered in the wild plant suggested cultivation, for among a people like the Italians, with whom high aromatic taste seems popular, the strong savour of the Smallage would present little objection, if only grateful to them; or that its use was suggested by some popular idea of its value as a medicinal food, as seems probable. That there is great variety in wild plants in respect to flavour, we have every reason to believe.

Smallage, described by most botanists as a suspicious if not dangerous plant for eating, yet in Fugiea was found palatable and healthful by the sailors of the exploring ships (Ross, *Voy. to the South Seas*, ii.; Cook, *Voy.*, ed. 1769), and in New Zealand described by Forster (*Pl. Exc.*, 67) as truly pleasant and salutary for scorbutic sailors. The use in Italy as a medicinal food, and the introducing to garden culture, with blanching, &c., would improve the flavour and increase its use, and improvement once initiated and recognised would necessarily continue, and stability of type-form would also tend to continue, as the seeding habit of the garden plant is not favourable to cross-fertilisation with the wild or allied species, it being a biennial, and not usually seeding alongside of other species with which crosses might occasionally occur.

We have now in *Celeri* an improved, not changed, wild plant, which does not now tend to revert to the wild form, as it seemed to have done at the first, and a good illustration of the fixity of a garden form species. The present form will undoubtedly continue unchanged for a long period, unless cross-fertilisation with another species-variety is brought to pass. It would be of garden interest to grow and cross the species-forms from different portions of the globe with the garden varieties, as analogical reasoning would suggest possibilities as yet unsuspected in practice. L. Sturtevant, in "*American Naturalist*" July, 1886.

FRUIT TREES AT MAIDSTONE.

AFTER a long and pleasant ride through the Kentish Hop gardens, just now so fragrant and richly hued with golden floral pendants, we alighted at Barming station, close to which a new addition of some 30 acres has just been made by Mr. Bunyard to his nursery. From the station, therefore, under that gentleman's guidance, we stepped at once from the railway on to the fruit tree quarters, close to where a number of active men are employed budding Apple stocks. This is the first crop of nursery stuff in the new ground, a large portion of which has been under corn and roots, but which will be largely planted up this winter. The Allington Nursery, now close upon 100 acres in extent, is situated upon a broad and elevated plateau, the which gently slopes down to the valley of the Medway. The subsoil is chalk, and much of that in which the trees are growing so admirably seems to consist of pulverised ragstone, and which possesses in a high degree the merit of producing short, solid, well matured growth and early fruitfulness. Although the Hop-picking has begun yet the sun shines down upon us with almost torrid force, and renders the exertion useful to see all that is to be seen in this forest of young trees exceedingly exhausting. And yet it is noteworthy that in spite of this unusual autumn heat and drought nothing here suffers—any, does not even flag. If the soil is not deep, at least it rests upon a cool bottom, so that the roots never suffer.

There is also another valuable element found in the admirable surface cultivation adopted, for in all the vast areas of trees of all sizes the rows range from 2½ to 3 feet apart, and through these all the season the horse-hoe, drawn either by the perennial donkey or a well-behaved pony, is perpetually in use; thus the soil is not only kept clean, but also loose on the surface, and a loose fine surface is a powerful counteraction to drought. Of course, only high-class work in planting could enable this form of cultivation to go on, but that is so perfect that in rows of hundreds of trees not a divergence from the straight is visible.

Although considerable numbers of choice shrubs and trees are grown at Allington, especially fine specimens *Conifers*, variegated *Hollies*, &c., yet the chief feature is found in the fruit trees, as is evidenced by the fact that some 100,000 Plums, 75,000 Apples, and 40,000 Pears, with Cherries, Peaches, Nectarines, small Nuts, bush fruits, &c., in similar proportion, are usually in stock.

Placed in the midst of one of the finest fruit-growing districts in England there is naturally great demand for market kinds, and Mr. Bunyard is justly famed in the market trade for his stocks of these—stocks that are not merely true, as the crudest observer may, in looking over the various breadths, easily discern, but consisting of first-class stuff; indeed, if one feature more than another marks Allington soil, it is found in the splendid growth made, and the beautifully clean character of the trees throughout. It is no mere complimentary phrase employed, when it is asserted that better for its years cannot be found in the kingdom.

PLUMS.

Turning to the great stock of Plums, we pass breadth after breadth of Victorias, chiefly standards, really in enormous quantities; also Diamond, *Czar*, *Rivers' Archduke*, a new and late purple Plum, and a great crop; also Green Gage, Washington, Bush, a favourite market kind; Farleigh Prolific Damson, and many others. This latter popular fruit will increase considerably from suckers, the which cut close back the second season after planting, send up strong straight stems, and soon develop into natural standards. Although all Damsons seem to be bearing well this season, and the fruit crop is consequently enormous in Kent, yet none bear so well in ordinary years as does the Farleigh; hence its great value to the market grower.

APPLES.

Of Apples there were to be seen in all directions such quantities of dwarf trees, and in most cases fruiting so well, that intending planters of Apples should see how two and three-year-old dwarfs crop ere they purchase largely. In many of the quarters the crops on these miniature trees were simply marvellous, and the fruits truly wonderful. Little bush trees could, in some cases, hardly be seen for the wondrous fruit they bore. Mr. Bunyard carefully discriminates as to the kind of stock on which Apples

are worked, using Rivers' Nonsuch, chiefly for the strong growers, because possessing greater stoutness and more root-power. Then the English Paradise, the broad-leaved and the Doucin, all carefully selected, are made stocks for less robust kinds; but of course for standards the class is the ordinary stock. The first-named sorts are all of a dwarfing character, and conduce to restricted growth and early fruiting in a wonderful way. If the Crab is the stock for standards and posterity, the Nonsuch and Paradise enable those who plant one year to gather fruits the next, as may be seen on thousands of bush trees at Allington.

Of kitchen Apples, very fine—indeed, grand—are the samples seen so plentifully in the various quarters, and on many trees wonderful the crops of Grenadier, Lord Grosvenor, Lord Derby—three grand kinds; Lord Suffield, Ecklinville, Stirling Castle, Stone's Pippin, Pott's Seedling, Lane's Prince Albert, Domino, a newer kind and fine cropper; Ilston Favourite, something like Hawthornden, but more robust; Saltmarsh's Queen, very beautiful; Cardinal, very handsome, and of a rich delicate hue, carrying dense bloom; New Hawthornden, Councilor, or Red Hawthornden; Queen Caroline, Keswick Codlin, Warner's King, and many others, all of the most meritorious and most interesting kind. Then of dessert sorts:—Mr. Gladstone, of wondrous colour; Lady Sudeley, clean and very beautiful; Worcester Pearmain, very beautiful, too; Early Strawberry, a conical Apple, nice shape, abundantly borne, and of a blood-red colour—very striking; Cox's Orange Pippin, King of the Pippins, Yellow Ingestre, Ribston Pippin, finding renewed life and vigour in the Paradise; Duchesse Favourite, Hornead Pearmain, a great cropper, stand out prominently amongst the earlier kinds for colour and size of fruit. It is only possible to comprehend how wondrously suited these bushes, pyramids, and single cordons are for all sorts of growth, inclusive of standards and espaliers, by seeing them; and not merely the few but the mass, as row after row shows the same character and cropping capacity.

PEARS.

If Pears command less attention it is rather due to the fact that the Plums and Apples seem to prove most attractive, and yet whether seen in fine four or five-year trained horizontal trees for walls, in pyramids on the Quince, or in standards, they are full of interest and merit the highest and kindest commendation. Here and there grand fruits are seen of Dr. Guyot, Madame Treve, Beurré Clairgeau, Marie Louise, and other first-class kinds. Some older trees of Rivers' Fertility stock that excellent sort to be a capital as it seems to be almost a perpetual bearer; this should make a popular market kind. A new American Pear—Petite Marguerite—in shape not unlike Autumn Bergamot, and a great cropper, but early, seems to promise another valuable market kind. Some ten year old standards of the Hesse show what a wondrous and almost perpetual fruiter that popular market kind is.

MISCELLANEOUS.

Cherries worked on the Mahaleb stock show splendid growth, whilst trained trees are in abundance, and in various stages of growth. Morellos are specially good. Peaches and Nectarines are also in great force, and capital. Of Gooseberries there are in stock some 200 kinds, but Mr. Bunyard is about to cut them down one-half in number, retaining only the best of these; none so largely grown as Lancashire Lad, which is needed by planters, in thousands for market. All the finer show kinds are in stock and represented by dwarf robust bushes. Of Currants, besides whites and blacks, the most favoured reds seem to be Raby Castle, Red Dutch, and the Scotch, the bushes compact and of large firm growth. Filberts and Cob nuts are also in exceeding quantities, and well worthy the attention of growers, outside of Kent; as these are fruits which can be preserved for some time and are not exceptionally bulky, the grower can command the market to some extent. But whilst fruits, as we have shown, are the chief features here, Roses, for instance, are well and largely done, and a shift from the Kentish rag, where the wood is so well ripened, on to deep loams can hardly be productive of other than good. How beautifully the Teas grow and flower here is very evident. The stocks too, like the soil admirably, as the growth on the Manettis is splendid. Such plants so well established must carry fine growths from buds next year. Amongst

the Conifers very striking and interesting is *Pinus paviflora*, the leaves being somewhat erect, and almost having white undersides, so that the trees have a semi-variegated aspect. It is a distinct and pleasing variety, especially as seen on some 6 feet specimens. The dark-leaved *Prunus pissardi* offers striking masses of colour here and there, and shows it to be a most valuable foliage tree. However, a truce to further description, suffice it to say that great improvements have been made during the past two years, a fine range of offices, sheds, &c., has been erected, and last, though not least, the orchard-house full of Peach, Pear, Apple, and other fruit trees in pots is a marvel in its way, and must be seen to be appreciated.

THE ALPINE GARDEN.

LINARIA HEPATICA-FOLIA.—Like several other pigmy plants, such as *Mentha Regneri* and *Stachys corsica*, this miniature rock plant comes from Corsica. Their pigmy character, however, depends on the completely prostrate and creeping nature of their stems. This latter habit, coupled with continuous growth while summer lasts, determines a successive production of flowers during that period, so that while summer lasts this charming little alpine is a perpetual bloomer and never out of season. In general appearance it closely resembles our native *L. cymbalaria*, but is of much neater and denser habit, smaller in all parts except the flowers, and is altogether more refined and attractive. A lover of alpine plants would soon detect the difference and readily afford it accommodation amongst his choicer favourites in the rock garden. The cordate-reniform leaves are smooth and shallowly three to five lobed, with petioles so short that the leaves carpet the ground densely and evenly, just allowing the flowers to show themselves distinctly above the green carpet. The latter are pale purple with a white and yellow palate, and when growth is proceeding vigorously at a favourable season, they form more or less continuous sheets of bloom of great beauty. The plant is figured in Ledebour's *Icones*, 91. Its culture is of the easiest, and it will accommodate itself to a sunny or shady position, and loves to ramble over moist porous sandstone. The cultivator could also use it with great advantage to carpet the ground amongst spring-flowering bulbs, such as *Narcissus*, *Crocus*, *Snowdrops*, *Liliums*, and such things that occupy the ground with more or less permanency.

CALANDRINA UMBELLATA.

Although liable to be killed even in the neighbourhood of London in a severe winter, this neat and attractive species is worthy of a little extra care, even to the extent of housing it in winter in a cool greenhouse or a dry well aired frame. Dampness is as much or more of an enemy to it than cold, and any means taken for its preservation should aim at protection from a damp stagnant atmosphere. This is the more evident from the sub-succulent nature of its leaves, which are, however, less decidedly so than those of many of the annual species. The stems are procumbent and perennial, or sub-shrubby at the base, with ascending flower-stems, clothed with linear, hairy leaves, and bearing at their apex dense umbellate cymes of rose-magenta flowers of great richness of tint. If inferior in point of size to that of many annual species, this defect is more than compensated by the perennial habit of the plant, its comparatively slow, compact growth, and the intense hue of the flowers. Various annual species more common in gardens are characterised by a loose straggling habit, and greatly elongating stems, whereby they become untidy in the latter half of the season. That fault does not apply here, but, like other species and *Mesembryanthemum*, as well as various other more or less succulent things, the flowers remain open only during bright sunshine. The plant is easily propagated by cuttings or seedlings, and a stock should always be kept in reserve to make good losses by severe weather in the open ground. The species is a native of Chili, in dry rocky places about Concepcion, and in planting it out a similar situation should be chosen for it in the rock garden, with a full exposure. There is a figure of it in Paxton's *Magazine of Botany*, xii., 271.

CORNUS CANADENSIS.

The position of this plant is almost intermediate between a bog plant and an alpine proper; but a

place may be found for it on any well-constructed rockery, where it will thrive and flower satisfactorily. To do it justice—unless the position chosen is naturally pretty moist—it would be well to select a nook or corner more or less shaded or screened from the mid-day sun, and plant in a prepared peat bed. This, if it does not secure the proper degree of moisture, will, nevertheless, act as a cool medium, which, with a little attention with regard to watering in the drier parts of the season, will afford conditions near akin to those under which it grows in a state of Nature. Its near ally *C. suecica* frequents alpine moors in the northern part of this country ascending to an elevation of 3000 feet. That under notice is a native of various parts of North America, such as Kamtschatka, Behring's Island, and Labrador, so that there can be no question as to its hardiness. Most of the leaves are produced in a whorl terminating stems that seldom exceed 6 inches in height. The flowers are small, purplish-white, and insignificant in themselves, but are subtended by four large white involucral leaves that constitute the most conspicuous feature of the plant while in flower. The flowers are succeeded by scarlet berries about the size of large Peas, in which condition the plant is even more ornamental than when in flower. A figure which represents the plant very tolerably is given in the *Botanical Magazine*, t. 880, p. 4.

ANNUAL STOCKS FOR SUMMER.

If any one would get a good idea of the value of Stocks as summer bedding plants they should pay a visit to Messrs. Sutton & Sons' Portland Nursery at Reading. A large space of ground is covered with trials of the many types found in the Catalogue of this firm, and thus a good opportunity is afforded for making a selection of the best types for special purposes. If they are wanted for exhibition purposes, or for large beds, then they would probably select Sutton's Giant Branching, or Sutton's Perfection, both types of great beauty. If small beds are to be filled, or a front line is required for a border, then the eight or ten varieties forming Sutton's Superb dwarf strain will be the very things for the purpose.

Of all the many strains of Stocks every one can be termed "branching," though some are more so than others. By "branching" Stocks is meant those that send up a centre spike of flowers with its attendant lateral spikelets, but also puts forth a circle of branches from the base of the main stem, which bloom and make a charming pyramid of blossom enduring much longer than is generally supposed. The idea of a Stock entertained by some people is that of a plant having a central spike without any lateral growths, which soon blooms and fades, and remains an eyesore so long as it is allowed to remain in the ground. In all good selected strains of Stocks—or perhaps I ought to say "improved" Stocks—the free-branching character is a prominent feature.

Stocks appear to be doing well generally this season—it seems to suit them. On every hand I see them growing freely and blooming finely—fine both in flower and colour. Probably showery and dull weather helped them, and now that some days of bright sunshine have come they look striking in the extreme, and especially so at Reading, where they are seen in such large patches.

I am quite sure that Stocks are too often grown on ground far too poor to do them justice, and thus a first-class strain is presented in an inferior and misleading character. The ground cannot well be too rich—deeply dug, and well manured, that the roots may have free play in it. Never mind if they appear to grow a little rank at first; the flowering time will come in due course, and a rich harvest of blossom will be reaped.

And I am sure that it is of great advantage to have a good light, free, friable loam, in which the seeds can be sown in the open ground in April, instead of under glass in March. The advantage is great; but as it is of no use sowing seeds on heavy ground in the open air, many are debarred from doing so. In sowing in the open air it is best to do it in drills, and thinly, as it will no doubt be necessary to thin out some of the plants. To do this in drills is a good plan, because if dry weather sets in, water can be given, and some mulching can be applied to fill up the drills later on. In thinning out the plants should

have ample space in which to develop, and then they are seen to the best advantage.

The Reading Stocks are remarkable for the very large percentage of double varieties among them; but this is doubtless true of all good strains grown in the present day. Careful selection has done wonders during the last twenty years in the way of improvement; the competition in the trade has made this an absolute necessity.

To prolong the beauty of Stocks cut away the decaying stems. It is not because the energies of the plants are required to perfect seeds that this course is recommended, because it is only the single varieties that produce seeds, but simply because the decaying spikes disfigure the plants. We must not anticipate the day when every Stock will be double, because there will then be no seeds to sow. Some double flowers—the Zinnia, Hollyhock, Balsam, and Dahlia, for instance—produce seeds, not so the Stock; and so a percentage of single flowers is absolutely necessary, or the fine strains now grown in gardens would become lost to cultivation. R. D.

SCOTCH NOTES.

AGAVE FILIFERA IN FLOWER AT THE INTERNATIONAL EXHIBITION, EDINBURGH.

This plant, noticed on p. 80 as belonging to Messrs. Ireland & Thomson, opened its first flowers on August 21. The scape has attained a height of about 12 feet, about 9 feet of which are covered with the opening flowers and flower-buds. There are several thousands of flowers on the spike, but it is doubtful if all will open during the brief space of warm weather that remains of the usual or ordinary northern summer. It is to be hoped some means may be devised of securing the full and successful development of the numerous flowers which are in themselves pretty enough to be decorative, if not showy. They are purple-red in colour, with a conspicuous brown-crimson bar down the centre of each division of the perianth. The ordinary public are greatly interested in the peculiar plant; it is, in fact, at the present time one of the attractions of the Exhibition.

THE CONTINUOUS HORTICULTURAL DISPLAY

in the grand hall is being well maintained by Messrs. Cocker & Sons, Aberdeen, who have a very fine collection of Roses, both H.P. and Tea varieties. As illustrative of what may be done in the cold atmosphere of the Granite City in Rose growing Messrs. Cocker may point with some pride to the splendid blooms of Merveille de Lyon, A. K. Williams, Alfred Colomb and others set up in large moss-covered circular baskets, containing about fifty flowers each. The Tea Roses exhibited by them are also remarkably good, being large well-developed flowers, with great purity of colour and full substance. They exhibit also an extensive collection of blooms of hardy herbaceous perennials, some of which were of somewhat rare occurrence in such collections. The most interesting amongst the rare forms exhibited were the pretty *Calceolaria Kellyana* and *C. plantaginea*, the bunches of which were so luxuriant in proportions as to suggest that the plants were thoroughly at home in Aberdeen.

Messrs. W. Thomson & Sons, Tweed Vineyard, have a large basket of magnificent bunches of their Duke of Buccleuch Grape, the enormous berries of which arrest the attention of visitors.

Messrs. Lamont & Son, Edinburgh, have staged in a most attractive manner, in pyramidal bunches, about fifty varieties of their seedling Dahlias—a very distinct and highly decorative display.

Messrs. Dobbie & Co., Rothesay, bring forward a very interesting display of their own specialties in Dahlias, Marigolds, African, French and Scotch; all are extra good, the Africans especially so, being large, perfect in form and colour. Carnations and Picotees were also well exhibited by this firm. But if they had talked nothing besides their samples of selected Turnips for the garden they would have conferred a favour on all vegetable growers. Messrs. Dobbie's Golden Ball Turnip is very fine, perfect in form and colour, but their new White Model is the greatest advance in white varieties that we have seen. We were less in want of improvement in yellow sorts than in white sorts. The great defect in white Turnips has always been felt to be the want of depth that characterised them, the desired globular form

attained apparently with ease among the yellow sorts appeared to be unattainable amongst the whites. The variety above named leaves nothing to be desired, being as fully globular in form as the well known Golden Ball, placed alongside of it.

Messrs. Laird & Sons, Edinburgh, made a good display of double and single and pompon Dahlias. X.

ANOTHER ORCHIS WEEVIL.

In our article upon Orchis insects, published last year, an account was given of the various species which had up to that period been observed to infest Orchidaceous plants in different parts of the world, and a figure was given of a weevil which Mr. Pascoe proposed to describe under the generic name of *Acythopus*, of which, however, we believe, that no description has hitherto been published.

In an article to be hereafter published, several species of weevils are noticed belonging to the sub-family Calandridae, which infest Cycads in South Africa and Australia, in which the peculiarities of some of the species of that sub-family of weevils are alluded to as having larvae with very humped backs, and terminal appendages to the body, and which do not form any cocoon, with the fibres of the plants on which they subsist, previous to assuming the pupa state.

We have now to record the occurrence of another

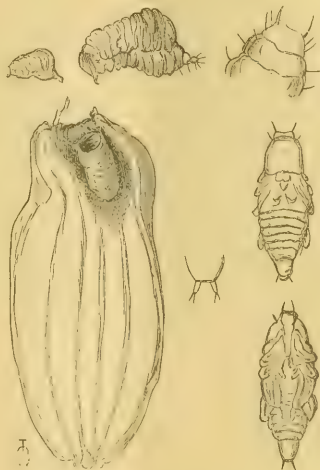


FIG. 6A.—WEEVIL IN BULBS OF CALCEOLARIA.

species of the same sub-family of weevils (*Calandridae*) destructive to the bulbs of Orchids of the genus *Ceologyne* (*C. cristata*); although we are unable to describe the perfect beetle, the specimen having died in the pupa state. The structure of the insect in both the larva and pupa condition show satisfactorily that the insect is one of the *Calandridae*, the hunched-back of the larva and the cocoon which it forms of fibres of the bulbs of the *Ceologyne*, agreeing with the same peculiarities in other species of that sub-family as stated in our preceding entomological article.

The larva, represented of the natural size and magnified, in our left-hand upper figures (fig. 6c), resembles that of *Calandra Sommeri* in its general form as figured by Burmeister (copied in our last article), except that the extremity of the body, instead of being furnished with two semi-horny porrected points, is entire and armed only with several strong bristles (see upper right-hand figure). The larva previous to assuming the pupa state forms an oval cocoon within the hard polished skin of the bulb of the *Ceologyne*, which it had previously excavated in the upper part for its food. The cocoon, which is carefully formed of fibres of the interior of the bulb, is represented at the upper part of our left-hand figure with the circular top of the cocoon removed. Within this cocoon the pupa, represented in our right-hand figures (the middle one showing the dorsal, and the bottom one the ventral surface of the pupa magnified) is deve-

loped. The rostrum is laid flat on the breast, with the two elbowed antennae knobbed at their tips at its sides, and resting in front of the anterior pair of legs, which, with the second pair, are also laid upon the breast; the wings and wing-covers are short, and scarcely visible in the dorsal view of the pupa, and the posterior pair of legs are also laid at rest in such a manner that the extremity of the tibiae are covered by that of the wing-covers, leaving the posterior pair of tarsi free. The body is terminated by a small, somewhat oval segment, having two apical setae, obtuse at the tips, each terminated by two fine bristles, represented detached in the central outline of our woodcut. I. O. W.

PINUS EDULIS.

THE NUT PINE OF COLORADO.

THE accompanying (fig. 61) is the sketch of a very old plant of *Pinus edulis*, about 40 feet high, as seen growing in Eight Mile Park, Colorado, at about 5000 feet elevation above the sea. There, as elsewhere in the same region, it occurs gregariously, but with the trees growing in very loose order upon rather dry slopes. Seen from a distance no one would suppose that it was a Pine; its short squat trunk and lurid rather leaden-coloured foliage and want of symmetry in the ramification are not familiar features of the genus, nor are the quite smooth bark and inconspicuous cones. It is, in fact, often described by travellers as resembling an Apple tree, but to realise this one must, to account for the colour, picture the Apple tree covered with "American" blight.

P. edulis is confined to the Rocky Mountains, where it extends from the latitude of Pike's Peak (39° N.), to New Mexico and Western Texas, about latitude 32° N. Throughout this range it afforded in old times one of the chief articles of food to the Indians, as its close ally, *P. fremontiana* and others did, in the "great basin" region to the west of the Rocky Mountains. It is a plant of very slow growth, yielding a white wood of a compact grain, but soft and brittle, and of which the annual rings are so very close set that it is difficult to distinguish them.

As grown at Kew *P. edulis* is an insignificant plant of thirty years' growth, and yet not 8 feet high, and younger plants show no promise of a more satisfactory future. It is often named *P. cembroides* in the older nursery catalogues, but this is a much more delicate species, whereas *P. edulis* is hardy enough. I have seen no cones formed in England.

The only use to which, as I was informed, the wood of *P. edulis* is put is for fuel, for which purpose it is said to be admirably adapted. J. D. Hooker.

COLONIAL NOTES.

NEW ZEALAND FORESTS.

PROFESSOR KIRK has presented to the New Zealand Government a valuable report on the various forest districts of New Zealand. Each district is separately reported on, as to its size, situation, products, cultivation, commerce, &c. As usual, the nuisance of popular names of vague application is illustrated. The most valuable timber tree is the Kauri, *Agathis (or Dammara) australis*, the forests of which afford "one of the grandest sights in the vegetable world. Magnificent columns, from 50 to 60 feet to the first branch, and from 4 to 8 feet in diameter, rise in rank after rank, the bold, glossy foliage being altogether unlike that of any other tree in the forest. The timber is, perhaps, the most valuable of all the Pines, combining great strength and durability with a texture at once compact and silky, often beautifully waved, 'rhoded,' or figured, and occasionally mottled." Professor Kirk calculates that, at the present rate of consumption, the Kauri forests of Auckland will be exhausted in twenty-six years, but, presuming the consumption to increase yearly, in the same proportion that it now does, Kauri will be practically worked out in fifteen years.

The greatest care in preserving and husbanding the resources of the colony in this matter is advocated, should this warning be unheeded, a large displacement of labour will result, and the prosperity of the North island will be greatly retarded. The total quantity of sawn timber exported from various districts of New Zealand is given at 28,439,013 feet, of

the total value of £141,355, in the year 1885, of which no less than 25,694,997 feet, of the total value of £127,463, was from the district of Auckland. The quantity of Kauri gum exported in the same year is given at 5875½ tons, of the value of £299,762.

We gave an illustration of the cone and foliage of this magnificent and valuable tree in our issue for October 27, 1883, p. 525, the drawing having been originally made for us from a fine tree in the Temperate-house at Kew, by the courtesy of Mrs. Dyer.

Visitors to the New Zealand courts at the Colonial Exhibition will need no further reminder of the enormous value of some of these woods, and of the necessity of a system of effective conservancy. A corresponding list of trees supplying useful bark is given. Mr. Kirk shows how much turpentine, resin, and other products, is now utterly wasted, while large importations of these products, or derivatives from them, take place. Similar waste is allowed to occur with the very valuable Kauri gum, *à propos* of which we may state a fact that has recently been brought

"Elands Bontjes," *Elephantorrhiza Burchelli*, while the "Kumara," *Ipomoea chrysorrhiza*, a New Zealand *Convolvulus*, producing edible tubers, figured by us in a former volume, is mentioned as a success here, as also at Saharunpur, in N.W. India. The insect powder plant (*Eyrethrum carneum* and *P. roseum*) have been successfully introduced.

STRAITS SETTLEMENTS.

Mr. Cantley has prepared a concise and clear report of the work of the Forest Department for the year 1885 in Singapore, Malacca, Penang, and Wellesley. Ceara rubber (*Manihot Glaziovii*), Para rubber (*Hevea brasiliensis*), and other useful plants have been introduced with fair chance of success. The more important works of the year in the three Settlements are summarised as follows:—Area demarcated, 17,455 acres. Surveyed, 8865 acres. Length of boundary opened, 61 miles, at a cost of about 62 dols. per mile, and 5 miles planted with fast-growing trees. Length of boundary kept up of pre-

who are not horticulturists are probably ignorant, that for many, possibly most, of their handsomest herbaceous plants, trees, and shrubs, they are indebted to the Agri-Horticultural Society; and that for that reason, as well as others, the Society deserves their support in both subscriptions and contributions. Observers, not scientific botanists, are now so accustomed to the great variety of vegetable life which beautifies Madras and its suburbs, and makes the gardens and roadsides interesting, that the time, labour, and money expended in their collection from every country within the tropics, and many without, escape their memories; as do the nursing and propagation by skilled hands in, and liberal distribution from, the Society's gardens. Many of the most useful and commonest plants of the hedgerow, now annually sowing themselves and reproducing their kind in spite of never-ceasing cropping and browsing by voracious goats and their hungry owners, but for the Society and its correspondents, would not have wandered here from their distant homes in other parts of India, in Africa, America, or Australia. The committee think that the past and present members of the Society may look around and congratulate themselves that their first fifty years of association have been well spent. *Annual Report.*

MARKET PLANTS.

PERHAPS at no better place can what may be called the commercial side of horticulture (as distinguished from its scientific aspect) be seen to greater advantage than at a market plant nursery. Such establishments, when on a large scale—as is the one under notice—truly cater for the million.

These thoughts are suggested by a recent inspection of a fine display at present on view, at Mr. May's nursery, Upper Edmonton, of Tree Carnations, in 48-sized pots, and in prime condition. There are in all about 20,000 plants; some are now in flower, others flowering. Taken as a whole they are about as fine a lot of plants as one would wish to find. We append names of a few of the most striking sorts:—

Miss Joliffe, pink, very free, and one of the most popular kinds, in evidence of which it may be stated that a hundred dozen flowers of it have been sold daily, good blooms, realising 1s. per dozen in the market.

Amongst pure whites, fine varieties, are Mdille, Carle and L'Herminie.

In yellows, *Andalusia*, good and useful; *Tissot's Yellow*, *Pride of Penhurst*, a real acquisition, and one of the best in this section; although strictly speaking this is not a Tree Carnation, yet it may be grown with them, and will flower freely through the winter. *Boissy*, pale yellow, fringed edges, compact and free; *Chevalier*, fine.

Amongst scarlets, one appropriately named *Lucifer* is the most popular; *A. Alcatraz* is very fine, dwarf, bushy habit, and free; *Duke of Albany*, and *Worthington Smith*.

Amongst crimsones we noted good desirable kinds in *Indian Chief*, *Negro*, *Burgundy*, *Dr. Raymond*, very fine; *Magnolia*, rose-pink; *Laura*, flesh coloured; *Jean Sisley*, a prettily mottled flower.

Ferns are a great specialty here, and grown in bewildering numbers and in all the most popular varieties. Of *Adiantum cuneatum* several houses, too feet long, are devoted to this variety alone, so great is the demand for this useful sort. *Pteris crotica*, May's variety, was seen in wonderfully good form; it is a fine variety of alba-lineata, very sturdy and compact in growth, of dwarf habit, and hardy constitution. *Davallia Griffithiana* is a very beautiful form, with dark green fronds, rhizomes stout, its long silvery-grey scales forming a pleasing contrast to the dark fronds.

Some wonderfully well coloured examples of *Crotons* were noted; the narrow-leaved section is that principally grown, being more adaptable for table work. Good varieties for this purpose are *Warreni*, *Johannis*, and *Countess*—the latter, in fact, might be aptly described as a "pillar of gold."

Of that true market plant, *Ficus elastica*, the *India-rubber*, an enormous batch is grown; cuttings struck last spring are now sturdy little bushes from a foot to 18 inches in height.

Of *Ivies*, the beautifully silver variegated and useful sort *Hedera maderensis variegata* is represented by a very fine stock—the long lines of it having an effective and attractive appearance. When dealing



FIG. 61.—PINUS EDULIS: THE NUT PINE. (SEE P. 300)

(From a drawing by Sir J. D. Hooker, in *Colorado*.)

under our notice, viz., that Kauri gum softened by heat forms probably the best material known for making models of the mouth for dentists' purposes.

ADELAIDE.

The annual report of Dr. Schomburgk is as usual full of indications of the well-directed zeal and energy of the Director. Much of the contents of the report are of course of local value only, and concern plants, many of which are pretty well known in Europe, though only lately introduced into South Australia.

From this report for 1885 we learn that during that year the rainfall was no more than 15.8 inches, or 5.2 inches below the average of forty years. The heat in the driest months—November, January—was abnormally great, the maximum in the sun being 173°, and in the shade, 113°. Such a temperature after a drought of three months duration was very injurious to vegetation, so much so that the Wheat crop was a total failure, the average yield not having been more than three bushels to the acre. In May and June a slight frost (2° or 3°) occurred. The Cheesemaker (*Withania coagulans*) promises to be a success, as also

vious year's demarcation, 46 miles. Area protected, 22,753 acres, being about an average of 1202 per watchman employed. Buildings erected, seven, being four permanent and three temporary. Area planted, 59 acres; weeded, 64 acres. Weeding and planting taken together cost about 13 dols. per acre. Number of plants propagated, 180,000, at an average cost of 9 dols. per 1000. Number of specimens for Colonial and Indian Exhibition, 271. Number of herbarium specimens collected, 4389. Seeds collected, 300 lb. Received from India, 86 lb. Number of prosecutions for illicit tree-cutting, twenty-three. Number of convictions obtained, fifteen. Area added to nurseries, 9 acres.

AGRI-HORTICULTURAL SOCIETY OF MADRAS.

The year just concluded was the Jubilee of the Society, it having begun its work on July 15, 1835, and nobody familiar with the Society's gardens and their very great wealth in exotic plants collected from every quarter of the globe, would suggest that the half century has been spent in sloth. Horticulturists in Madras are apt to forget, and those

with the flowers, mention was omitted to be made of these good varieties of Bouvardias, viz., *Humboldtii*, *corymbiflora*, *calycidissim* and *ja-miniflora*. Of the first-named sort, which is the largest white, a house 100 feet long is devoted to its culture; as most of the plants are now in bloom, the effect produced on the visitor is, as may be imagined, in the nature of a surprise.

The perfume emitted from such an assemblage of sweet smelling subjects is almost overpowering.

A concluding note to this necessarily hasty and inadequate sketch may be found in recording that the old double white *Camellia-alba plena*—is represented by some sturdy specimens now in flower, some of the individual blooms giving the idea of snowballs, so fine are they. *Azalea Fielder's White* is another good thing. It is the only variety grown, and indeed it would be difficult to beat for market purposes. *B.*

FORESTRY.

PREPARATORY TO PLANTING.

FIRST of all we would seriously urge that as the time is fast approaching when planting operations will demand attention, all work necessary for the preparation of the ground be forwarded as quickly as possible, including fencing, draining, removal of scrub, holing or pitting, and trenching. The first requisite to successful planting is a fence impervious to farm stock generally—cattle, horses, and sheep; and this, according to circumstances, locally considered, may either be formed of stones, continuous iron and wire fencing, or the more commonly adopted estate fence of wood and wire. Where mountain sheep abound have the fence, at any cost, made sufficiently high to prevent their inroads; for once an entrance is effected, the better grass and greater amount of shelter afforded by a wood or high-lying plantations are such enticements that to put a stop to their inroads is a task of no small trouble. The advantages of early pitting are of great importance, the soil thrown out being ameliorated by exposure, and consequently well fitted for placing next the roots of the young tree when planted out. Form the pits, if for plants of ordinary size—say 12 inches to 24 inches high at 4 feet apart, the size of each being 16 inches diameter by 12 inches deep, the bottom and sides being well loosened with a pick. Previous to pitting, all rough herbage should be cleared from the ground and burned, and drains formed to carry off stagnant water where it is found.

THINNING.

Overgrown plantations of small size may now be thinned, this operation being performed in a manner suited to the exposure, and should in every case be lightest upon the margins which are in the direction of the prevailing winds. Where the plantations are not of importance as game coverts, the trees may be allowed to stand thicker than usual, indeed by the preservation of a leafy canopy, the size and thickness of poles is equalised in a very marked degree.

THINNING SOFT-WOOD PLANTATIONS.

We are at present thinning a 90-acre plantation of mixed Larch and Scotch Fir and a few Douglas Spruces, of twenty-five years' planting. The soil is good, a free sandy loam, but the exposure and elevation are rather against the production of good timber, the lower portion of the wood being 700 feet and the upper fully 1000 feet above the sea-level, while being situated on the flank of one of the Snowdon spurs, the south-west winds tell somewhat severely, more particularly at the higher elevations.

No thinning has taken place for upwards of ten years, and the poles, of fully 9 yards in length, are clean, and as straight as a gun-barrel, and destitute of live branches for three-fourths their height. Had the wood been regularly thinned, and the trees allowed to branch to the ground the poles would certainly not have commanded the same price as by the course of management they have undergone. Unless in the case of small plantations, it is good policy to finish up a portion of the woodland, so that game driven from the other parts may find a shelter where they will not be further disturbed. For this purpose, we would suggest that all timber, poles, firewood, and

branches if they are required, be conveyed to the clearance roads, or, better still, where such is convenient, to pasture fields or alongside roads contiguous to the plantations. This will allow the portions thinned to be not again entered and so do away with the chances of game disturbing, which, as most foresters know, is an unpardonable fault in the eyes of the keepers of such.

PLANTING EVERGREENS.

These may now be transplanted with a great amount of success, especially when dull, dampish weather is chosen for the operation.

For renovating shrubberies, planting up thin woodlands, or thickening game coverts this is a capital time, and such work will be well over before general forest planting commences. Dig the holes intended for the reception of those of a large size, say, a couple of feet in diameter by 18 inches in depth, and do not plant too thickly, but at such a distance that the outer branches will be quite free from each other. Frequently in the formation of game coverts, and where immediate effect is desirable, we plant doubly thick, and when the plants, in two years or so afterwards, begin to encroach on each other every alternate one is removed. Box, Laurel, and *Laurostunus* suit this method of management well. A great mistake is frequently made both in planting evergreens for ornament and covert for game by over-doing the work, that is, by planting the various clumps in too close proximity. Game, particularly pheasants and rabbits, detest such, but enjoy free open spaces between the clumps, and for this reason, as well as the more ornamental appearance imparted to the woodlands by nicely laid out, irregularly shaped masses, it behoves the planter to use a little timely discretion in the laying out and planting of such. *A. D. Webster, Penrhyn Castle.*

BELLADONNA AND GUERNSEY LILIES.

THESE two names, given respectively to two beautiful flowering bulbs, I have reason to know are considered by some amateurs to belong to one and the same plant. Growers know that, though much alike in habit of growth, the actual blooms differ greatly. Why either is called a Lily it is difficult to understand, as both belong to the natural order *Amaryllidaceae*, and are not akin to *Lilium* proper. Nor are they intimately related to each other, botanists having chosen to name the former *Amaryllis*, and the latter *Nerine*. The former is an African bulb from that part of the world so rich in bulbs—the Cape of Good Hope; and the latter is a Japanese plant, though named *Nerine sarniensis*, and supposed by many to be indigenous, or to belong to Guernsey. It would be interesting therefore to know how this name originated, and along with it the facts of its origin. The Guernsey Lily is the more showy of the two, though, like the genus it belongs to, the petals are sparsely arranged and narrow, with the pistil and stamens projecting greatly, in a similar manner to the smaller-flowered *Nerines*.

The flowers of the *Belladonna Lily*, borne upon stout, upright stalks, are more compact and numerous, and have a white groundwork flushed with dark rose around and at the margins of the flower; the colour of the Guernsey Lily is, on the contrary, of a crimson-scarlet. There are further peculiarities to be noted in regard to each. Unlike most other bulbous plants of apparent similitude, they appear to rest during our summer season, push forth their bloom-spikes by the advent of September, and subsequently make leaf growth, the Guernsey Lily being the first to show leaf activity. For this reason dry bulbs of both are only offered at the autumn season of the year, these being probably introduced from Guernsey, the climate of which island seems to be suited to their wants. Such bulbs when purchased rarely seem to do well after the first year or so. Experience shows that success is possible with them, nevertheless, under suitable treatment, the bulbs require uniformity of moisture, and hence do far better in borders than in pots. The only position suitable for them out-of-doors in this country is at the foot of a wall having a warm aspect; better still, the front border outside a hothouse which has a flue for heating, the flue imparting some warmth to the earth in its vicinity. In other words, what is really required is an inducement

for the bulbs to make an earlier start into flower and growth than is furnished by the warmth of the ordinary garden borders. This being the season when fresh imported bulbs are purchased, they should be potted as soon as received, and watered freely, for notwithstanding the bulbs are devoid of roots, they, unlike some other kinds, do not suffer from excess of moisture. *William Earley.*

The Apiary.

GENERAL DIRECTIONS.

THE lazy bees I spoke of in my last article are working harder and harder. I have still further improved their circumstances by taking a weak stock of bees which could hardly have got through the winter unassisted, and added them to these now industrious bees. And this remark will hold good at all times, that next to keeping the bees dry in winter the "best packing for bees is bees." I forget who made that remark, but it is sound and good, as I have proved. Therefore take care that you have plenty of bees in all hives which are going to remain, and also have a laying queen. If anything has happened to the queen of a hive, or if you are not satisfied with the reigning queen, do away with her, and then add the remaining bees to a hive that has a small population. It is as well also, while you are doing all these things, to have an eye to the future. From various experiments I have made I think that reversing hives or frames (which is the same thing) is a good thing under certain conditions, and if done at the right time. I know this is a disputed point, and if you do not think it prudent to go through with the whole lot, try one or two hives. I will describe briefly what I am doing.

At this season I have plenty of empty combs which have been relieved of their contents by the extractor. I cut these combs clean out of the frames, and fit them into my reversible frames, and then mix two or three lots of driven bees together and put them into a hive thus fitted up—the queens to fight it out in the usual manner. Then feed up quickly for winter, but do not give them more syrup than they can comfortably seal up, as unsealed syrup must never be allowed in winter. To save correspondence these frames are to be obtained at Messrs. Edey & Son's, St. Neot's, Hunts, at a reasonable rate and soundly made. Then leave all alone till spring. At the usual time (*i.e.*, about the middle or end of March, according to the weather) examine the hive and see if food is required. If it is not, close the hive again till swarming time, but if the bees are short of food gently feed till honey is coming in. When the bees are about to swarm reverse the frames, and put on supers. If done as I have explained there will be a general stampede to the supers, and the honey at the bottom of the hive will be hastily carried to the top, and the queen will have more room to lay. This will prevent any hanging out and consequent laziness at swarming time. I fancy I hear some one say, "Why did you not do that with the lazy bees?" The answer is, that the hive did not contain the reversible frames. *Walter Chitty, Fenney.*

The Flower Garden.

CARNATIONS, &c.

CUT the old blooms off Carnations as soon as their beauty is over. Young plants of these and Pinks which are sufficiently rooted may now be planted permanently in the beds or situations it is intended they should occupy, or, if this is impracticable, they may be transferred to nursery lines, taking care not to overcrowd them, but to allow sufficient space between each that a large ball may be secured to each plant when they are again transplanted. They may also be potted into 3 or 4-inch pots, and the pots plunged out-of-doors.

ROSES.

Those stocks which have been budded should be examined to see if the buds have taken. Those that

have united should have the ties removed and the shoots shortened back to throw the full strength into the buds. *Maréchal Niel* succeeds well budded on *Gloire de Dijon*. Roses which are associated with shrubs and herbaceous plants are in constant danger of being robbed of their due share of moisture at the roots. Unless special attention be bestowed upon plants in such positions, to secure them an ample supply of manure-water, the wood for next season's flowering will be in anything but a satisfactory state. Do not allow mildew to obtain a footing, but as soon as it is discovered take steps to subdue it.

BIRNIALS.

Get Wallflowers, Sweet Williams, Rockets, Brompton and other Stocks, &c., transferred to their permanent quarters with all haste. The long nights are now more favourable for these subjects obtaining a hold. Where Foxgloves are grown in borders a quantity of young seedlings will be distributed around. Instead of destroying those, let any bare place in shrubbery or woods be forked up and the seedlings transplanted. They will be very ornamental when in flower if grown in large masses together; thus unattractive spots may be made beautiful by a little labour. *William M. Baillie, Lu'on Hoo Gardens.*

THE ORCHID HOUSES.

POTTING CATTLEYS AND LÆLIAS.

EXPERIENCED growers require no teaching how best to pot, but a few hints to beginners may be useful. Turning Orchids out to report them should always teach the operator a lesson, especially when many of the plants have been bought in, and may have been potted by different people in various ways. Many of the Cattleys will grow very well on a block or raft, if in a humid atmosphere during their growing season, but there is a wide difference between growing a plant on a bare raft or block, and then taking it off and potting it in 3 to 6 inches of peat and sphagnum. If the peat be good I consider this a great waste. Those who have grown plants other than Orchids may have an idea that plenty of good peat, &c., about the roots would be the means of helping Cattleys to make fine pseudobulbs, but I have never found this to be the case. I have also made experiments with different manures for Cattleys and a few other epiphytal Orchids, mixed with the compost for potting, and sometimes laid on the drainage, but I have never gained anything by it. Some manures will soon make everything in the pots in such a state, that no roots can live; and I would say to those who are guided more by advice given, than by practical experience, that when they see measurements given of pseudobulbs and leaves of which the plants have been fed with manure, to first measure their own plants, and if these are found to be not far behind to let well alone. I think the safest manure for all epiphytal Orchids is from evaporation by damping a bed of Oak leaves in the evening with manure-water, then the aerial roots can take in quite as much as will be good for the plants.

Returning to my remarks on potting, our system is very simple. We free the roots of the old potting material, cut away all dead ones, then take the new pot; before putting in any drainage, place the plants over the pot a little above the rim, holding a stake and one of the bulbs in one hand & the stake should rest on the bottom of the pot. Having ascertained the height, take the plant and stake out together; secure the latter firmly to the bulb with two ties, adding one or two more stakes if necessary; again set the plant over the pot, letting the stakes rest on the bottom of the pot; then commence putting in the drainage—this should be new crocks—placing them carefully round the roots, at the same time fixing the stakes; fill the pot to the top with crocks, and then pack a thin layer of good fibrous peat and sphagnum over the top; damp the surface and outside of the pot, and if the weather be dry keep the moss fresh by damping. Potted in this way the plants keep their roots better through the winter, and there is less danger of over-watering. It is very important that new potted Cattleys and Lælias should be well secured with stakes, for if they get disturbed just as the roots are starting the plants will suffer. Large specimens do not require so much fixing. *C. Woolford, Downside House, Leatherhead.*

THE BULB GARDEN.

EARLY FLOWERING GLADIOLI.

Few plants possess greater merit than do the varieties of the particular forms of *Gladiolus* known popularly as the early flowering. Unfortunately it is not too well known—especially amongst amateur growers—that they are hardy and able to withstand severe winters in the open border. They will grow readily in ordinary soils, increasing freely, and will, if left undisturbed, push forth each spring in greater quantity, blooming as early as the months of June and July. Doubtless the older communis and Byzantine, or Turkish variety are known to many a cottage garden, having been introduced almost concurrently with the seventeenth century. It is not to these species, nor even the later cardinalis (a beautiful form), I wish more particularly to refer, but to the several modern introductions, which, independently of the above merits, possess such beautiful combinations of colour. First, however, I would refer to the lovely white-flowered form—*Colvilli alba* (The Bride), which has such dwarf habit and great freedom of flowering as to make it indispensable in every garden. In the original species, or *Gladiolus Colvilli*, we have a lovely striped flower, consisting of white stripes upon a variously shaded rosy-purple ground. More recent improvements consist of a white flower with crimson blotch, *Delicatissima*; *Mary Anderson*, bluish-white, carmine-red blotched and lemon colour; *Premier*, vermilion-scarlet with white blotches; *Duke of Albany*, dark scarlet with purplish blotches; *Prince Albert*, shaded salmon, with distinct white blotches on inner petals; *Rosy Gem*, shaded rose, each petal having a white blotch surrounded with crimson. I would also note an improved form of the old *Racemosus*, named *Ne Plus Ultra*, of deeper colour than the original, being instead of rosy-pink a pleasing red, flaked, as in the original species, with white.

Beyond the merits claimed for these early flowering *Gladioli*, they are useful grown in pots for spring decoration of the conservatory. Potted soon after the New Year, and placed on shelves exposed to full light, they attain to sufficient vigour to admit of a slight amount of forcing if necessary, though they will bloom in April and May under greenhouse treatment. The corms are small compared to those of *Gandavensis*, so that some half dozen in a 32-sized pot will have ample room to develop their growth. The white-flowered variety of *G. Colvilli*, commonly known as *The Bride*, is extensively grown for market purposes, being in good demand by bouquet makers; indeed, wherever cut flowers are used the chaste spikes of this variety are duly appreciated. Species that have been in the ground constantly, commence growing each spring, in accordance with the warmth of the weather. Purchasers will, however, do well to plant new corms between the end of October and December. A sound sandy loam, enriched with decayed manure, forms the best compost for them. *William Earley.*

RATE OF INCREASE OF NARCISSUS BULBOCODIUM.

Five years ago I planted half-a-dozen bulbs of this *Narcissus* in a well-prepared rather dry and shady bed. Last week they were lifted, and had increased to 119, being an average increase for each bulb of four per annum. The *Tenby Dafodil* (*N. ovalaris*), in the same bed, but in a moister part, has increased at the same rate. *A. D. W.*

PLANTS AND THEIR CULTURE.

CHRYSANTHEMUMS.

LAYERING the shoots of planted-out specimens should be attended to at once. Place some open rich soil in mounds around the plants at some distance away from the stool, as in *Carnation* layering, then strip the leaves off at the place it is intended to layer the shoots, which should be a little below where the flowering laterals branch out; tangle the shoots—that is, split them up longitudinally for about 2 inches, then, bending them downwards, bury the tongue part for about 8 inches in the hill of soil, making secure with stout hooked pegs. Keep the soil regularly watered, and in a few weeks the layered shoots

will have formed a quantity of roots, when they may be severed from the parent plants, and potted. In this way a large quantity of blooms can be obtained from plants of small size. Plants in pots should receive their finalizing, using sufficient stakes to keep them from being broken by the wind, and as soon as the flowers are set thin out the shoots, as it is a mistake to crowd the lateral flowering shoots even for ordinary decorative purposes, as the size of the bloom is much reduced by so doing. Give plenty of manure-water to these plants, as they will take it in stronger doses than most others.

CINERARIAS, CALCEOLARIAS, LILIIUM, &c.

Cinerarias, to come in early, should now be pushed on by being shifted into larger pots, using light rich soil. The best compost for them is made with good fibrous loam, leaf-mould, and dry cow manure, using a liberal addition of sand. Place them in a shady pit on a cool bottom, and syringe them once or twice a day, according to the weather, to keep them free from red-spider, to which pest the plants are much subject at this season of the year. Herbaceous *Calceolarias* should now be in a sufficiently forward state to be pricked out into pans or boxes, or to be potted off singly into small pots; the situation and treatment may be similar to those employed for the *Cineraria*, but in the potting material less manure should be used at starting. Syringe freely overhead, and keep close for a time. *Liliums* of the lancifolium section, and other late-blooming species, which will now be in full beauty, should be liberally treated with manure-water at every watering. The earliest blooming sorts, viz., *L. auratum* and *longiflorum*, should be placed out-of-doors as the plants go out of flower, and be careful not to dry them off too quickly, and, on the other hand, not to over-water them, as there are more bulbs killed in this way than in any other. Other late bulbous plants in bloom should be liberally treated. *A. Evans, Lythe Hill, Haslemere.*

FRUITS UNDER GLASS.

PINES.

FRUITING plants should be given a day temperature of 75°, running it up 10° higher with sun-heat, and plenty of air. Maintain a night temperature of 70°, and damp the floors, walls, and plunging material morning and afternoon at closing time, to promote a genial atmosphere.

Examine the plants every week or ten days to ascertain their condition at the roots, and when dry give sufficient tepid liquid-manure in an under rather than over strong state, to thoroughly moisten the soil, afterwards allowing it to become moderately dry before repeating the application—over-watering being an evil to be avoided in most cases, but particularly so in Pine culture.

SUCCESSIONAL PLANTS.

These will now, or ought soon, to have completed their growth; they should then be subjected to a lower temperature, and a drier and more airy atmosphere, so as to prevent the plants from making further growth, and to consolidate that already made, as well as to give the plants a period of inactivity before subjecting to a higher temperature towards the end of the present year, with a view to inducing the plants to send up their fruit. During the interval water must be applied both at the roots and in the house or houses containing the plants with judgment and care. The night temperature for these plants should range from 60° to 65° during the next four or five weeks, and 5° to 10° higher by day should be aimed at. Young sucker plants should be kept in a growing state for another month or six weeks. A1 shading should now be dispensed with, and be put away dry and out of the way for use another year.

VINES AND VINERIES.

These should have a free circulation of fresh air allowed them day and night, and in order to prevent birds from getting at the Grapes a piece of garden netting should be put over the ventilators. See that the Vines in every stage of growth have liberal supplies of water at the roots when necessary, and that the floors and the surface of internal borders of houses containing Grapes are damped over slightly two or three times a day during bright sunny weather, and that the Vines from which the fruit has been taken are thoroughly syringed overhead every afternoon, so as to prevent the spread, if not the attacks, of red-spider on the foliage. *H. W. Ward, Longford Castle.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Sept. 6	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
		Sale of Greenhouse Plants, at Parkside, Ewell, by Protheroe & Morris.
TUESDAY,	Sept. 7	Sale of Bulbs from Holland, at Stevens' Rooms.
		Royal Horticultural Society: Meetings of the Fruit and Floral Committees, at 11 A.M.; and Show of Grapes, Dahlias, &c. (two days).
WEDNESDAY,	Sept. 8	Sale of Greenhouse Plants, at the Queen's Road Nursery, Buckhurst Hill, by Protheroe & Morris.
		Sale of M. August van Geert's Orchids, by M. Jules de Cock, Ghent (two days).
THURSDAY,	Sept. 9	Glasgow and West of Scotland Show.
		Sale of Stove and Greenhouse Plants, at the Nursery, Beaufort Street, Chelsea, by Protheroe & Morris.
FRIDAY,	Sept. 10	Sale of Dutch Bulbs from Holland, at Stevens' Rooms.
		National Chrysanthemum Society's Show of early Chrysanthemums, Dahlias, &c., at the Royal Aquarium (two days).
SATURDAY,	Sept. 11	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
		Sale of Dutch Bulbs at Stevens' Rooms.

SOME of the most interesting and important investigations of late years have been those relating to the various FUNGI to be found in the ROOTS of PLANTS of all kinds, and not the least curious of the results is, that some of these root fungi appear to be constant and possibly harmless, or even (as it is said) advantageous guests in or on the tissues of their underground shoots. In other cases it is true the roots would obviously thrive better without their unbidden intruders, as, for instance, those attacked by the parasitic fungus (*Plasmodiophora brassicae*), which causes such havoc in "clubbing" or distorting the roots of Cabbages and other Cruciferae; or the devastating mycelium of *Agaricus melleus* so destructive to the roots of the Coniferae and other forest trees.

Nevertheless, to say nothing of the recent startling announcements as to fungi acting in beneficial concord with roots, it has long been known that certain swellings on the roots of Alders, and of various Papilionaceae and Orchids, are constantly met with, and appear to do no extensive damage. How far the plants named would be benefited by the removal of the parasites from their roots has never been clearly shown.

An important contribution to our knowledge of the FUNGI infesting the ROOTS of ORCHIDS has just been made by WAHRlich of Moscow.* Working in the world-famed laboratory at Strasburg, WAHRlich has examined more than 500 species of Orchids, native and exotic, and finds the fungi in all of them. These root-fungi have been known in Orchids since SCHLEIDEN first examined them, and many of the best observers (e.g., SCHACHT, REINKE, EIDAM, &c.) have confirmed the fact of their universal occurrence, and more or less thoroughly described the mycelia and spores. WAHRlich has, however, cleared up several obscure points, and has now given a fairly complete account of the life-history.

Only certain parts of the roots of the Orchids are infected with the fungus, and these places are usually yellowish in colour, due to the spawn or to the degradation of chlorophyll corpuscles (in aerial roots); the vascular bundles are not attacked, the fungus being confined to the outer cells (velum) and the parenchyma.

Sections through the infected spot show brown dead or dying threads in the outer cells, continuous with colourless living threads, which branch and pierce through the walls from cell to cell. A curious feature exists in the yellow clumps found in certain cells of the root. These are relatively large, simple, or branched bodies, long thought to be masses of mucilage, or, at least, cell-contents belonging to the Orchid itself; they are strongly refractive, irregular in shape, and are connected with the threads of the fungus. WAHRlich has

not only satisfied himself that these clumps are not normal cell-contents of the root, but that they have a structure and relations which show them to be of the nature of large suckers, or absorbing organs. They only occur in the parts attacked by the spawn, and are continuous with the threads; more than this, the older ones are composed of a tangle or coils of threads, enclosing a sort of sac (the haustorium or sucker). This sac may branch and become connected with others; threads may also spring from it and pass into other cells. The above fungus, spreading from cell to cell by means of its spawn, which forms the haustoria-like sacs with their tangles of threads around them, produce spores. Sections of infected root were placed in diluted Grape juice, and the spawn allowed to grow out from the tissues. The threads often grow together where in contact, and they produce spores or conidia at their tips; these conidia are delicate, colourless, sausage-shaped bodies, with two or three partitions across them, and resemble the conidia of a *Fusisporium*. After forming one of them the tip of the thread goes on growing, and forms another, which falls off, as before, and is succeeded by others, and so on.

After producing large numbers of these *Fusisporium*-like conidia, the same spawn commences to form larger spores (megaspores) of different shape and colour. These also are formed at the tip of the thread, but whereas the delicate hyaline, sausage-shaped *Fusisporium*-like conidium is at first one-celled and becomes divided into chambers later, these larger brown megaspores (which have strong membranes and contain much fat) are formed, as it were, by the end of the thread becoming successively segmented into two, three, or more compartments, which then swell and ripen. The megaspores appear to be resting-spores.

The *Fusisporium*-like conidia germinate very readily—even in a few hours. If placed in a nutritive solution they form a copious spawn, which soon forms both kinds of spores as before, and the branches of the spawn often conjugate. These processes have been observed in the fungi from several different Orchids.

Pieces of infected root were carefully washed and kept in damp chambers. In a week or so the spawn came out to the surface, and developed spores as above. After about a month the spawn produced capsules or perithecia of a bright red colour, shaped like an egg or Pear. In these perithecia were developed spores of asci, each containing a number of two-celled ascospores. Slight differences were observed in the sizes and shapes of the perithecia and spores obtained from the roots of different species of Orchids, but these are not important.

The ascospores were sown separately, and produced spawn on which the same *Fusisporium*-like conidia and megaspores became developed as above described.

Infection experiments have so far failed. Neither the *Fusisporium*-like conidia nor the ascospores have yielded satisfactory results, their spawn in no case penetrating into the young roots used. The megaspores may possibly yield better results; the author says nothing of this, however. Obviously, there is here a task for investigators, for if WAHRlich's view is correct (that the megaspores are resting-spores), it will be important to ascertain how they behave on germination.

In conclusion, it appears probable that more than one form of fungus is parasitic in the roots of Orchids, but the differences, so far, only point to their being members of one group, probably species of one genus.

The above fungus is obviously a pyrenomyces. The red capsules or perithecia, sometimes grouped in threes or fours, and on a reddish-brown stroma; the asci, each contain-

ing eight spores, which are elliptical, two-celled, and slightly constricted in the centre; these, and other peculiarities, suggest their being species of *Nectria*, and WAHRlich therefore characterises two species—*N. Vandae* and *N. Goroshankiniana*. What relation, if any, these fungi have to *Orchid* "spots" of various kinds remains to be determined.

OLEARIA MACRODONTA.*—According to the estimate of the authors of the *Genera Plantarum* there are eighty-five species of the genus *Olearia*, of which some sixty-three are Australian, and the rest natives of New Zealand or the adjacent islands. The species here figured (fig. 62) is, as pointed out in the synonymy given below, a native of New Zealand, and must not be confounded with the Australian *O. dentata*, a widely different plant, with much handsomer flower-heads. In all probability the last-named plant is not nearly so hardy as the one here figured, which has been comparatively recently introduced to this country by Messrs. VEITCH. As far as foliage is concerned, it is superior to the Australian plant above mentioned, and the following copy of a collector's note gives a good idea of the appearance of the tree at home:—"Grows to a large-trunked tree, 20 feet high, 30 inches in diameter for 3 feet, then dividing into three or four branches 10 to 12 inches in diameter. It forms a flat round head, all white when in flower. The wood makes rather fairish veneers with yellow streaks." The foliage, in common with that of several other species, has a distinctly musky smell, which in *O. argophylla* is much more decided in a dry state than when fresh. Like the plant just named, *O. macrodonta* will no doubt thrive well in the South-western Counties, the Channel Islands, &c., and form a beautiful tree in the open without any protection during winter. *O. Haastii*, from New Zealand, is perfectly hardy about London, and is one of the very best of flowering shrubs. Whether *O. macrodonta* will prove as hardy as *O. Haastii* or not remains to be seen. The specimen figured came to us from Mr. W. E. GUMBLETON, who describes it as "perfectly hardy, a most profuse blooming and exceedingly ornamental shrub." It is also hardy at Combe Wood.

"THE FLORA OF BRITISH INDIA."—We are glad to announce the publication of the thirteenth part of this very useful work. The present part is entirely the work of the editor, Sir JOSEPH HOOKER, and comprises the Chenopods, Polygonads, Aristolochiads, Nephenthes, Pipers, Laurels, Loranthas, and other orders. The Piperaceae must have caused much labour, and we may add worry. Many of these plants cannot be satisfactorily studied in a dried state, but need to be investigated in every stage of growth by resident botanists. The summary here given will, however, be of the greatest service to them, and botanists generally will congratulate Sir JOSEPH on the steady progress of this important work. The Euphorbiaceae which come next would present errors to many less experienced botanists, but will not affright Sir JOSEPH HOOKER.

BERRERIS ASIATICA AS A HEDGE PLANT.—Those who wish for a quick growing, easily managed, and impenetrable hedge, should see the one at Combe Wood, formed of this plant. We do not know what the stock may be, but no doubt it is easily propagated, and if so, is well worth the attention of hedge planters.

Kew.—The Nymphaea-house is full of beauty at this season, many plants in the tank being in bloom, viz., *Nymphaea odorata*, and the lovely rose-coloured variety, *N. Lotus*, with white flowers; *N. L. Ortigiesiana*, rose-coloured; *N. gigantea*: the delicate blue flowers of which are larger than in other species, the petals longer in proportion to the stamens than in most species, and, what we have not observed in any other species, they are slightly recurved; *N. stellata*, with blue flowers; *N. Lotus pubescens*, with rosy-pink flowers; *Nymphaea zanzibarensis*, a form of *stellata*, is remarkable for its rich blueish-purple flowers. *Limnorchis Humboldtii* was showing many of its yellow flowers

* Baker, in the *Gardeners' Chronicle*, n.s., xxi., 604; *O. dentata*, Hook. fil., *Handbook of New Zealand Flora* (not of Menzies).

in this tank. In a corner bed *Sagittaria montensis* has thrown up strong flower-stalks, 4 to 5 feet high, terminated with spikes of white flowers, three-petalled, spotted with brown at the base of each petal. The singular *Cucurbit*, *Trichosanthes anguina*, loaded with fruits, many of which have acquired the brilliant scarlet colour of the ripe stage, cover large portions of the roof. Another plant seldom seen doing well in private collections is *Pteroma macrantha*, which is here

beds of Hollyhocks, Sunflowers, Delphiniums, Japan Anemones, and other striking plants, each in a bed to itself. In the formal style of gardening which prevails, not inappropriately in the vicinity of the Monumental Palm-house, these beds have an excellent effect, and enable the visitor to note the general character of the plants to advantage.

— JAPANESE MAPLES.—A slope of the Combe

slight precaution, and that when ripe the Plums are very juicy, with a pleasant brisk flavour which should render it acceptable, especially for cooking purposes. It is rarely that we get such a combination of good qualities in a single tree.

— WHY IS IT SO?—Here is a curious fact for those interested in the peculiarities of plants. Here are two yellow-flowered annual German Stocks; one is called sulphur-yellow, the other canary-yellow. In



FIG. 62.—OLEARIA (EURYBIA) MACRODONTA: HARDY SHRUB: FLOWERS WHITE. (SEE P. 304.)

planted out in a bed in the vestibule to the Nymphaea-house, the lovely dark purplish-blue flowers, which were fairly numerous, measured 3 inches in diameter, and the foliage was correspondingly robust. *Sesbania aculeata* is remarkable for the white corky development of the roots, which must enable them to float the more readily on the surface. Whether or no, the larger roots float on the surface, and give off very regularly at right angles a dense mass of smaller fibrils. We have already had occasion to notice the flower-beds, but we may add to the record a note of those surrounding the Palm-house, where, backed up by the Yew hedge, are

Wood Nurseries affords now a beautiful spectacle in the shape of a plantation of these shrubs, as remarkable for the elegance as for the brilliant colouring of their foliage. *Acer japonicum* var. *sanguineum* is particularly brilliant just now. Has any one tried grafting these as standards? They would form a splendid contrast to the *A. Negundo* variegatum.

— PRUNUS PISSARDI.—We have received from Mr. FOSTER, of the Stanmore Nurseries, further specimens of the fruit of this tree, to show the profusion with which it is produced, and its handsome appearance. We may add that it travels well with

general characteristics these two greatly resemble each other, and there is not much difference in the colour of the flowers; one is a shade—only a shade—darker than the other; but the single flowers of the first are uniformly of the same colour as the double flowers, but in the case of the latter they are always pure white, and these white flowers do not produce white-flowered double Stocks, but canary-coloured ones, except such as are single, and these are white.

— SMITH'S EPICUREAN PEA.—This variety, according to the account sent to us by the raiser, has the property of bearing twice in the season, more or

less according to the weather. The first crop, in the case of the sample sent to us, was plucked about the middle of the month of July; the second crop comes, if the weather be favourable, in the form of a bunch or cluster of pods close to the ground. We must suppose by favourable weather is meant considerable moisture with much heat; for unless these conditions are present the second crop may be looked for in vain. The raiser states that at the best the second crop produces only short pods, but these fill well if the weather be sunny. The seeds are wrinkled, large, and of a fairly sweet taste; and the haulm reaches the height of 3 feet.

— JAPANESE BERBERIS.—At Combe Wood may be seen just now specimens of Berberis received from Japan, and quite like our European B. vulgaris, but with rather larger berries, a little broader at the free end. The distinctions are not sufficient to constitute a species, and it is interesting to see how very widely the common Berberis is spread over the world. How or why is this? A nice question for geologists, geographers, physiologists, and botanists.

— ROYAL NORTHERN HORTICULTURAL SOCIETY OF ABERDEEN.—The autumn exhibition of this Society will be held in the Music Hall Buildings, Aberdeen, on Friday and Saturday, September 10 and 11. There are 165 classes, with three awards in each, making 500 prizes for competition. These classes are divided into four divisions—professional gardeners, nurserymen, amateurs, and working-classes. The exhibits will comprise four varieties, namely, pot plants, cut flowers, fruit, and vegetables. The opening ceremony will take place on Friday at noon, when Lord Provost MATTHEWS will preside. Entries close on September 6. Notwithstanding the backward state of the season it is fully expected there will be a large number of exhibits.

— BANANAS HARDY IN SURREY!—If any one should doubt the fact let him betake himself to Combe Wood, and there he will find a Japanese form, introduced by MARIES, which has stood out two or three winters.

— CARPENTERIA CALIFORNICA is now in bloom against a wall at Kew. Though so like a Philadelphia in flower, the leaves are more like those of Forsythia.

— THE GUERNSEY AND JERSEY FRUIT AND PRODUCE COMPANY, LIMITED.—The above company has recently brought out its prospectus together with the first issue of its shares. The company, which was established in February last, has now about 50,000 square feet of glass, and further buildings are rapidly being proceeded with. As nearly the whole of the company's capital is being invested in valuable freehold land in Guernsey, the property will increase in value with the growth of the Vines and lapse of time. It is worthy of mention, that two other local companies have paid their shareholders annual dividends of from 12 to 20 per cent., and it may be mentioned that from one house alone the returns for a week amounted to over a quarter of a ton of Tomatoes, the good quality of which at the present time we can guarantee from observation.

— THE MARKET GARDENERS', NURSERYMEN'S, AND FARMERS' ASSOCIATION held their annual dinner at the Holborn Restaurant on Thursday, August 26, Mr. W. FOUPART, President of the Association, presiding. Mr. W. FOUPART proposed the toast of the evening, viz., "The Market Gardeners', Nurserymen's, and Farmers' Association," an Association formed in the year 1828 by a few of the growers attending the London markets, with the object of promoting the interests of its members. The President drew attention to the numerous benefits the trade had from time to time derived from the Association, and to the necessity there is in the present state of depression and competition that the Association should be well supported, in order to be ready at all times to protect the trade.

— CYCLAMEN REPANDUM.—A little patch of these is now in bloom amid the turf on the mound near No. 1 Museum at Kew, where experiments have been made for the last few years for the purpose of establishing various plants in the turf. We cannot say that so far the experiment has been successful, as a patchy appearance results. This probably arises from

the right plants not having yet been found. No doubt the idea is a good one, but its successful realisation has yet to be arrived at.

— SALE OF CARSE OF GOWRIE ORCHARD FRUIT.—The annual sale of the fruit in the famed Carse of Gowrie orchards took place in the hotel at Errol on August 21. There was a large attendance, but owing to the fruit crop being almost a failure, and the plentiful supply of foreign produce, the bidding was spiritless. The following are the rents for seasons 1885 and 1886:—Seggiden, 1885, £250—1886, £80; Port Allen, 1885, £44—1886, £12; Seaside, 1885, £81—1886, not sold; Bodmin, 1885, £16—1886, £7; Powgawie, 1885, £5—1886, £5; Ilorne, 1885, £10—1886, £5; Inchry Manor, 1885, £25—1886, £7; Gairdiehill, 1885, £103; Megginch, 1885, £40—1886, £12 10s.; Bomersund, 1825, £20—1886, £4 10s.; Carse Grange, 1885, £7 10s.—1886, £2; Muirhouses, 1885, £8—1886, £7 10s.; Newlarn, 1885, £6—1886, £4. It is said to see a fine orchard, such as Gairdiehill, containing over 40 acres of fruit trees in bearing condition, let for such a small sum. It has been known to realise £1400 in one season before foreign competition became so keen, and often ran as high as £800 to £1000; but, alas! times are changed. *Dundee Advertiser.*

— A WILD WHITE POPPY!—A correspondent obligingly sends us a specimen of a white form of Papaver Rheas growing with the scarlet ones amid the corn in Yorkshire. The flowers are very pretty—white with a purple eye.

— BUDDLEIA GLOBOSA IN FRUIT.—At that repository for all that is interesting in the way of hardy shrubs, Combe Wood, we lately found a specimen of this old-fashioned shrub bearing closely set capsules in globular heads, resembling an old mace. We do not remember to have seen it before. We are glad to see that this singular shrub is not lost to the country after the severe winters at the beginning of this decade.

— A MONSTROUS CUCUMBER.—A curious example of Allotment Gucum in a Cucumber was brought to us by Mr. SIM. JACOBS, of Covent Garden. The fruit had three coils, and measured 4 feet 10 inches from stalk to tip. It was otherwise, apparently, of good quality, and was slightly thickened at the apex. Probably the coiling was due to some impediment to its onward growth, but that would not account for the enormous length of the fruit.

— FUNERAL OF THE LATE MR. ROBERT LORD.—This took place on August 21, in the Unitarian Burial Ground, Todmorden, in the presence of a large gathering of people. The procession left Holeybottom shortly before 3 o'clock, headed by the Rev. A. B. CAMM, minister, and the warden and organist of the Unitarian Church, where the deceased had been choir-master for a term of thirty-three years. The members of the church committee followed, then the members of the choir, and alongside the hearse a deputation from the Todmorden Musical Society. Following the family and relatives of the deceased came a number of florists, gardeners, &c. Wreaths were sent by the Unitarian Church choir, the musical society, and by several friends, whilst members of the family supplied two of exceptional beauty—one of Carnation and another of Picotees, for the raising and culture of which the deceased had attained very wide celebrity. Memorial services were held on the following Sunday, and the wreaths which had been laid on the coffin at the funeral, were placed on the communion-table of the Unitarian Church.

— EUCALYPTUS COCCIFERA.—This tree, of which we gave an illustration from the fine specimen at Powderham Castle some time since, is hardy at Combe Wood. The thin bark is as white as the most silvery of Birches.

— PUBLICATIONS RECEIVED.—*Proceedings of the 31st Meeting of the Society for the Promotion of Agricultural Science, held at Ann Arbor, Michigan. Report of the Forest Department, Madras, 1884-85.—Mushrooms for the Million (with Supplement), by J. WRIGHT, F.R.H.S. 171, Fleet Street, E.C.*

— GARDENING APPOINTMENTS.—Mr. ARTHUR HORSSELL, for the last four years Head Gardener at Wonshe Park, Guildford, has been appointed Gardener to Lord BATEMAN, Shobdon Court, Herefordshire.

HOME CORRESPONDENCE.

What to do with our Gardeners.—The suggestion that we should utilise our surplus gardeners as teachers to the young of gardening is an admirable one so far as it goes, but something more than a mere plot of land would be needed to enable any one teacher to find ample opportunity for the display of his abilities and filling up of his time profitably. The difficulty lies, not in the supply of teachers of gardening, which are plentiful enough, but rather in obtaining the land and finding the means. We have no authority in the kingdom possessing power to provide land, implements, or teachers for gardening instruction, and, I fear, if the teachers wait until the former are provided, not a few will starve. The surplussage of labour seen in gardening is duplicated in every direction, and the problem cannot be solved by deporting a number of the extra or non-employed to other lands. Probably there has always been a surplus of gardeners ever since gardening has been a profession or occupation. The non-employed may now make their wants known cheaply, through the instrumentality of the papers, and for that reason, perhaps, it is thought that we have far too many. We have no reliable statistics of the number of persons employed in this country in gardening, but were such given very probably it would be found that the proportion of unemployed gardeners was remarkably small as compared with the state things found in other vocations. The proposal to find work for surplus gardeners in teaching the young the elements of gardening is far wiser than is the counter-proposition made in some other quarters, that we should limit the supply. As long as the population increases, some form of labour or industrial training must be found for the newcomers, and if limitations take place in one direction, an overwhelming surplussage of labourers will be created in another. Thus it is evident that the only real cure for an admitted evil is to be found in providing fields of labour in some form or another. We heard at Liverpool of plants being grown on shipboard, but ships' gardeners would be esteemed as great curiosities as ships' gamekeepers, and yet we conceive of a time—for all things tend towards luxuriousness, if not to sybaritism, on board our great passenger steamers—when plant decoration shall form part of the ordinary routine of the service, and ships' gardeners become realities. No doubt were such novel forms of luxury to break out there would be found plenty of candidates for the posts, willing to brave the terrors of the sea to secure so quiet and yet not unpleasant a livelihood. To return to matters more terrestrial, there is a capital opening for gardeners in the direction of garden officers to communities, not, of course, on a socialistic basis, but upon the practical one that each rural community or parish should have power given it to acquire land, to be let out as allotments to the working classes, with the professional gardener as teacher to the allotment holders. With a couple of acres apart for the children, this area of land could be worked to some extent profitably by the children whom the allotment garden head should also teach, and the produce disposed of to the best advantage in the community. Such a plan may be adopted without difficulty. *A. D.*

Chrysanthemum uliginosum.—In your remarks at p. 274 ante the above, you refer to the confusion existing in gardens respecting the true plant. That I am confused I am willing to admit, and as at present I see no way to clear up the matter, I ask your assistance in the matter. A fortnight since I sent you for naming what I then regarded as either a distinct species, or at least a well marked form of *Chrysanthemum leucanthemum*. This you decided to be *C. uliginosum*, and at the time this gave me every satisfaction as to its accuracy; but judge of my disappointment at seeing quite a different plant figured in your last issue under the above name. The specimen which I sent you, and to which I refer, is distinct from the one figured at p. 265 as *C. uliginosum* in these particulars—1, there is only one row of ray florets; 2, the ray florets are distinctly linear; 3, the florets are reflexed, as in *C. maximum*, at maturity; 4, it flowers fully three weeks earlier than *C. maximum*, while you speak of it as flowering later. I regret having no material to send you now, as the plants have done flowering fully a fortnight since, and are now cut down. If the following description will be of help, however, I shall be glad.—Maximum height, 3 feet 6 inches, and needs slight support; flower-stems forked; flowers about 3 inches across; rays linear and reflexed; leaves very deeply and sharply toothed, 6 or 7 inches long, lanceolate acuminate, and deep green in colour; radical growths numerous, as in our native *Chrysanthemum leucanthemum*; was at its best about the middle of July. Is it possible that the above plant is confounded with *Pyrethrum uliginosum*, which grows 6 feet high or more, and produces its flowers in

clusters during September and October? In some hardy plant lists *Chrysanthemum serotinum* is given as a synonym for the last named plant, while in other lists the generic names are reversed, and are to be read as *Chrysanthemum uliginosum*, syn. *Pyrethrum serotinum*. In Loudon's *Horius Britannicus* *Pyrethrum serotinum* is cited as a perennial growing 4 foot high, and a native of North America, while *P. uliginosum* is an evergreen (l) herbaceous perennial, 13 foot high, as coming from Hungary in 1816, and figured in the *Bot. Mag.*, 2706. It is evident there is confusion somewhere, as the plant now grown and universally recognised in gardens as *P. uliginosum* does not agree with the particulars here given, and which forms one of the stalwarts of autumn flowering perennials. *E. Jenkins*. [Fig. 51, in the last number, represents *Chrysanthemum uliginosum*, or *Pyrethrum*. *Pyrethrum* being now reduced to a section of *Chrysanthemum*. It is the same as *P. serotinum*. Fig. 55 is *C. maximum*, the leaf to the left in outline we omitted to say was that of *P. latifolium* syn. *lacustris*, inserted for comparison; *C. maximum* and *C. uliginosum* have much thicker and more succulent leaves than *C. uliginosum*. Ed.]

Run-out Potatoes.—The characteristic shown by the seedlings from *Solanum Magia*, as mentioned at p. 240, of sending out tubers on long stolons, and of throwing up lateral growth in the form of suckers, is also common to the seedling Potatoes, as all who have embarked in Potato raising can attest. All such kinds have by me been invariably rejected as having objectionable features which may be more or less perpetuated. Some seedlings from American Purple X Prizetaker give rank-growing tops with these running-out characteristics strongly developed; indeed there is occasionally seen in seedling Potatoes from certain crosses such a tendency to hark back to a semi-wild form, that in such cases perhaps as a section of the plants are worthless as are fairly promising. Assuming that anything in the direction of procuring hybrids which would withstand or be impervious to the Potato disease may result from the fresh start just made with old progenitors, very much additional interest is given to the effort by reason of the somewhat fierce visitation of *Peronospora* which during the past week has enveloped our Potato tops. This visitation is a month later than in most previous years, but it threatens to be very violent in its effects, as the tops are spotted so extensively as to render the total disappearance of the foliage in a week or two a matter of exceeding probability. As far as the tubers are concerned, little complaint has been made, the soil generally being so very dry. Moist foggy nights serve to propagate the spread of the fungus rapidly. Probably it will be well that Mr. Jensen's advice, not to dig up crops whilst the foliage is full of spores, and the air charged with them, should be remembered and acted upon [as somehow as perfectly as possible, to destroy the haul]. *A. D.*

Tuberous Begonias.—Their utility for the purpose of bedding-out is well illustrated by some charming clumps planted out in the neat little rockery at Chiswick. Nestling amongst the "stoves," a very pretty and graceful effect is produced; giving, too, a glare of colour that is most acceptable, the absence of which at times is very noticeable in such situations. *B.*

Fire-blight.—In the *Gardeners' Chronicle* for July 31, among the answers to correspondents, I find that Mr. Alfred Edwards has called attention to Pear shoots which are said to have been killed by the sun shining upon them while wet. If it is convenient to forward me some small samples of such specimens which I can use for microscopic examination, I shall be greatly obliged for them. This would be the way in which a slight attack of fire-blight would be most likely to be observed and accounted for; and my object in asking for specimens is to determine, if possible, if this may not be a case of real fire-blight. It has occurred to me that while there is no record of this disease in Europe, it still may occur to some slight extent without being recognised. I imagine that the interior of Russia gives a climate that more favours its development than any other portion of Europe, but I have no means of learning about the diseases of fruit trees in that region. *G. A. B. (New York Agricultural Experiment Station.* [We insert this letter, as we have no present means of communicating with our correspondent. Ed.]

Protective Resemblance amongst Antiquities.—I have several times shown in the *Gardeners' Chronicle* how an accidental resemblance of a useless relic to a useful object has been the means of its careful preservation. The same idea is very familiar amongst animals and plants, but less commonly noticed (although equally potential) amongst old stones. During last week's meeting of the Cambrian Archaeological Association in Glamorgan-shire a so-called "stone pillory" was visited close to Llanrhidian Church. It is difficult to conceive of a "stone pillory," but the mystery vanished when the

object was seen. The "pillory" was no other than a very ancient wheel cross (familiarily known as an Irish cross—more common in Irish churchyards than in English), with the upper part broken off. A wheel cross is like a common gravestone with a broad-shouldered cross at the top, the arms connected by a stone circle, like a cart wheel with four broad flat spokes, the spaces between the spokes being circular or rudely triangular holes. The two upper holes had vanished with the top of the Llanrhidian cross, the two lower had been utilised as holes through which drunkards' hands could be thrust previous to their being tied in position with rope. The whole relic would long ago have been destroyed had it not, when broken, borne an accidental resemblance to a "stone pillory" with two hand-holes. The piscina is sometimes preserved as a hard butter cooler, font-bowls are often preserved as troughs for pigs, altar-slabs for door steps, early Christian memorial stones for gate posts, and for "rubbing stones," i.e., stones against which pigs and oxen may in the field rub their itching skins. *W. G. S.*

Abies Lowiana (Parsonsiana).—After reading your papers I incline to the belief that there is one polymorphous species, viz., *A. grandis*, typical, a coast plant; *A. grandis* var. *Lowiana*, California; *A. grandis* var. *concolor*, Rocky Mountains and Utah; or for garden purposes, *A. grandis*, coast; *A. Lowiana*, California; *A. Lowiana* var. *concolor*, Colorado. The point being that the Californian plant (*Lowiana*) should go with the Rocky Mountain form (*concolor*) rather than with the coast form. *A. grandis* var. *Lowiana*, was first proposed by Hoopes in his *Book of Evergreens*, p. 212. As for the nobilis magnifica question I wait more light before being able to consider the two as belonging to one species. *C. S. Sargent, Arnold Arboretum.*

High Temperature.—We are having very warm weather here for the end of August. On the 30th the maximum temperature in a Stevenson screen was 84°, and that has only been reached twice before this season, viz., July 3 and 4. The minimum on grass on August 30 was 43° and in the screen 45°, giving a rise of 39° in one day. Tuesday, August 31, the readings have been as follows:—Minimum on grass, 51°; minimum in screen, 55°; maximum in screen, 85°. *W. H. Divers, Kelton Hall, Stamford.*

Double White Lily.—Your inference is correct, regarding it being the single form turned double. As the double variety has never been grown here to my knowledge, my own opinion is that the late spring frosts have affected the young growths of the *Lilium* and perhaps a want of ripeness or maturity in the bulbs through the bad seasons we have had lately. But I shall be glad to hear if any of your correspondents have had a like experience, and to what they may attribute the cause, as my surmise may not be correct. I write it to say that our garden has been very low, somewhat to the back of the sun. *James Shaw.*

New Names and Old Things.—If Mr. Serpell's suggestion is to be carried out practically the Council of the Royal Horticultural Society must obtain legal powers to prosecute in every case in which it is found that, having decided which is the correct name of any plant, fruit, or vegetable, that name is set aside and another one adopted. There is not the least probability that such power would be granted, or even if it were, that it would or could be enforced? The public have good cause for complaint if in purchasing some old thing under a new name they find themselves deceived. They can publicly expose the deceit or refrain longer from patronising the offenders. There is no doubt whatever that much of this re-naming of things is done in ignorance, but where done openly and wilfully it merits the strongest censure. The proposal to disqualify all exhibits incorrectly named is a very drastic one, and assumes infallibility on the part of the judges. In some cases corrections are made, but under whatsoever appellation things may be shown at least names give no factitious value to them. A good thing will remain good whether called the Beauty or designated as the Beast, whilst withholding prizes for what judges held to be inexact nomenclature would lead to endless disturbances. Still further it would be most unfair were the innocent and ignorant exhibitor made to suffer for the evil doing of the seedsman or florist from whom he purchased his stocks. The evil is not a terrible one, though it is an exceedingly annoying one very often. Probably it will right itself in time, but it may not be inappropriate to make a biblical quotation, and invite "he that is without sin amongst you to cast the first stone." *A. D.*

Two Pretty Flower Beds.—It is a trite complaint that some of the prettiest annuals are not half made enough of. The ordinary flower bed of *Pelargoniums*, *Calceolarias*, and *Lobelias* seems to have got such a hold on the popular fancy that to assail its position appears as hopeless as it did ten years ago.

No one wishes to see such beds disappear, but every one who really has an *entente cordiale* with Nature must wish for some variety—for something less formal and which is at the same time bright with colour. Two such quietly pleasing beds I think I can suggest. The first consists of the San River Daisy (*Brachycome ibidenifolia*) and *Heliopsis*. The second of *Agave melioides* and *Verbena Melindres*. The first-mentioned is now a great feature in the Tresco Abbey gardens. The *Brachycome* affords bright colour, and is a flower whose loveliness never palls, while the *Heliopsis* charges the vineyard with its fragrance, and whose foliage sets off the purple, mauve, and white blossoms of its neighbour. The *Brachycome* again, if lifted from the border, and then potted and put in the greenhouse, will continue to produce its loose terminal corymbs of *Cineraria* like blossoms till November. *Yagabond.*

"Agaricus personatus Dangerous."—Under the above heading, in the *Gardeners' Chronicle* for December 4, 1875, p. 720, I called attention to the occasionally dangerous character of the above common well known and so-called edible *Agaricus*. The species is largely eaten by some rustics, and it is sometimes sold in the markets under the name of "Blewitts" or "blue hats." On December 11, 1875, the Rev. M. J. Berkeley corroborated my remarks, and recorded an instance of fatal consequences resulting from the consumption of this species. In the *Daily News* for August 25 last a report is given of the case of a man and his daughter who were both killed by eating fungi locally known as "blue buttons," and no doubt *Agaricus personatus*. I have other records of the same nature. *W. G. S.*

Pea Telephone.—While confirming all Mr. Keely (p. 182) says respecting the heavy cropping qualities and excellent flavour of Prodigy Pea, I do not think many will verify his remarks as to its being as early as William I. Indeed, I do not know of a large podded Pea of the Prodigy type, more particularly a wrinkled Marrow, that was so early as William in the spring months, and which in the 1885 Chiswick report of the new Pea, Prodigy is described as "a very good mid-season Marrow." I would caution all who wish to economise their valuable seed of this variety not to be too lavish in sowing it as a companion to William I., or any other early round seeded variety, as wrinkled Peas are very apt to decay in the soil when sown very early. As to this kind eclipsing Telephone, I do not apprehend that this will happen, as Telephone was never become established as a leading main crop variety, being free and robust in growth, wonderfully prolific, excellent in flavour, and not in any way meriting the bad character given it by Mr. Rust, at p. 215. I have grown it every year since its first introduction, as well as seeing it in many gardens throughout the country, and I have never noticed it exhibit the slightest disposition to produce shrivelled blossoms or abortive pods, and its behaviour with the rust is so very exceptional that I feel sure the cause must be some want of culture, as it is certainly not constitutional. Indeed, I have had a little experience of the same kind this season. Last April, Mr. Laxton sent me two of his new Peas to try; the drill which was opened for them was a lengthy one, and there was not enough of seed of the two to sow it from end to end, and the deficiency was made up by sowing a handful or two of Telegraph at one end. The new ones were a success, but for some cause the piece of Telegraph was almost a failure, the pods being few and small, and vastly inferior to what they were in other parts of the garden. This, however, did not lead me to the conclusion that it was a bad Pea and much inferior to some of the old sorts. On the contrary, I have had almost uninterrupted proof that as a round main crop Pea it is possessed of the highest merits. *Tas. Muir, Margan Park, South Wales.*

—I see in your journal [of August 21 some remarks from your correspondent, W. H. D., under the heading of Pea Telephone, in which the correspondent says the large-podded varieties have not done so well with him as have the smaller-podded varieties. With my experience I am unable to see why the large-podded varieties should suffer from mildew, and the small-podded varieties not suffer in the same way. Perhaps your able correspondent, "W. H. D.," will kindly give me and other readers of the *Gardeners' Chronicle* his opinion as to the cause of the large varieties, such as Telephone, becoming mildewed, and the small-podded ones not being so affected. With me this year, up to the present date (August 24) I have not detected the least sign of mildew in my garden, and I have Peas in all their different stages. I would just say that I have grown this year about twenty varieties, and I must say from this and past experience that I cannot give preference to small-podded varieties, when we have such Peas as Telephone, Strategem, Peas of the Market, Telegraph, Duke of Albany, Evolution, Waltham Hero, Mr. Laxton's No. 6, the name of which I have forgotten, but it is about the same in

quality, colour, and shape, as Duke of Albany, and a very large cropper. The Peas I have named are all good croppers, good for exhibition and for culinary purposes, and, with about two exceptions, very sweet-tasted Peas. If I were asked to name four of the largest and best-podded Peas, taking all points into consideration, I should name Telephone, Duke of Albany, Stratagem, and Mr. Laxton's No. 6, and were I asked to name one of the above four, I should certainly say Telephone. *Henry Marriott, Prospect House, Skirbeck.*

Figs from Seed.—Having read the articles in the back numbers of the *Gardeners' Chronicle*, mentioned last week in the editor's note under this head, I tried in the autumn of the same year—1883—to raise Fig trees from English seed. Accordingly twenty ripe Figs—the White Marseilles—grown under glass, were picked and placed on a slate to dry in one of the hot-houses. When the pulpy part of the fruit had become moderately dry, some fine dry sand was mixed with the remains, and the whole was put in a saucer and kept in a dry place until early in the following year, when the mixture of seed and sand was sown in a couple of seed pans, which were placed in gentle heat, watered, and attended to. In a short time after sowing, five or six seedling Figs made their appearance in one of the pans (none came up in the second pan); these, with the exception of one plant, were very weak specimens, which, after lingering for a time, died off, leaving only one plant. This continued to thrive, and could easily have been grown on, had it not been discarded. Considering the number of seeds sown in this experiment, the percentage of seedlings was very poor. However, with all due respect to the remarks of the *Gardeners' Chronicle*, I quite satisfied myself that Fig trees could be raised from English grown seed. Stray seedling Fig trees are by no means very uncommon in gardens, and would, I rather think, be more common were it not for the hoe. I have occasionally seen one in near proximity to old trees, which may or may not have sprung from English seed. Referring to my note respecting the appearance of seedling Figs (examples of which I forwarded you) after an application of dry earth-closet manure to the surface of an inside Vine border, I may be allowed to mention here that seedling Figs came up as freely as Mustard seedlings, not only the first season after the application of the dry earth-manure, but also in the second year. Moreover, last autumn, the surface soil of this Vine border was taken off, and some of it was used in the compost for early Carrots grown in a pit here; during the season several seedling Figs have grown amongst the Carrots, also in pots, in which a mixture of the Vine border soil was used. I am not at all prepared to say that these seedling Figs were from English seeds, but owing to the very limited quantity of foreign or dried shop Figs that I know to have been consumed in my house during the accumulation of the manure, they would hardly account for the very great number of seedlings that have appeared first and last. If these seedlings were all from the foreign source, then vitality in every seed in every Fig must have been perfect. *W.*

I have now testimony that the seedling Figs mentioned in a previous letter were actually derived from home-grown fruit. One of the members of my family, without any suggestion on my part, distinctly remembers repeatedly having gathered Figs from the large tree in my garden, to have eaten the fruit, and to have cast the skins away at the spot where the seedlings were afterwards found. No imported Figs were ever to our knowledge treated in like manner. I can have no doubt that the seedlings originated as is here stated. *H. E.*

Cypripedium Vagaries.—In our last issue we gave a figure of a remarkable peloria of *Selenipedium caudatum*, and this week we publish three other figures which are of much botanical interest as explanatory of the curious structure of Orchid flowers. Most Orchids have but one stamen, called the column, for convenience sake, *A 1*. *Cypripedium* generally have one stamen imperfect and barren (*A 1*), and two lateral fertile (*a 1, a 2*). Theoretically and, actually by exception, there may be three outer stamens (*A 1, A 2, A 3*), and three inner (*a 1, a 2, a 3*). The presence of all six is very unusual, but many flowers, like some now figured, show some of the ordinarily missing stamens. In a flower of *C. barbatum* which we have lately had an opportunity of examining (fig. 63), there were two lateral sepals *s s*, bent downwards, a single petal, *P*, placed above and in the centre, in the position usually occupied by the dorsal sepal, opposite to this was the lip, *L*. The column bore one stamen only, *A 1*, the one present in most Orchids, but usually absent in *Cypripedium*, while the two, *a 1, a 2*, commonly present in this genus were absent.

In *Cypripedium Lawrenceanum*—for the flower of which (fig. 64), representing the details, we are obliged to Mr. Henry Stevens—it will be seen that the sepals are placed laterally, and that one of the two petals one is placed above in the position

usually occupied by the upper sepal, while the other is represented by the lip, so that the perianth is in two rows, placed crosswise. The column, in this case, bore three stamens, *A 1*, opposite the lip, being the stamen

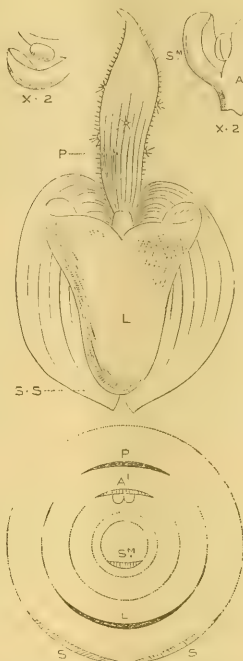


FIG. 63.—*CYPRIPEDIUM BARBATUM*, DISTORTED FLOWER, WITH ONE STAMEN ONLY. (SEE TEXT)

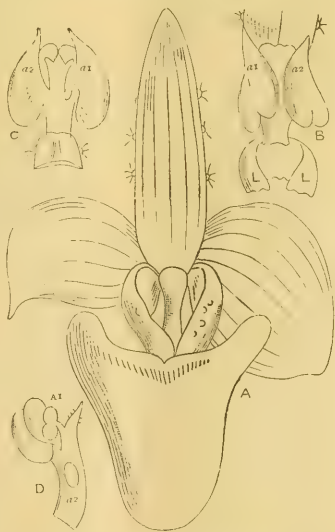


FIG. 64.—FLOWER OF *CYPRIPEDIUM LAWRENCANUM*, WITH 2-FERTILE PERIANTH AND THREE STAMENS, ONE OUTER FERTILE, TWO LATERAL BARREN.

that is present in most Orchids, but generally wanting in *Cypripedium*; and two lateral stamens at *a 1, a 2*, represented by barren shield-like staminodes. In the figure 64, *A* represents the entire flower seen from the front; *B* shows the column from the front with the

two lateral staminodes *a 1, a 2*, and indications of the lip, *L 1, L 2*; *C* is the column from the back, *D* is the column from the side, showing the perfect stamen *A 1*, the stigma in front of it, and at the side the scar where *a 2* has been removed. Fig. 65 shows a diagrammatic view of a flower of the same species received from Mr. James, of Norwood. In this case the flower was of the normal character, except as to the column, which bore the usual staminode, representing *A 1* of the outer row of stamens. *a 1, a 2*, were fertile and in their usual position, while *a 3*, which is generally absent, was in this case represented by a second lip, enclosed within the ordinary lip, *L 1*, so that the flower had two lips, one enclosed within the other, the secondary lip being really the metamorphosed stamen, *a 3*.

Epipactis latifolia.—Long ago I had found out that the Bird's-nest Orchid, *Neottia nidus-avis*, and probably also *Ophrys apifera*, increase beneath ground to flower above, but never till to-day was I made aware of the fact, although for years I have entertained the idea, that *Epipactis latifolia* behaves in a similar manner. On examining a particular part of a woodland where last summer beds of this Orchid grew I was quite taken aback to find that this season there is not even a solitary specimen. Puzzled to account for this total disappearance, and knowing the exact spot where a cluster of unusually large specimens grew last year, I determined to search these out and find whether the plants had died out after flowering or were cumulative beneath ground. With but little trouble I found the very withered stems that last season I had seen in the full vigour of life, and on carefully removing the soil at their base found that the roots were not dead, but fresh and healthy, and with eyes or buds attached to each. Not content with these instances I hunted out other plants, which was easily enough done from their withered stems, and in all cases found the new eye or bud perfectly formed, but too small in size to be able to produce spikes of equal size to the parent plants, and which I knew from the numerous roots of all sized specimens that I have on various occasions examined. Now, as it is rarely that one sees flowerless plants of this Orchid, it must be, judging from the above remarks, that the bud increases beneath ground until of a flowering size, when it springs up, flowers, and is not again seen until a flowering bud is developed. How long this takes I cannot say, but the time will now, by patient waiting, be easily enough found out. If any one already knows, please say, *A. D. Webster*.

Arundinaria khasiana.—Some eight or nine years ago all the specimens of *Arundinaria falcata* or *Thamnochlamys falconeri* simultaneously flowered in every joint or node of the stems instead of producing leaves as they had hitherto done, they then produced a quantity of seed much resembling Oats, then all died. This summer the *Arundinaria khasiana* are all similarly covered with blossom instead of foliage, although they have for some weeks been so, and a large quantity of pollen flying off when touched, I can as yet see or feel no signs of seed setting in the bunches. *W. E. Cumbleton*.

Eichornia azurea.—The illustration and account of this plant as grown in the Oxford Botanic Garden, and published in the *Gardeners' Chronicle* on January 2 last, having been seen by Mr. F. O. Vincent, of the conservatory, Golden Gate Park, San Francisco, California, he made application to me for seeds of it, expressing his desire to cultivate the plant in the conservatory under his care. We had no seed of it at the time the application was received, but early in May some flowers were fertilised with their own pollen, and as soon as ripe seeds were produced they were sent to him (June 30), and he, acknowledging their receipt, says:—“I planted them at once. . . . They grew freely within five days, and they are doing very well.” The water in his tank stands at 75° to 78°, and the pot in which the seeds were sown was plunged 1 inch under the surface. *W. H. Baxter*.

Hollyhocks.—If evidence were wanting as to the possibility of growing good Hollyhocks without injury from the fungus pest, it is afforded at the Messrs. Sutton & Sons' Reading Nursery, where seedling plants are not only clean and healthy, but blooming finely; they suffer from but one drawback. At this time of the year the flower shows held within 20 miles or so of Reading are so numerous that they seem to fall in somewhere every day, and sometimes two on the same day. At very many of these shows it is the practice of the great seed firm to send big collections of flowers of many kinds, and because of this the Hollyhock spikes have their blooms greatly thinned. Still, enough are left to show colour and quality, and as representing seed stocks both are excellent—colour in respect of the fact that like seems to reproduce like with considerable faithfulness; and

quality is shown in the fact, that many of the flowers are as good as were those of old named varieties. It is very satisfactory to know that we have such good seed strains, and need not be in any concrete test this fine old garden flower should pass out of existence. At Reading, it would be easy to note over a dozen diverse colours, from white to heavy maroon in selfs, and others which have either flushed or tinted petals, or have deep hued bases. Planted in rows 3 feet apart, ample space is given to inspect the merits of each one, but in ordinary culture or in masses less space will suffice. One important thing in relation to Hollyhocks from seed is to treat them as biennials, sowing seed in May to ensure thoroughly robust plants to put out in the autumn, and bloom the following year, always planting yearly in fresh ground, thus appreciably baffling the fungus. A second sowing made in July will give plants to bloom towards the autumn in succession, but for seed-saving purposes the early sowing should be relied upon. These late bloomers if cut much after the flowers are past, will give fine plants to bloom the succeeding year, often sending up three or four strong stems, covered with bloom. If the foliage has remained clean the first year, transplanting is not essential, but the cultivator must be guided by that consideration. Top-dressings of manure and plenty of water are valuable aids to the production of fine spikes and blooms. The former may well have the points taken out when a fair height has been reached, and the latter will often be the better if thinned on the spikes, as undue crowding often causes. As seed stocks give defined colours, and packets of such colours may be obtained, a grand effect is produced when a dozen plants of any one colour are grouped together. A.D.

we have ever seen them shown in London, from Mrs. Robin, secured the 1st prize in that class.

Begonias are much better seen about London. Coleuses were well shown. Orchids were but poorly represented, as were also the classes for newly introduced plants.

Cut flowers were fairly well displayed, Roses,

were a good class, Fruits jaunes being apparently a favourite variety.

The Apples and Pears call for no special remarks the season being yet too early to judge of them. Great credit is due to the Hon. Secretary, Colonel Howell, for the excellent arrangements made in the management of the exhibition, and our thanks to our representative are due to him for his courtesy and urbanity to our representative.

SHROPSHIRE HORTICULTURAL : August 18 and 19.

THIS Society has during the last eight or ten years gained the reputation of being one of the most flourishing and best managed in the provinces. The Quarry, where the show was held, is ten or fifteen minutes' walk from the station, but the committee of the above Society and its indefatigable Hon. Secs. (Messrs. Adnitt and Naunton), finding that something besides an exhibition of plants, fruits, flowers, and vegetables was necessary to insure a successful meeting, provided an attractive programme, including amusements, which were found in a part of the grounds specially set apart for this purpose, the large marquees containing the horticultural productions being pitched in another part, but having no barrier other than a row of shady trees. Hence it was that about 60,000 people paid for admission to the Quarry grounds. Plants were shown well by Mr. James Cypher, of Cheltenham; Mr. C. Roberts, Highfield Hall; and Messrs. Pritchard & Sons, Frankwell Nurseries, Shrewsbury; and fruit was well represented by contributions from Gunnersbury, Longleat, Ingestre, Elvaston Castle; and from G. Barker, gr. to Mr. Alderman Baynes, Birkenhead.

PLANTS.

For twenty stove and greenhouse plants, not less than ten in flower, the handsome prizes of £25, £20, and £15, respectively were offered, and brought out a good competition—the 1st prize, as is usual, going to Mr. James Cypher, for a collection of well grown, but smaller plants than those which he has recently shown, all being well coloured, and capitally bloomed. Mr. C. Roberts, gr. to A. Nicholson, Esq., Highfield Hall, was 2d, who staged a very good even lot of plants. Mr. Cypher securing the 3d award, exhibitors being permitted to take more than one prize in each class.

Mr. C. Rolfe, gr. to H. Lovatt, Esq., Low Hill, Wolverhampton, was 1st for nine stove and greenhouse plants, showing a good lot; 2d, Messrs. Pritchard & Sons; and Mr. Juson, Abbey Forge, 3d.

Mr. C. Roberts was 1st for six stove and greenhouse plants, in or out of flower, as he also was for a like number of similar plants (Orchids excluded), showing well in both classes.

Groups arranged for effect made a telling display in the plant tent, and we noticed that there was a departure from the usual arrangement of such in the undulated, sloping bank, consisting of Maidenhair Ferns, Palms, Crotons, Dracenas, &c., with spikes of *Odonoglossum Alexandrie* showing above the general level. The 1st prize was deservedly awarded to Messrs. Pritchard & Sons, Messrs. Jones & Sons, being 2d, with a tastefully arranged group.

Ferns were shown well, the plants, though small, being fresh and well grown. For six varieties, Mr. Lambert, gr. to Colonel Wingfield, Onslow, was 1st; Mr. Cypher 2d, and Messrs. Pritchard & Sons, 3d all three showing well.

Several collections of four Fuchsias were shown, the 1st and 2d prizes going to Messrs. Pritchard & Sons for well-grown plants, about 5 feet through at the base, and 6 feet high; the same firm taking 1st and 2d for six double-flowered *Pelargoniums*, distinct, with well-grown and profusely-flowered plants; and 1st for six *Caladiums*, in variety, with large well-coloured plants; and 1st and 2d for a like number of zonal *Pelargoniums*.

Fuchsias, Achimenes, Petunias, Balsams, Gloxinias, &c., were all well represented in the amateur classes.

CUT FLOWERS.

These were well represented. Messrs. Heath & Son, Cheltenham, had the best stand of thirty-six *Ashlars*; Mr. Hans Niemand, Harborne Road, Edgbaston, Birmingham, was 1st in the classes for Carnations and Picotees, and for hand-bouquets; Messrs. Perkins & Sons, Coventry, were 1st for a bridal bouquet; and Messrs. Burrill & Co., Cambridge, had the best eighteen spikes of *Gladiolus*.

FRUIT.

As the result of the liberal prizes of £10, £6, and £3, for a collection of twelve kinds of fruit, and a 1st prize of £10 for six bunches of black Grapes, in three varieties, the competition in these classes was very keen, and the exhibits excellent. Seven collections were put up, and these were so near in point of merit as to cause the judges some embarrassment. Ultimately they placed Mr. Roberts, of Gunnersbury Park, Acton, 1st; Mr. Gilman, gr. to the Earl of

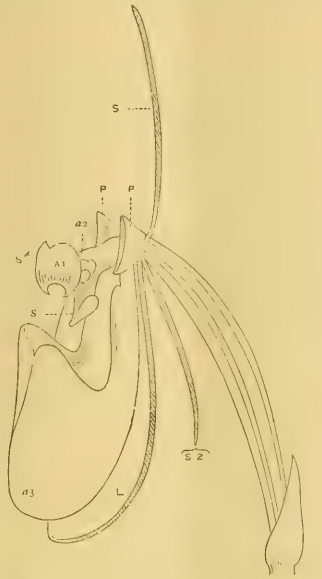


FIG. 65.—CYPRIDIUM LAWRENCEANUM.

Flower in section, with some of the parts removed to show one lip, a3, enclosed within the normal one, 1.

however, being rather poor and out of season; *Gladiolus*, *Phloxes*, *Asters*, and *Zinnias* being very good.

A very extensive lot of *Sunflowers* was exhibited in competition for the prizes offered.

Bouquets were well shown and well arranged, the 1st prize being awarded to Miss Ainge. Bouquets of wild flowers were particularly pretty, prominent in their construction being the common Heath and *Lig.*, which grow to extraordinary luxuriance in Jersey.

FRUIT.

The fruit classes were somewhat disappointing—

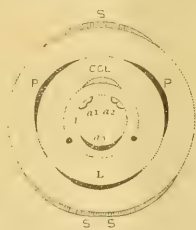


FIG. 66.—CYPRIDIUM LAWRENCEANUM.

Plan of arrangement of parts in fig. 65.

the collections of eight and four varieties being very poor.

Grapes were not particularly well shown, in spite of the enormous quantities grown in the island. The prize for Black Hamburgs was awarded to Mr. Pond for smaller bunches, with large berries, &c., in preference to the larger bunches with the smaller berries. The Muscat Grapes were not generally ripe.

The Peaches were inferior, Apricots large and superior, Cherries very fine, and red Currants exceedingly large and fine, especially a variety named Belle de Luxembourg, from Mr. G. De Faye. Plums

Reports of Societies.

ROYAL JERSEY HORTICULTURAL : August 18.

THE second summer show of this spirited Society, which has flourished for over half a century, having been established in 1833, proved a success. This Society, jointly with the Royal Agricultural Society of Jersey, is the happy possessor of excellent grounds, most conveniently situate near the town, and here commodious buildings were erected, extremely well suited for the agricultural commodities. In these it was determined to try the experiment of holding the flower show. Favoured by fine weather the experiment was successful, although no one could help feeling how much better the flowers would have looked under canvas. Nothing shows up the beauty of flowers so much as canvas, especially if placed on smooth ground. One of the great features of the show was the groups of plants arranged for effect. These were in the opinion of the judges, one and all, too crowded and mixed, one half the number of plants, placed so as to show more effectively the individuality or character of each, with a sufficiency of low Ferns, &c., to hide the pots would have produced a much better effect.

The 1st prize in class 1, shown by Mr. J. Morris, was inferior as a collection to those shown by Mr. C. Godfrey, but was somewhat better arranged.

In the other classes for groups of smaller dimensions the same objections apply.

Baskets of plants were well shown, the 1st prize being awarded to Mr. J. Morris for a very graceful arrangement.

Ferns were especially well shown, the 1st prize for eight distinct being awarded to Mrs. Robin. In this collection were some extra fine specimens of *Todea superba* and *pellucida*.

In the class for four varieties Mrs. Robin was again placed 1st, as also for a single specimen, a plant of *Trichomanes radicans*, grown in cone fashion, in the most luxuriant health and vigour; we never remember having seen a more handsome specimen. This was in addition awarded the Silver Medal of the Royal Horticultural Society as the most meritorious exhibit.

A pretty class, and quite unique in our experience, was that for a basket of Ferns, the 1st prize being awarded to Mr. C. Godfrey, the basket beautifully arranged, and containing some nice examples of *Todeas*, *Hymenophyllums*, &c.

Palms were well shown, the 1st prize being awarded to Miss Ainge, for well-grown small plants.

Fine-foliated plants claimed special notice, the 1st prize lots in both classes coming from Mr. C. Godfrey, who exhibited some specially good Cycadaceous plants; one exhibitor in this class, who had taken the liberty to oil the leaves of a *Dracena* [?], was in consequence disqualified.

Stove and greenhouse plants were fairly well shown. Zonal *Pelargoniums*, especially the double varieties, were specially well grown, the 1st prize lots of twelve and six respectively, from Mr. Bond, being remarkably well flowered and well grown.

A remarkably fine lot of *Liliums* in pots, finer than

Shrewsbury, Ingestrie, Stafford, & 2d; Mr. Goodacre, Elvaston Castle, Derby, 3d; and extra 4th and 5th prizes were awarded to Mr. Parker, Inpenny; and Mr. Edwards, Bestwood. The Gunnersbury collection contained good Madresfield Court, Gros Maroc, Muscat of Alexandria, and Buckland Sweet-water Grapes, Lord Napier Nectarines, Ormskirk Apricots, Lady Beatrix Lambton Pine, having a rather poor crown; Golden Perfection Melon, Sea Eagle Peaches, Figs, Cherries, and a good dish of La Grosse Sucrée Strawberries.

Mr. Pratt, gr. to the Marquis of Bath, Longleat, Warminster, secured the 1st prize (£10) for six bunches of black Grapes, in three varieties, in a well-contested class; the black Hamburg, Black Alicante, and Mrs. Pine's Muscat consisted of large well-finished bunches. 2d, Mr. Stevenson, gr. to Colonel Pilkington, Prescott, being 2d, with smaller but even and better coloured bunches of Black Hamburg, Madresfield Court, and Black Alicante; Mr. Goodacre was 3d, with Madresfield Court, Muscat Hamburg, and Alnwick Seedling; and Mr. Gilman was 4th.

Mr. Pratt was 1st for three bunches of Muscats; Mr. Roberts, Gunnersbury, for four bunches of white, consisting of good Muscats and Foster's Seedling; and Mr. Barker, gr. to Mr. Alderman Baines, Bickenhead, was 1st of eighteen competitors for three bunches of black Grapes, with three handsome and well finished bunches of Madresfield Court. The 2d prize going to Mr. Bennett, gr. to the Hon. C. W. Wynne, Rhug, Corwen, for Alnwick Seedling; and the 3d to Mr. R. Brownhill, Ravenswood, for Black Hamburg. Messrs. Pritchard & Sons and Messrs. Jones & Sons, Croton Hill, were placed as equal 3d for some Grapes but little inferior to the best shown.

VEGETABLES.

These made a grand show; Mr. Lambert was well to the front for a collection of twelve kinds, showing a very good even lot; Mr. Milner, Sundorne Castle, was 2d; and Mr. Purser 3d.

MAIDSTONE: August 24.

"A HORTICULTURAL exhibition in the heart of Kent" is sufficient information to give to the pleasure of inspecting an abundant display of fruits, flowers, and vegetables to all who might visit the same. The show now under notice amply bore out the reputation the county of Kent has always had for superior produce. We cannot, however, but help thinking that the committee would have made the occasion a more enjoyable one had they secured some suitable grounds in which to hold the show rather than confining the same to the Corn Exchange buildings. These, though spacious enough for the productions, did not allow sufficient room for a comfortable promenade to the company present.

PLANTS.

This section of the show was not represented by an extensive display, caused no doubt by the schedule being somewhat limited, but what was lacking in quantity was amply made up in the superior quality.

For nine fine-foilage plants Mr. Waterman, gr. to H. A. Brassey, Esq., Preston Hall, was awarded the 1st prize, with plants of fine proportions in vigorous health, prominent among which were *Acalypha Maccleana*, a beautiful example of colouring, and very telling; *Alcousia Veitchii*, in good order; with fine plants of *Arcia lutescens*, *Brahea filamentosia* (in fine character), *Cycas revoluta*, and *Croton Youngii*. Mr. Ocock, gr. to Major Roberts, Rochester, was a good 2d, staging a fine plant of *Scaevola elegans* in his collection. These two collections formed an attractive feature as a central group for the largest room.

For a group arranged for effect, the order of the two exhibitors just named was reversed, Mr. Ocock winning the Silver Cup offered as a 1st prize with a very light arrangement, bright with well-coloured *Crotons* and *Lilies*. Mr. Waterman's group was somewhat heavy in the background, but relieved to a considerable extent by the use of light and elegant *Palms*.

For a smaller group F. Pine, Esq., Maidstone, was placed 1st, with a novel arrangement, consisting of an effective background lightened up by a nice plant of *Ilex Williamsii*, then dropping away to a groundwork of Ferns, *Gloxinias* and light *Palms* being used as a tracery to relieve the same. A. Amies, Esq., had a group of well grown Ferns in this class.

Four neat collections of Ferns were staged, the best coming from W. Fremlin, Esq., Maidstone.

CUT FLOWERS

were excellent in quality, and the competition keen. For *Asters* (quilled) and *Zinnias*, Mr. Hicks, gr. to J. Hollingsworth, Esq., was the most successful, staging fine blooms in each class.

The competition was sharp with *Asters* (tasselled), fourteen entries being made, the best coming from Mr. Brooks, gr. at Yeovil.

Dahlias were shown in goodly numbers, the last-named again winning. A fine display was made by the baskets of cut flowers, no limit being given in respect to size, Mr. Goddard, gr. to Mr. Bannerman, winning with a choice lot in a basket some 4 feet diameter.

Boxes of cut flowers were well shown, Mr. Waterman taking 1st with twelve choice kinds, among which we noticed *Gloriosa superba*, and several good *Orchids*.

Roses were represented, but not in any considerable number. F. Warde, Esq., taking 1st.

FRUIT.

Several good collections of eight dishes were shown, Mr. Deuxbery, gr. to Lord Darley, Cobham, being placed 1st, with a capital all-round lot of fruit—Black Hamburg and Muscat of Alexandria Grapes, both good and equally creditable; dishes of Transparent Gage Plums and Brown Turkey Figs; Mr. Legg, gr. to M. H. Dalison, Esq., coming 2d, with finely coloured Muscats, good Nectarines and Peaches.

GRAPE.

Black Hamburgs were shown in good form, Mr. Ocock taking 1st, with three bunches of fine colour; and Mr. Chisholm, gr. to Sir Francis Geary, 2d, with bunches very fine in berry.

For two bunches, Mr. W. Blist, Watersbury, won easily with compact bunches. Mr. Legg won with fine solid bunches, and repeated his success again in the "any other black class" with fine bunches of Black Alicante.

PLUMS

were shown in capital condition by Mr. Deuxbery who won 1st prizes for both dessert and culinary kinds, having fine fruit of Transparent Gage, Reine Claude de Bayay, Washington, and Kirke's.

PEACHES,

in the class for open-air fruit brought Royal George, from Mr. Drake, gr. to Lady Fletcher, to the front; whilst from under glass Noblesse won for Mr. Neve the same position.

NECTARINES

in similar classes were represented, in each case by Lord Napier, from Mr. Braddick and Mr. Lawrence.

PEARS.

Good dishes of Jargonelle and Williams' Bon Chretien were shown, the former kind, from Mr. Braddick, being 1st.

MORELLO CHERRIES

were finely shown by fifteen exhibitors, the best coming from Mr. Woller, gr. to C. Edmett, Esq.

APPLES.

Good culinary sorts were shown by Mr. Waterman, who took 1st, with fine fruits of Peasgood's Nonsuch and Stirling Castle, winning again with Red Astrachan and Mr. Gladstone as dessert kinds.

OUTDOOR FRUIT.

With a collection of twelve kinds Mr. Smith, gr. to Lady Drake was 1st, with fine samples of Hale's Early Peach, Brown Turkey Figs, *Violette Hative* Nectarines, Morello Cherries, and Jargonelle Pears; Mr. Waterman being close up with Balgown Nectarines and other good dishes.

VEGETABLES.

This section constituted a most important feature in the show being represented by examples of first-class culture in every class.

For a collection not exceeding thirty kinds a fine display was made, Mr. Waterman winning the 1st place with a collection very effectively arranged; Mr. Ocock coming in a close 2d.

Twenty kinds.—In this class Mr. Pettitt, gr. to R. Balston, Esq., took 1st, with most creditable produce; the 2d prize going to Mr. Hollamby, gr. to Walter Monkton, Esq., with another good collection. Carrots, Onions, Celery, Peas, Tomatos, Turnips, Cauliflowers, and French Beans were well represented in each of the foregoing classes.

MISCELLANEOUS.

For a basket of salad, not less than eight kinds, Mr. Waterman again stood 1st, with a capital selection in the best of condition.

With kidney Potatoes, Mr. Deu-bery came to the front with tubers of medium but even size; and Mr. Waterman the same, with Tomatos, fine fruit, of good colour.

An important feature in the show was that part of it devoted to the farmers of Mid-Kent for fruit grown for market, to be shown in six varieties in quarters; Mr. S. H. Goodwin taking 1st, with Jargonelle Pears, New Orleans Plums, Lord Suffield

Apples, Cob-nuts, old black Currant and Morello Cherries—all well-grown samples.

Messrs. Frost & Sons, nurserymen, of Maidstone, staged some well made bouquets, baskets of flowers, wreaths, &c., made of Roses and other flowers in season, likewise an attractive group of decorative plants, not for competition.

Messrs. Bunyard & Sons, in like manner, had a good show of Apples (Lord Suffield, Grenadier, and Potts' Seedling being the best), and Pears (Bijou and Beaton, two early kinds, were the most promising), as well as some dishes of Plums and boxes of Roses and Gladioli. &c.

SEVENOAKS HORTICULTURAL:

August 25.

This Society held their annual show on the above date in the grounds attached to Kippington Park, the seat of W. J. Thompson, Esq. The site chosen, one of those lovely knolls for which this beautiful district is so remarkably noted, contributed much to make an attractive exhibition still more enjoyable. Plants, cut flowers, and fruit were well shown, the competition in many of the classes being unusually keen.

STOVE AND GREENHOUSE PLANTS.

For six stove and greenhouse plants in bloom, the 1st prize in the open division went to Mr. Gibson, gr. to T. F. Burnaby-Atkins, Esq., Halstead Place, who had large and beautifully flowered specimens, consisting of *Platyladenia Bearelayana*, *D. amabilis*, *Ixora Williamsii*, *I. Prince of Orange*, *Allamanda Hendersonii*, unusually well done; and *Clerodendron Balfourianum*. Mr. Bolton, gr. to Mrs. Spottiswoode, Coombe Bank, who was 2d, staged, amongst others, nicely bloomed examples of *Clerodendron fallax*, *Lapageria rosea*, and *Statice profusa*.

Four stove and greenhouse plants (amateurs).—1st, Mr. Vallins, gr. to J. H. Worship, Esq., with nicely grown medium-sized plants, the best of which were *Lapageria alba* and *Platyladenia amabilis*.

Single specimen stove and greenhouse plants in flower.—Here Mr. Gibson took 1st, with a grandly bloomed example of *Allamanda nobilis*, the finest of the species, but not so easily managed as the others more generally seen; 2d, Mr. Cook, gr. to D. Burri Crawshaw, Esq., Rosefield, who had a fine plant of *Epidendrum prismatocarpum*.

FINE-FOILAGE PLANTS.

In the class for six, Mr. Goodman, Bradbourne Hall, took the lead with a well grown group, the best of which were *Alcousia Thibautiana*, *Phoenix rupicola*, and *Croton Williamsii*; 2d, Mr. Gibson, having, with others, a large healthy plant of *Arcaurica Bidwillii*; 3d, Mr. Bolton.

Four fine-foilage plants (amateurs).—1st, Mr. Vallins.

Caladiums were well shown by Mr. Meakin, gr. to C. R. C. Petley, Esq., who was 1st; Mr. Hutton, gr. to Mrs. Swanzy, The Quarry, 2d.

FERNS.

These were very well done, Mr. Staples, gr. to H. Oppenheim, Esq., and Mr. Hutton being equal 1st, both showing large, well managed collections. Hardy Ferns were also in nice order, Mr. Staples taking 1st, and Mr. Bolton 2d.

FUCHSIAS

were in good condition, well-flowered, and not over-trained, 1st honours for six going to Mr. Makin; 2d, Mr. Huntley, gr. to the Rev. T. S. Curtis.

Four *Fuchsias* (amateurs).—1st, Mr. Vallins.

TUBEROUS BEGONIAS.

With four, in a close run, Mr. Meakin was 1st; Mr. Searing, gr. to R. Monckton, Esq., 2d.

ZONAL PELARGONIUMS.

With six, Mr. Meakin had 1st, staging medium-sized examples full of flowers; 2d, Mr. Hutton. Four zonal Pelargoniums.—1st, Mr. Vallins.

GROUPS OF PLANTS ARRANGED FOR EFFECT

are always one of the chief features at the Sevenoaks exhibitions, more competitors entering the lists than are to be found at most places—a circumstance, no doubt, owing to the space that each exhibitor is required to fill not being large, a mistake through which the framers of not a few schedules defeat the object they have in view, as when the space to be occupied is large, it takes such an immense number of plants that distant exhibitors are deterred from competing.

In the leading class for groups of flowering and fine-leaved plants, Mr. Meakin, took the lead with a very beautiful arrangement; Mr. Cook being a good 2d.

In the second division of groups, Mr. Vallins had 1st, with a nicely arranged exhibit; 2d, Mr. Searing.

The groups confined to Ferns alone, were remarkably well done, Mr. Staples taking 1st honours; Mr. Hatton, who was 2d, also showed well; 3d, Mr. Goodman; 4th, Mr. Bolton.

CUT FLOWERS

were present in quantity. With twenty-four Roses, Mr. Gray, gr. to Earl Stanhope, was 1st, putting up a nice stand of blooms; 2d, Mr. Hollingworth, Maidstone.

Twelve Roses.—1st, Mr. Blundell, gr. to G. Christy, Esq.; 2d, Mr. Gibson.

Dahlias were very well shown, Mr. Searle, Vine Nursery, taking 1st for twenty-four; 2d, Messrs. Cassell.

Twelve Dahlias.—1st, Mr. Godden, gr. to Mrs. Brook; 2d, Mr. Meakin.

Twelve Cactus Dahlias.—1st, Mr. Meakin; 2d, Mr. Hoadley, gr. to F. L. Bevan, Esq.

Six varieties of single Dahlias, three blooms of each.—1st, Mr. Bolton; 2d, Mr. Cook.

Six Gladioli.—1st, Mr. Cook; 2d, Mr. Gibson.

Six Phloxes.—1st, Mr. Staples, with fine spikes; 2d, Mr. Bolton.

Classee and greenhouse flowers there was a good display, Mr. Cook taking the lead with twelve varieties, all Orchids, including fine spikes of *Vanda savis*, *V. tricolor* Patersonii, *V. insignis*, *Cattleya Gaskelliana*, *Rosefield variety*, *C. speciosissima*, *C. Leopoldi* and *Odontoglossum crispum*; 2d, Mr. Gibson, who likewise had a fine stand.

Table decorations, bouquets, &c., as usual here, were in great force, fitting a good sized tent. In a close competition in the class for three stands, Mr. F. W. Seale was 1st, and Mr. Hatton, 2d.

Single stand.—1st, Mr. F. W. Seale; 2d, Mrs. Bishop.

Single groups of wild flowers were likewise beautifully arranged, Mrs. Hassell taking 1st; Mr. F. W. Seale, 2d.

Basket of flowers.—1st, Miss Seale; 2d, Mr. Hoadley.

For a hand-bouquet Mrs. Bishop had the 1st award; Mr. Seale, 2d.

Three button-hole bouquets.—1st, Mr. Bolton; 2d, Mrs. Bishop.

FRUIT

was forthcoming in large quantities and good condition, if we except Muscat Grapes, which with few exceptions were much deficient in colour. In the class for six dishes of fruit Mr. Henson, gr. to T. Johnson, Esq., Broomsleigh, had 1st, with Black Hamburgh and Golden Hamburgh Grapes, not large bunches, but very well coloured; Goshawk Peaches, Downton Nectarines, and a nice dish of Negro Largo Figs, and a Melon; 2d, Mr. Gray, whose best dishes were Black Hamburgh and Muscat of Alexandria Grapes; 3d, Mr. Goodman.

Four dishes of fruit.—1st, Mr. Searing; 2d, Mr. Gibbons, gr. to F. Scudamore, Esq., Maidstone.

Single Pine.—1st, Mr. W. F. Smith, gr. to Mrs. Byass, Neville Court, with a fine fruit of Smooth Cayenne; 2d, Mr. Henderson, gr. to W. J. Deacon, Esq.

Three bunches of black Grapes.—Of these there were ten exhibitors, Mr. Staples taking the lead with Black Hamburgh, in good condition; 2d, Mr. W. F. Smith, who also had Black Hamburghs; 3d, Mr. Henderson, with Muscat Hamburghs.

Two bunches of black Grapes.—1st, Mr. Searing; 2d, Mr. Hoadley.

Three bunches of white Grapes.—In this class there were eight competitors, Mr. Gray being 1st, with Muscat of Alexandria, compact bunches, nicely coloured; 2d, Mr. Denton, gr. to A. T. Beeching, Esq., who had Buckland Sweetwater, fine bunches, beautifully coloured; 3d, Mr. C. Goldsmith, gr. to E. A. Hoare, Esq.

Two bunches of white Grapes.—1st, Mr. Headley; 2d, Mr. Martin, gr. to W. Johnson, Esq.

Three varieties of Grapes, one bunch of each.—1st, Mr. Gray, who staged Black Hamburgh, Foster's Seedling, and Muscat of Alexandria; 2d, Mr. Henson, with the same varieties; 3d, Mr. Goodman.

Melon.—1st, Mr. Ham, gr. to J. S. Johnson, Esq., with Hero of Looking; 2d, Mr. Searing.

Dish of Peaches.—1st, Mr. Goodman, with grand examples of Royal George, very highly coloured; 2d, Mr. Goldsmith, with Princess of Wales.

Dish of Nectarines.—1st, Mr. Goodman, with good examples of Pitamont Orange; 2d, Mr. Henderson.

Dessert Plums were present in large quantities and fine condition. With three dishes Mr. Staples had 1st; Mr. Waterman, 2d.

Three dishes of culinary Plums.—1st, Mr. Staples; 2d, Mr. Bolton.

- Of Apples, both dessert and culinary, there was abundance. With three dishes of dessert kinds Mr. Waterman had 1st; Mr. Staples 2d.

Three dishes, culinary varieties.—1st, Mr. Waterman; 2d, Mr. Cook.

Three dishes of desert Pears.—1st, Mr. Waterman; 2d, Mr. Staples.

Dish of Cherries.—1st, Mr. Waterman; 2d, Mr. Vans.

Mr. Carlton, gr. to Lord Hillington, exhibited, not for competition, a specimen of *Lilium auratum* with 142 flowers on twenty stems. The plant was grown in a 15-inch pot. It well deserved the Cultural Commendation that was awarded to it.

Cut flowers, not for competition, were contributed by the Westernham Nursery Company; a stand of fruit and flowers, by W. H. Smith; Dahlias, large-flowered, pompon, and single varieties, by Mr. Seale; and a group of Ferns by Mr. F. Webber, Quarry Hill Nursery, Tonbridge.

HARPENDEN HORTICULTURAL:

August 25.

FAVoured with brilliant weather, such as must cheer the hearts of horticulturists and agriculturists alike, the eighth annual exhibition of flowers, fruits, vegetables, and honey held by this Society proved a decided success. The site of the show was, as previously, by the kind permission of Sir J. B. Lawes, Bart., the Farnham Estate, in the lower part of Rothamsted Park, of easy access to the village and railway station. Harpenden has acquired a reputation in the county for the excellence of its horticultural shows, and the one just held far exceeded in extent and importance those of previous years. The entries were considerably more numerous, and the general character and arrangement of the show was very creditable. Prizes to the amount of nearly £100 were offered for competition, and the total number of exhibits sent was about 750, the contest being exceedingly keen in many of the classes.

A new feature in the schedule this year was a division confined to agricultural labourers, special prizes for this purpose being offered by several gentlemen in the locality.

The exhibits were tastefully arranged under two spacious marquees, a separate tent being set apart for table decorations and other floral designs contributed by lady competitors.

PLANTS.

Reverting to the order of the schedule, the first on the list is a class for six stove and greenhouse plants, in flower, distinct. Two collections only were staged, both excellent, but the judges had little difficulty in awarding premier honours to C. R. Fenwick, Esq., High Firs, Harpenden (gr. Mr. G. Underwood), for *Vinca rosea*, a really magnificent plant, loaded with blossoms; Allamanda Schottii, Dipladenia amabilis, Clerodendron Balfourianum, C. fallax, and *Pentas carnea*, a perfect beauty. The 2d prize went to J. Bundell Maple, Esq. (gr. Mr. T. Nutting), Chilkewbury, St. Albans, who showed specimens of *Bougainvillea glabra*, *Dipladenia boliviensis*, *Plumbago capensis*, *Allamanda Hendersoni*, *Vinca oculata*, and *Dipladenia Brexleyana*. These collections elicited the praise of all.

GROUPS OF PLANTS.

Facing the visitor on entering the largest tent was a brilliant group of flowering plants, also from the conservatories of Mr. C. R. Fenwick, High Firs, Harpenden, shown in competition for a special prize offered by H. T. Hodgson, Esq. This display, for wealth of colour, beauty of form, and general arrangement was unsurpassed by anything in the show, and easily won 1st place. The collection comprised among others, specimens of *Vinca alba*, *Bougainvillea glabra*, *Campanula pyramidalis* (a fine example), *Dipladenia alba*, *Clerodendron fallax*, *Lilium*, *Arecas*, *Elephas*, *Begonias*, and some exceptionally good Cockscombs of Cannell's strain. H. T. Hodgson, Esq. (gr. Mr. C. Sibley), was the only other competitor in this class, and staged a very pretty and effective group, taking 2d prize.

In the class for six foliage plants (distinct), J. Blundell Maple, Esq. (gr. Mr. T. Nutting), Chilkewbury, was 1st with *Cissus discolor*, *Croton Brongnia* James de Rothschild, one of the richest coloured varieties in cultivation; *Arcas Verschaffeltii*, *Croton Evansianus*, *Acalypha muscica*, and *Arcas luteocens*. J. S. Hill, Esq. (gr. Mr. W. F. Emptage), Hawkswick, St. Albans, came in 2d with examples of *Anthurium crystallinum*, *Pandanus Veitchii*, *Adiantum Farleyense*, *Cissus discolor*, *Musa Cavendishii*, and *Platycerium alcornoce*, a fines specimen of the Stag's-horn Fern.

For special prizes offered by C. R. Fenwick, Esq., High Firs, for a group of plants arranged for effect, on staging 12 feet by 6 feet, two very interesting collections were arranged, Mr. T. Nutting, Chilkewbury, heading the list with *Calceoliums*, *Liliums*, *Crotons*, a capital group specimen of *Scarfthoria elegans* occupying the centre. The groundwork chiefly consisted of Maidenhair Ferns, being broken up by other varieties of diverse habit, forming a very pleasing group; Mr. J. S. Hill (gr. Mr. W. F. Emptage), Hawkswick, St. Albans, was awarded 2d prize, with a capital assortment of *Droseras*, *Falms*, Ferns, *Begonias*, and *Caladiums*—

the specimens meriting particular notice being *Diefenbachia sanguinea picta*, *Opilopogon Jabara aureo-variegatus*, and *Fitonias Pearcei*.

BEGONIAS.

Some remarkably fine tuberous Begonias were shown by H. T. Hodgson, Esq. (gr. Mr. C. Sibley), winning 1st prize; Mrs. Warde (gr. Mr. G. Smith), Bennetts, Harpenden, taking 2d honours, in which collection we noticed one of Cannell's crimson scarlet doubles, a perfect gem, showing monstrous blooms.

FUCHSIAS.

Of the special prizes offered by J. B. Maple, Esq., for Fuchsias, the 1st was awarded to Mr. H. T. Hodgson, for an attractive lot of well grown plants; Mrs. Warde (gr. Mr. G. Smith), Harpenden, being a good 2d. In consideration of the excellence of his showing, G. Burnard, Esq. (gr. Mr. W. Pepper), Twin Water Park, was awarded an extra prize in this class.

MISCELLANEOUS.

Zonal Pelargoniums, both single and double, showed up in excellent forms, 1st prize for singles going to Messrs. East (gr. Mr. W. Littlechild), Highfield Hall, St. Albans; and the 2d to Mr. H. T. Hodgson.

In the doubles R. Mather, Esq. (gr. Mr. D. Simmonds), Kirkwick, Harpenden, took premier honours, an extra going to Messrs. East, of Highfield Hall, St. Albans.

Coleus.—Mr. R. Mather was the only competitor in the class for Coleus, and was awarded Mrs. Oliver's special prize for half-a-dozen capital plants, clean and well grown, which would have had little difficulty in holding their own in a more extensive competition.

Ferns.—The class for six exotic Ferns, for special prizes offered by Mrs. Baxendale, Blackmore End, Welwyn, was well contested, Mr. Fenwick, High Firs, Harpenden, carrying off 1st; Mr. G. Burnard, of Twin Water Park, coming 2d, the unsuccessful competitors being Mr. S. H. Hilly, Hawkswick, St. Albans, and G. N. Martin, Esq. (gr. Mr. F. H. Froud), The Bank, St. Albans.

At the lower end of this tent was a neatly arranged group of plants sent in, not for competition, by Sir J. B. Lawes (gr. Mr. W. Oliver).

CUT FLOWERS.

As usual at Harpenden cut flowers, especially Roses and Dahlias, occupied a most prominent place, a grand collection of Roses from the nurseries of Messrs. W. Paul & Son, of Waltham, not for competition, were the admiration of all visitors. Roses of every hue, so fresh and bright and numerous were exhibited, that the mind pictured to itself the scenery of the Rose gardens at Waltham Cross in full summertime. The collection comprised many of the newest and most beautiful varieties, including Madame William Paul, Comte Benoit, Charles Lamb, Colonel Felix Breton, Directeur Alphonse, Ella Gordon, Mdlle. Julie Gaulain, Marshall P. Wilder, Lord Frederick Cavendish, Professor Edward Regel, Messrs. George Dickson, and many charming varieties of the Bourbon, Tea-scented, and Noisette perpetua's.

ROSES: COMPETING CLASSES.

In the class for forty-eight cut Roses of distinct varieties, the well-known growers, Messrs. G. Paul & Sons, Cheshunt, made a splendid show, and deservedly occupied the 1st position, some of the newer kinds especially pointed out being G. Baker, Duke of Albany, Sunset, Madame Norman Neruda, Marshall P. Wilder, Madame Bertha Mackart; others equally good being Madame Eugène Verdier, Black Prince, Maurice, A. K. Williams, John Stuart, Mdlle. Madame Victor, and Mdlle. Julie Gaulain. The Rev. W. H. Jackson, M.A., Stagden Vicarage, took 2d, with a collection well worthy of notice, among which we observed a very pretty and new variety named after the Princess of Wales, and another the Countess De Lenzia.

Messrs. G. Paul & Sons also stood 1st with twelve Tea Roses, including Beauté de l'Europe, Sunset, Madame Eugène Verdier, and the best of the older varieties—Innocente Pirola, a cream-coloured bloom, most delicately scented. The Rev. W. H. Jackson again ranked 2d, with a well-finished lot.

DAHLIAS.

For the prizes for Dahlias of forty-eight distinct varieties Mr. Henry Glasscock, of Bishop Stortford, and Messrs. G. Paul & Sons, Cheshunt, were the only competitors, and the former, whose association with Dahlias is well known, exhibited one of the finest collections we ever remember to have seen. Most of them were superb, and embraced choice blooms of I. Williams, Flag of Truce, General Gordon, Ethel, Briton, Bird of Passage, Mrs. Gladstone, Mrs. H. Glasscock, Burgundy, Imperial, Daches of Albany, Senator, Joseph Green, Wizard, Mrs. Langtry, and Romeo.

For the collection of twenty-four varieties, Mr. T.

Jarrett, South Mill, Bishop Stortford, was 1st, with a collection that was much admired; the 2d prize winner being Messrs. East (gr., Mr. Littlechild), Highfield Hall, St. Albans.

Mrs. Drake Jarrard, of Lamer Park, Wheathamstead (gr., Mr. G. Tilbury), was the only exhibitor in the class for twelve Dahlias, and was awarded 2d prize.

Mr. J. Henshaw, of Harpenden, whose reputation as an amateur in the growth of these flowers is well known in the floral world, exhibited some excellent bunches of pompon Dahlias, capitally staged, and easily winning premier honours; the varieties included Professor Bergeat, Darkness, Sensation, Golden Gem, Fashion, Hercules, Dora, Butterfly, and Guiding Star. Messrs. East, Highfield Hill, St. Albans, were 2d in this class. Herbaceous cut flowers and Asters were also admirably shown, there being a keen competition with the latter.

FRUIT.

The display of fruit was upon the whole good, and fairly represented; fine bunches of Muscat of Alexandria Grape, exhibited by Mr. J. B. Maple, were particularly noticeable. Fruit, eight sorts, distinct, 1st prize also awarded to J. B. Maple, produce shown being Cherries (Bigarreau), Figs (Brunswick), Apricots (Moore Park), Melon (Masterpiece), Green Grape Plum, white Grapes (Muscat of Alexandria), black Grapes (Black Hamburg), and Peaches, not very first-rate. There were four competitors in this class, the two last of whom were adjudged equal.

G. N. Marten, Esq., The Bank, St. Albans, gained 1st prize for a Melon, for which there were eight entries.

VEGETABLES.

All kinds of vegetables were strongly shown, and the exhibits remarkably good. Potatoes being particularly worthy of notice, and pointing to a decided improvement in the cultivation of this tuber in the neighbourhood.

In the class for twelve sorts of vegetables, Mr. T. A. Beckett, of Penn, Amersham, deservedly gained 1st, the produce being—Pens, Duke of Albany; Beans, Canadian Wonder; Tomatoes, Carter's Perfection; Carrots, Sutton's New Intermediate; Beans, Champion Runner; Celery, Leicester Red; Onions, White Elephant; Artichoke, Green Globe; Cauliflowers, Walcherin; Marrow, Pen-y-bryd; Beets, Pragnell Exhibition; Potatoes, Vicar of Laleham. There were six competitors in this class, the 2d prize going to R. Hoare, Esq. (gr., Mr. F. Faint), Marden Hill, Hertford; and the 3d prize to H. T. Hodgson, Esq. (gr., Mr. C. Sibley), Harpenden.

LADIES' DIVISION.

The table decorations were pretty and attractive. Mrs. Mardell, Harpenden, was awarded 1st for a very artistic arrangement, yellow and pale-pink flowers being nicely blended with the Maidenhair Fern and some choice fruit, including Black Hamburg Grape, Plums, Peaches, Figs, Melon, and Pears. Mrs. Whitbread Roberts was 2d, with a light and effective table, which in some points was superior to the 1st prize winner, the flowers used being yellow Marguerites, Orchids, Begonias, Vallota purpurea, and Eucharis amarantha. Mrs. Stirling came in 3d, with a somewhat aesthetically arranged table, too flat and heavy, although the materials were choice.

Vases, button-hoes, and baskets were sent in fair numbers for competition.

Owing to the unfavourable season for honey, the exhibits in this department were considerably fewer than usual, but the quality was excellent. 7. W.

THE DEVON AND EXETER HORTICULTURAL: August 25.

THE above Society held its exhibition on the beautiful grounds of Northenhay, Exeter, under the most favourable circumstances as regards the exhibits, attendance, and the weather, which latter was all that could be desired. In the evening the whole of the tents and grounds were illuminated by thousands of coloured lamps, &c., producing a most charming and novel effect, and which proved highly attractive, for during the afternoon and evening between 4000 and 5000 persons visited the show, which has not been anything like equalled for a great number of years past.

The exhibits were excellent in every class. The plants—a matter of course when we find Mr. Locke, gr. to B. W. Cleare, Esq., of Newcombe, Crediton, taking the lead in most of the principal classes with plants that have figured at all the principal shows in the West this season as prize winners. Mr. Rowland, gr. to W. Brock, Esq., was not far behind in many instances, which means that he was a good 2d.

Mr. Teed, gr. to Mrs. Ensor, The Bungalow, Topham Road, Exeter, cut out well with stove and greenhouse flowering plants, and bids well to take a leading position in the future.

Fruit was, without exception, remarkably fine and well coloured, and each class numerously contested.

But perhaps vegetables created as much interest as anything owing to the fact that one of the Veitch Memorial prizes and 4/5 were offered for a collection of twelve kinds, supplemented by good 2d and 3d prizes by the Society. The competition was strong and keen. Mr. Garland, gr. to Sir Thomas Acland, Killerton, was the successful prize winner, whose exhibits received the full number of points in the judges' estimation. Mr. Leach, gr. to John Drew, Esq., Park Villas, Kenton, the previous winner of the Veitch Memorial prize at Exeter, took 2d, with an admirable collection; Mr. W. R. Baker, gr. to the Rev. P. L. D'Acland, being a good 3d.

A second collection of vegetables, consisting of ten kinds, the prizes being given by the firm of Lucombe, Pince & Co., was equally strongly contested, Mr. Garland again succeeding in distancing his brother competitors; Mr. Sparks, gr. to A. Barnett, Esq., of Tiverton, an old 1st prize-taker, being 2d, with a very creditable lot; 3d, to Col. Troyte.

The single dishes of vegetables were all of superior merit, which shows that, despite cold weather in spring and drought in summer, crops have not suffered very much.

The two large firms of Lucombe, Pince & Co. and Veitch & Son, of Exeter, as usual, contributed largely to the attractions of the show.

Messrs. Veitch filled up one end of the large tents with ornamental colour, clothing it with creeping and other plants, most cleverly arranged by Mr. Meyer, their landscape gardener, who has become famous in the West for his taste and skill in this department. In the evening, when it was lit up with various coloured and Arabian lamps, the effect was most beautiful. The same firm staged a great variety of Japanese Maples, of varied hues and most graceful habits; boxes of pompon Dahlias, arranged in bunches with buds, just as those kinds of Dahlias should be shown—Isabel, a nice fiery red; Cupid, Junker, Gem, White Button, Golden Canary, a splendid yellow; Little Duchess, and Little Bobby being the best of them. Boxes of Roses were also shown in good form, also double Dahlias, double Begonias (a magnificent lot), single Begonias, herbaceous and other flowers.

Messrs. Lucombe, Pince & Co. contributed a fine mixed collection of stove and greenhouse foliage and flowering plants in their usual form. Allamandas in variety and well flowered; Poinsettias, Vallotas, Heaths, Crotons in great variety, Ferns backed up with fine specimens of Palms such as Cocos Weddelliana, Corypha australis, Latanias, Tree Ferns, &c.—altogether a most pleasing and effective group. These were supplemented on tables opposite with boxes of herbaceous Phloxes, a white Aster called Mignonne, a beautiful white; Niphetos Roses, a superb lot; pompon Dahlias, Guiding Star, Duchess, Little Arthur, Little Helen, Gern, Isabel, Little Mistress, a very dark variety; Garnet, fiery red; Glowworm, and Dora, a lovely white, were the best. Several other varieties of Dahlias were staged in boxes of each, of superior merit.

OPEN COMPETITION.

Twenty-four Roses, distinct.—Only one competitor. This was awarded 2d prize, Mr. Teed being the only one that came up to the scratch.

Forty-eight Dahlias, double, distinct.—1st, Mr. J. Nation, Taunton, a well known Dahlia grower, his best flowers being Mr. F. Foreman, purple; James Huntley, dark red; Thomas Gordon, fine dark maroon; James Cocker, General Roberts, Rev. J. B. Camm, Artiste (fancy), very good; Mrs. J. C. Reid, Emily Edwards, beautiful flesh colour; Prince Bismarck, Pioneer, very dark; Ethel Britton, Jessie McIntosh, and Modesty. 2d, Mr. Crump, gr. to Mrs. Hart, who was a capital 2d.

Forty-eight Gladioli, distinct.—Mr. Dobree, of Wellington, had the field to himself with a superb lot of blooms.

Eighteen bunches of cut flowers, distinct.—1st, Mr. Locke; 2d, Mr. Rowland, both showing first-class lots of blooms.

PLANTS.

Nine stove and greenhouse plants, in flower.—1st, Mr. Locke, who staged fine specimens of Dipladenia amabilis, Eucharis, Ixora Williamsi, grand; Allamanda Hendersoni, Ericas Marooniana, Irybana, and retorta major, &c.; Mr. Teed taking 2d with a very fine lot of healthy and well-flowered specimens, having Ixoras Prince of Orange and Williamsi, beautifully flowered.

Six stove and greenhouse plants, in flower.—1st, Mr. Rowland, who staged a capital lot, his Dipladenia amabilis being extra good.

Nine stove and greenhouse foliage plants, distinct.—1st, Mr. Locke, with a grand lot, comprising Crotons Weissmanni and Warreni, splendidly coloured; Latania borbonica, grand plant; Kentias Balmoreana and australis, both fine specimens; Areca lutescens, Encephalartos villosa, a magnificent Palm; and Croton Williamsi. Mr. Rowland took 2d, also with

a fine collection; his Crotons Andreanus and Disraeli being especially well coloured.

Nine stove and greenhouse Ferns.—1st, Mr. Locke, with Marattia Cooperi, a grand and rare variety; Davallia Tyermanni, Gleichenias rupestris, glaucosens, spluncense, and Mendelli; Davallia polyantha, and Adiantum trapeziforme. Mr. Rowland again took 2d, his best being a grand piece of Neottopteris nidus-avis, Dicksonia antarctica and Alsophila australis.

Six stove and greenhouse Ferns.—Mr. Mollon, gr. to Mrs. Fongel, and Mr. Teed, were placed equal 1st, each staging well.

MISCELLANEOUS GROUP OF PLANTS,

arranged for effect, on 100 square feet of staging.—1st, Mr. Locke, who retrieved his position this year, having on the last occasion been beaten by Mr. Rowland, who now took the 2d prize. Both collections were examples of perfect skill and taste in cultivation and arrangement. Mr. Locke's small Crotons being perfectly coloured, his groundwork of Maidenhair being good, and he has improved upon former years by introducing more flowering plants, which this season did him good service.

Miscellaneous group, arranged for effect, on stage 5 feet square.—1st, Mr. Teed, who staged with good taste; 2d, Mr. Mollon, whose foliage was rather too heavy.

Six Fuchsias.—1st, Mr. Staddon, gr. to Colonel Courtenay, Millbrook House, Topham, who staged capital plants, and well flowered; 2d, Mr. Mollon, who had fine pyramidal and well-flowered plants also.

Six Lycopodiums.—1st, Mr. Locke; 2d, Mr. Teed.

Nine Gloxinias.—1st, Mr. Staddon, with a very nice fresh lot; 2d, Mr. Rowland.

Twelve British Ferns.—1st, Mr. Mollon; 2d, Mr. Locke.

Six Cockscombs.—1st, Mr. Mollon, with splendid heads of bloom.

Six double Begonias.—1st, Mr. Geeson, gr. to Lord Haldon, who had some capital plants, varieties raised by himself, and not surpassed—Sulphur Queen, Perfection, Exoniensis, White Lady, General Gordon (Lang); 2d, not awarded.

Six single tuberous-rooted Begonias.—1st, Mr. Rowland; 2d, Mr. Counter, gr. to Mark Farran, Esq.

Six dinner-table plants.—1st, Mr. Rowland.

Six Dracenas, distinct.—1st, Mr. Rowland.

Six zonal Pelargoniums, double, distinct.—1st, Mr. Staddon; 2d, Mr. Mollon.

Single ditto.—1st, Mr. Staddon.

CUT FLOWERS.

Twelve Dahlias, Juarez (Cactus Dahlia).—Twelve competitors entered, forming a very showy class. 1st, Mr. Crump, gr. to Mrs. Hart.

Twelve Gladioli, distinct.—1st, Mr. Dobree; 2d, Mr. Nation.

Twelve Roses, distinct.—1st, Mr. Evans, gr. to Captain Christy, who staged a first-class lot of blooms, equal to first crop.

Twelve Asters, incurved.—1st, Mr. Nation; 2d, Mr. Counter.

Twelve Asters, reflexed.—1st, Mr. Crump; 2d, Lady Bowring.

Twelve single Pelargoniums, distinct.—1st, Mr. Solmon, gr. to W. Dunsford, Esq.; 2d, Mr. Sparks.

FRUIT: OPEN.

Collection of ten distinct kinds.—1st, Mr. Locke, with a very nice lot of fruit indeed; 2d, Mr. Teed.

Collection of six distinct kinds.—1st, Mr. James, gr. to Sir John Walcott; 2d, Mr. Mairs, gr. to Sir John Shelley.

One Pine-apple.—1st, Mr. Ball, gr. to Sir Redvers Bulmer.

Three bunches of Black Hamburg Grapes.—1st, Mr. Stevens, gr. to C. D. Case, Esq., Ledbury Manor, Sidmouth, who had nice bunches, fine in berry; 2d, Mr. James, whose bunches were larger and better coloured, but small in berry.

Three bunches of Muscat of Alexandria.—1st, Mr. Stevens, with fine examples; 2d, Mr. Barnes, gr. to J. C. Daniels, Esq., Stoodleigh Court, Tiverton.

Three bunches of Madresfield Court Grapes.—1st, Mr. W. Langworthy, gr. to G. P. Benmore, Esq., Exmouth, with three magnificent bunches, each from 4 to 6 lb., perfectly finished; 2d, Mr. Pike, gr. to Rev. Clarke, Exmouth.

Three bunches of Alicante.—1st, Mr. Locke, with first-class fruit.

Three Foster's Seedling.—1st, Mr. Maris, rather small in bunch and berry.

Three Buckland Sweetwater.—1st, Mr. Langworthy.

Nine Peaches.—Numerously contested, and all splendid examples. 1st, Mr. Marsh, gr. to Sir J. Freake, Warfield, Dartmouth, with Sea Eagle; 2d, Major Porter.

Nine Nectarines.—1st, Mr. Barnes, very fine fruit; 2d, Mr. Geeson.

Melon, green or white flesh.—1st, Mr. J. Dane,

gr. to the Rev. T. J. Yarde, Chudleigh; 2d, Mr. A. Williams, gr. to W. C. Lein, Esq.

Melon, heart-flesh.—1st, Mr. J. Elliot, with Sutton's Invincible, the best Melon staged; 2d, Mr. G. Hamilton.

Nine Apricots.—1st, Mr. Scammell, gr. to W. Pope, Esq.; 2d, Mr. McMillan, gr. to Sir J. Stuckley, Bideford.

Nine Figs.—Mr. Isaac, gr. to B. C. Gidley, Esq., Exeter.

Nine Pears.—1st, Mr. Lang, gr., to Lord Poltimore; 2d, Mr. Geeson.

Nine Apples, dessert.—1st, Mr. Geeson, with Irish Peach; 2d, Mr. Langworthy.

Nine Apples, culinary.—1st, Mrs. Rowe; 2d, Mr. E. A. Sander, both showing Lord Suffolk.

Twelve Plums, yellow or green.—1st, Mr. Mairs; 2d, Mr. Lang.

Twelve Plums, red or purple.—1st, Rev. P. Williams; 2d, Mr. James.

VEGETABLES: OPEN.

Collection of vegetables, twelve kinds, exclusive of red Cabbage and salading.—1st prize, Veitch Memorial Medal and £5, supplemented by a 2d and 3d prize of £3 and £2, by the Society.—1st, Mr. Garland. This was indeed a superb collection, of clean growth, and well merited the award. It included Nonpareil Cabbage, Incomparable Dwarf White Celery, fine Autumn Giant Cauliflower, Veitch's Red Globe Turnip, New Intermediate Carrot (Veitch's), remarkably fine; Gifford Giant Runner Bean, Sutton's New Seedling Potato, Hathaway's Excelsior Tomato, good; Tender and True Cucumber, Duke of Albany Pears, and Giant Rocca Tipoli Onion. 2d, Mr. Leach, who also staged a splendid collection, which included International Potato, fine; Hathaway's Tomato, Duke of Albany Pears, Gifford Giant Runner Bean, Sulham Prize Celery, as his best dishes.

Collection of Vegetables, twelve kinds, exclusive of red Cabbage and salading. Prize of £5 5s, given by Messrs. Lumbe, Pince & Co.—Here again Mr. Garland distanced all other competitors; Mr. Sparkes, an old prizeman, coming in 2d with a capital lot.

READING HORTICULTURAL: Aug. 25.

THE Autumn exhibition took place, as usual, in the Abbey ruins, the approach being through the Forebury Gardens, now in excellent condition, under the management of Mr. Phippen. There was a decided falling off in plants, but cut flowers, fruits, and vegetables were very strong; still, the turf banks in the Abbey ruins are intended for plants, and when these are absent there is an inevitable appearance of nakedness.

FLOWERING PLANTS.

The only exhibitor of nine stove and greenhouse plants was Mr. J. F. Mould, of Pewsey; the only exhibitor of four plants Mr. Armistage, gr. to N. Clarke, Esq., Reading.

Mr. Mould had the best specimen plant, a good piece of Erica Austriana; Mr. Jennings, gr. to J. Freeman, Esq., Farnborough, with a good specimen of Eucharis amarantha.

Mr. Bright, gr. to P. Karslake, Esq., White Knights, Reading, had some of the best Fuchsias we have seen at Reading for some time, and he was 1st in both classes for four plants.

Balsams were fairly good, and some excellent Cockcoombe came from Mr. Booker, gr. to C. Little, Esq., Twyford.

Mr. Hatch, gr. to B. L. Stevens, Esq., Reading, had the best six Lilliums, staging well-grown and bloomed examples of varieties of L. speciosum.

Mr. Dockerell, gr. to W. J. Palmer, Esq., was 1st, with six good plants of tuberous-rooted Begonias; Mr. Sumner, gr. to J. H. Millard, Esq., Reading, being 2d.

FOLIAGE PLANTS.

Mr. Mould was the only exhibitor of six foliated plants, taking the 1st prize with a very creditable lot. Mr. Dockerell had the best six stove and greenhouse Ferns—small but well grown; Mr. Mould being 2d.

Some admirably grown Lycopodiums came from Mr. Dockerell.

Mr. Mould had the best three Palms, Mr. Phippen being 2d.

Coleus were well shown by Mr. E. Jones, nurseryman, Henley-on-Thames; and Mr. Best, gr. to W. Cheate, Esq., The Vine, Basingstoke.

Bedding Pelargoniums of the variegated section were well presented by Mr. Sumner.

Some capital table plants were shown by Mr. T. Lockie, gr. to G. O. Fitzgerald, Oakley Court, Windsor; Mr. Howe, gr. to Sir R. Sutton, Benham Park, Newbury.

GROUPS ARRANGED FOR EFFECT.

On this occasion Mr. Phippen was placed 1st, and

Mr. Sumner 2d, but both fell below the usual average of the groups seen at Reading.

CUT FLOWERS.

Mr. C. Turner, Royal Nursery, Slough, sent several stands of excellent Dahlias, but did not compete. The best eighteen came from Mr. John Walker, nurseryman, Thame; Mr. J. Tranter, Upper Assenden, Henley-on-Thames, being 2d, an extra prize being awarded to Messrs. J. Cheal & Sons, Nurserymen, Crawley.

Mr. Tranter had the best twelve fancy Dahlias; Mr. John Walker being 2d.

Messrs. J. Cheal & Sons were 1st with a very fine stand of twelve bunches of single Dahlias, Mr. Jackson, Kidderminster, being 2d.

Roses were in good form for the season. Mr. T. W. Girdlestone, Sunningdale, had the best eighteen; Messrs. Perkins & Son, nurserymen, Coventry, being 2d. Mr. Girdlestone also had the best twelve; Mr. Turton, gr. to J. Hargreaves, Esq., Maiden Erleigh, being 3d.

Mr. J. Walker had the best six blooms of any one variety, staged by Michael Niel.

Astery, both quilled and French, were numerous, and very fine. Mr. John Walker being 1st in both classes; the Cockage or crown-flowered varieties were not so good, and scarcely deserve a place in the schedule.

Mr. Owen, nurseryman, Maidenhead, was 1st with a fine lot of twelve spikes of Gladiolus; Mr. Jackson being 2d.

Double Zinnias were a very fine feature; the best eighteen came from Mr. Benham, Bagnor, Newbury; Mr. Walker being 2d; and his style of staging is certainly to be preferred, showing also about 4 inches of stalk with leaves.

Mr. Jennings, gr. to J. Freeman, Farnborough, had the best eighteen bunches of cut flowers; Mr. Phippen being 2d.

Mr. Booker had the best twelve bunches, Mr. Howe being 2d.

TABLE DECORATIONS, &c.

The best three vases for a dinner-table came from Messrs. Phillips, Reading, exquisitely arranged; Miss Simmonds, Caversham, being 2d.

Messrs. L. Cole & Co., Reading, had the best three vases of wild flowers; Miss M. Taylor, Cravenhurst, Reading, being 2d.

Messrs. L. Phillips were 1st with a basket of sweet-scented flowers; Messrs. L. Cole, Reading, being 2d.

The best bridal bouquet came from Messrs. Perkins & Sons, Coventry; Mr. Phippen, Reading, being 2d.

The former had the best three button hole bouquets; Mr. Phippen, 2d.

FRUIT.

The best collection of eight dishes came from Mr. Goodman, gr. to C. Hammersley, Esq., Bourne End, who had Black Hamburg and Muscat of Alexandria Grapes; Dr. Hogg Peach, Windsor Pears, Humboldt Nectarine, Shepley Apricot, Victory of Bristol Melon, and Brown Turkey Figs—a very good lot indeed; 2d, Mr. Ashby, gr. to W. Fanning, Esq., Whitechurch; Mr. Howe, Benham Park, being 3d.

The best six dishes came from Mr. G. H. Richards, the Gardens, Somerley, Ringwood; Mr. Lockie, Oakley Court, Windsor, being 2d.

The best three bunches of Black Hamburg Grapes came from Mr. Bowerman, gr. to C. Hoore, Esq., East Hackwood Park, excellent specimens; Mr. Turton was 2d; and W. Ashby, 3d.

Mr. Cakebread, gr. to Sir F. Rose, Bart., Raynor's, Penn, Bucks, was 1st in the class for any other class of Madresfield Court; Mr. Wells, gr. to R. Ravenhill, Esq., Winkfield, being 2d with Cooper's Black.

Mr. Cakebread had the best three bunches of White Muscat, a very good sample indeed; Mr. Maher, gr. to A. Waterhouse, Esq., Yattendon, being 2d.

Mr. K. Kneller, gr. to W. S. Tortal, Esq., Malshanger Park, Basingstoke, was 1st with any other white, staging very fine Buckland Sweetwater; Mr. Wells being 2d with the same variety.

The best six Peaches were Grosse Mignonne, from Mr. Ashby; Mr. Best being 2d with Red Magdalen.

Mr. Cox, gr. to Mrs. Caledon Alexander, Calcot Park, Reading, had the best six Nectarines, staging Victoria; Mr. Howe being 2d, with Pine-apple.

Apricots were finely shown, Mr. Howe having the best.

Figs were equally good, Mr. Lockie being 1st.

Mr. Goodman had the best three dishes of Plums, having Jefferson's, Washington, and Kirke's; Mr. Palmer, Thame, Ditton, being 2d.

Mr. Turton was 1st both with six dishes of dessert and culinary Apples; Mr. Paxton, gr. to the Hon. C. S. Irby, Taplow, being 2d with dessert, and Mr. Howe with culinary.

Mr. Richards had the best four dishes of Pears, Mr. Paxton being 2d.

The best four dishes of stewing Pears came from Mr. Turton, Mr. Paxton being 2d.

A First-class Certificate of Merit was awarded to

Mr. Mortimer, Fareham, for twenty fruits of Sutton's Imperial green-flesh Melon, perfect in flavour.

VEGETABLES.

We can only allude to these briefly. Messrs. Sutton & Sons offered handsome special prizes for nine dishes of Potatoes, Mr. Allen, the Gardens, Ramsbury, Hungerford, being 1st; Mr. Pope, High Clere Gardens, Newbury, 2d; and Mr. Elliott, Braywick Lodge, Maidenhead, 3d.

Mr. Allen had the best dish of Sutton's Seedling Potato, Mr. Elliott being 2d, and Mr. Wells 3d.

The best brace of Melons came from Mr. Lockie, who had Oakley Hall Seedling, a fine green-fleshed variety; Mr. Howe being 2d, with Blenheim Orange.

Mr. Waite, Escher, had the best collection of six kinds of vegetables, Mr. Kneller being 2d, and Mr. Richards 3d. The whole of the prizes in the foregoing classes were offered by Messrs. Sutton & Sons.

Messrs. Webb & Co., Stourbridge, offered special prizes for six collections of vegetables, Mr. Lye, the Gardens, Sydmoncton Court, Newbury, being 1st, Mr. Kneller 2d, and Mr. Richards 3d.

Messrs. Carter & Co., Holborn, offered prizes for the best brace of Model Cucumber, Mr. Lockie being 1st, and Mr. Jennings 2d. Also for the best brace of Blenheim Orange Melon, Mr. Lockie being again 1st, and Mr. Goodman 2d.

A First-class Certificate of Merit was awarded to Mr. E. Owen, Maidenhead, for an excellent strain of single and double Begonias.

HOUNSLOW HORTICULTURAL SOCIETY.

The first exhibition of this newly established Society took place on Wednesday, August 25, in the grounds attached to the Riding School, Whitton Dene, and great praise is due to the Society for the highly satisfactory issue attending this exhibition, the exhibits, which were of a miscellaneous and magnificent character, being tastefully arranged in several marquees—the collections of fruit and vegetables proving a continual source of interest.

A special feature in the show was a very fine non-compulsion group of hardy ornamental trees and shrubs contributed from Messrs. Charles Lee & Sons' arboretum, Isleworth, unique and graceful in its arrangement. Mr. Webb, their manager, may be said to have excelled himself on this occasion, this being one of the best groups he has put up this season.

STOKE-UPON-TRENT HORTICULTURAL.

THE fifth show of the above Society was held in the Recreation Ground, Stoke, on August 26, and was but poorly attended. Two Veitch Memorial Medals were offered on this occasion, the one for a group of foliage and flowering plants occupying 150 square feet, the other for a group of Orchids covering an area of 40 square feet; in addition to the medals a money prize of £5 was added to the first-named. There were only three competitors for these, namely, Mr. Roberts, gr. to A. Nicholson, Esq., of Stoke, who was awarded the Medal for a group containing some well-grown foliage and flowering plants, the other groups being very inferior. The Medal and £5, for a group of Orchids, was worthily awarded to Mr. Stevens, gr. to — Thompson, Esq., Walton, Stone, who showed a remarkably fine group for the season. The various plants were tastefully put up, consisting of fine forms of Odontoglossum Alexandrie and O. Pescatorei, Oncidium macranthum and O. crispum, Dendrobium Dorei, D. Jamsianum, several Masdevallias and Cypripediums, and the lovely pure white Sobralia viridifolia, bearing two good flowers; and various other Orchids. This was the only competitor for these prizes. The other classes were for plants, with the exception of that for the groups covering 50 square feet.

The miscellaneous stove and greenhouse plants were poorly represented, the 1st prize in each of these sections being easily secured by Mr. Roberts, of Highfield House, who generally shows well, the plants exhibited by him being good examples of cultivation.

CUT FLOWERS.

Roses were good for the time of year, but not so distinct as they ought to have been.

Thirty-six blooms (open).—Messrs. Sandy & Son, Stafford, were 1st, followed closely by Messrs. Perkins & Son, Coventry.

For twenty-four blooms (amateurs), Mr. Tillens was 1st, and for twelve blooms Mr. Pyatt was 1st.

FRUIT.

Grapes were only fair. For three bunches, Black Hamburg, 1st, Mr. Wilker, The Hayes, Stone, for good bunches; while Mr. Bola secured the premier

award for Muscats. Peaches and Nectarines were fair. Some nice collections of fruit were shown, Mr. Turner, gr. to B. Fitzherbert, Esq., being 1st; Mr. Myatt, gr. to W. E. Bowis, Esq., 2d; and Mr. Roberts, of Highfield, 3d.

VEGETABLES.

These were good all round, entries numerous, and competition strong. 1st, for collection, Mr. Turner, for a good lot, well put up; 2d and 3d, Mr. J. Wilkes and Mr. W. Stevens, in the order named.

AMATEURS AND COTTAGERS.

The exhibits by those who showed in the classes devoted to these were highly creditable, especially the vegetables, many examples being of first-class merit. A. O.

SANDY AND DISTRICT FLORAL AND HORTICULTURAL: August 27.

THIS was the eighteenth annual recurrence of one of the most popular exhibitions held in Bedfordshire, and it took place, as usual, in the park of Sandy Place, the residence of J. N. Foster, Esq. It is a remarkable show, because so all-embracing. The schedule of prizes includes so many subjects that have a special interest for country residents, that something like a dozen tents are required to accommodate all, and they are erected in the form of an immense ring, with the band, refreshment tents, &c., in the centre. In addition to plants, flowers, fruits, and vegetables prizes are offered for the special produce of market gardeners and farmers, the latter showing roots, white Wheat in bushels, and ears of Wheat, Barley, and Oats. Then there are prizes for honey, beekeeping and ornamental work, stuffed animals, butter, eggs, trussed fowls, game birds, poultry, pigeons, rabbits, &c. It is perhaps not to be wondered at that the country people attend this show in such large numbers, for there are local committees in all the surrounding villages. The acting secretary is Mr. William Green, who has filled this office for several years past, and who works very hard to make the annual exhibition a success.

PLANTS.

The plant tent is the leading feature of the Sandy show. On this occasion there were five collections of ten stove and greenhouse plants in flower competing for the handsome prizes in the division open to all. The 1st fell to the lot of Mr. W. French, gr. to J. Marriott, Esq., Cambridge, who had a nice fresh lot of plants, the leading ones being *Allamanda nobilis* and *A. Hendersoni*, a fine *Lapageria rosea*, *Isortia javanica* floribunda, and *L. amabilis*, *Stephanotis floribunda*, *Dipladenia amabilis*, *Bougainvillea glabra*, &c. 2d, Mr. J. Cypher, nurseryman, Cheltenham, who had a fine *Phenocoma proflera* Barnesi, and the splendid *Isortia Duffii* that made such a sensation in the West of England, but in the company of others of a stale character, which detracted from their value; a good *Erica Antoniana* Turnbulli, &c. Mr. J. F. Mould, nurseryman, Pewsey, was 3d.

Mr. G. Redman, gr. to J. H. Goodgases, Esq., Eynesbury, St. Neots, was 1st with six foliage plants, Mr. G. Clayton, gr. to J. Astell, Esq., Woodbury Hall, Sandy, being 2d; in both cases rather small in size, but fresh and well grown.

Mr. Clayton had the best six stove and greenhouse Ferns, stating fine examples of the following *Adiantum*: — *Farleyense*, *cuneatum*, *gracillimum*, and *concinnum*; *Gymnogramma chrysophylla*, and *Blechnum covocadeense*; 2d, name not given, but with five well grown *Adiantum*s and *Platycodon alicornu*. *Fuchsia* were good, so were *Coleus*; all fresh and nicely grown; and there were some capital tuberous-rooted Begonias, Mr. W. Apethorpe, Cambridge, being 1st, with a very good lot; Mr. Brown, of Cambridge, being 2d.

Zonal Pelargoniums in 12's and also in 6's, and nosegay and variegated, also in 6's, were all good, and made an excellent display. Achimenes were very nice also. In fact, the quality and varieties of the plants shown deserve a fuller report than we are able to give them.

CUT FLOWERS.

These were one of the showy points of an exhibition good in all its parts. In the open-to-all class for forty-eight cut Roses Messrs. Paul & Son, Old Nurseries, Cheshunt, were 1st, with a remarkably good lot for the season of the year, the best varieties being Jean Ducher, A. K. Williams, Comtesse de Nadailac, Madame Berard, La France, Maréchal Niel, Ulrich Brunner, Pierre Notting, Star of Waltham, Ella Gordon, and Marie Baumann; 2d, Messrs. J. Burrell & Co., Hare Hill Nurseries, Cambridge.

E. B. Lindsell, Esq., Hitchin, had the best twenty-four varieties, a fairly good lot; the Rev. Dr. King, Madely, Cambridge, being 2d.

A splendid lot of twenty-four spikes of Gladioli was shown by Messrs. J. Burrell & Co., remarkable for the massiveness of the flowers and high quality of

the varieties; Mr. E. T. Atherton, Cambridge, was 2d.

Mr. Henry Glasscock, Bishops Stortford, a well-known Hertfordshire amateur, was 1st, with an excellent lot of twenty-four Dahlias, including fine blooms of William Rawlings, F. J. Saltmarsh, Harry Turner Joseph Ashby, Flag of Truce, Mrs. W. Slack, Shirley Hibberd, Mrs. Gladstone, James Cocker, Hon. W. P. Wyndham, Mr. G. Harris, Countess of Ravensworth, James Service, Miss Cannell, Mrs. Douglas, Ethel Britton, John Henshaw, Joseph Green, Acme of Perfection, &c. 2d, Mr. W. Peterfield, gr. to A. J. Thornhill, Esq., Diddington, Cambridge.

Mr. W. Apethorpe had the best twelve show varieties; the Rev. E. L. Fellowes, Wimpole Rectory, Royston, being 2d.

Mr. Glasscock had the best six fancy varieties, having good blooms of Wizard, Professor Fawcett, Flora Wyatt, Mandarin, Duchess of Albany, and Miss Browning; 2d, Mr. Petfield.

Single Dahlias being shown as single blooms made but an indifferent display.

Mr. W. French had the best lot of twelve cut flowers, showing a capital lot; Mr. Redman being 2d.

Outdoor flowers in bunches of twelve were a striking feature, but the stands were in almost every case too small to show them off with advantage. African Marigolds were of very fine quality, and the French varieties were much finer than are usually seen. All the classes of Asters were good. Pentstemons and Phloxes very good.

FRUIT.

There was a very good show of fruit, and especially of the hardy varieties. The best collection of eight dishes came from Mr. Tilbrook, gr. to B. Brown, Esq., St. Neots, who had Black Hamburgh and Muscat of Alexandria Grapes; Lord Napier Nectarine, Moor Park Apricots, Jefferson Plums, Melon, and Kerry Pippin Apples; 2d, Mr. R. Aldis, Old Warden Park.

Mr. W. Murfin, Great Haughton, had the best six dishes.

Mr. G. Warbury, gr. to Mrs. Medland, St. Neots, had the best two bunches of Black Hamburgh Grapes; in the case of the 2d prize winner was not given.

Mr. Jos. Topham, the Gardens, Thorney Park, Peterborough, had the best two bunches of any other black, staging Gros Maroc, and the same variety was 2d: name of exhibitor not given.

Mr. G. D. White, gr. to Captain Stanley, Longstone Hall, Cambridge, had the best two bunches of Muscat of Alexandria Grapes.

Mr. G. R. Abis had the best two bunches of any other white, staging Buckland Sweetwater; Mr. Petfield being 2d with Golden Champion.

Peaches and Nectarines were good for outdoor-grown fruit.

Plums were largely shown; the leading dessert sorts were Green Gage, Jefferson's, Transparent Gage, and Prince Englebert. The leading culinary varieties were Diamond, Victoria, and Yellow Magnum Bonum.

Dessert Apples were good, the leading ones Red Astrachan, Irish Peach, and Juneating.

Kitchen Apples were very fine indeed; the best Lord Derby, Lord Suffolk, and Hawthornden. The best dessert Pears were Bon Chrétien, Jargonelle, and Windsor.

Morello Cherries were both numerous and fine; so were red, black, and white Currants. But it would occupy a great space to give details of the competitions in these classes.

VEGETABLES.

These were an astonishing feature—so numerous and fine, but the show was taking place in the midst of one of the great market gardening districts of England. The best collection of twelve varieties came from Mr. H. Bourne, Huntingdon Road, Cambridge, who had Cauliflower, Globe Artichokes, Potatoes, Celery, Peas, Scarlet Runners, Tomatoes, Cucumbers, &c.; 2d, Mr. C. Ellis, Bedford.

Mr. W. Ridgewell, Cambridge, had the best collection of six varieties.

The best collection of six dishes of Potatoes came from Mr. H. Ridgewell, who had Gladstone, white round; Adirondack and Vicar of Lechliffe, Chancellor, Beauty of Hebron, and Mr. Breese. 2d, the Rev. J. D. Hawkesley, The Chaplaincy, Baldock, having Lady Truscott, Queen of the Valley, Reading Russet, Victor, Salmon Kidney, and International. All other vegetables were numerous and of the best quality.

The display of produce by market gardeners and farmers, by housewives and children, was all of a very interesting character, and it is satisfactory to know that there was a large attendance of visitors.

Mr. T. S. Ware, Tottenham, staged, not for competition, five boxes of cut Dahlias, single, pompon, and Cactus types—a very fine lot indeed, the single flowers including a few that were new, and of excellent quality. This contribution was very highly Commended.

RYDE HORTICULTURAL.

THE second horticultural show (confined to growers in the Isle of Wight), under the auspices of the Ryde Sports and Amusements Association, was held in the beautiful grounds of the Isle of Wight College, on Thursday, August 29, and was even more successful than last year, the open classes attracted exhibitors from all parts of the island, and the result was an excellent and varied show, and a good attendance of visitors. A charming day enabled the visitors thoroughly to enjoy the floral beauties in the tents, and the walks in the beautiful grounds, which are kept in excellent order. The show was opened by the Mayor, Alderman Barron, who was supported by Professor Simonds, the chairman of the committee, J. O. Brook, Esq., W. Gibbs, Esq., and the popular secretary, Mr. J. Eley.

Tent No. 1 contained the flowers, open to the island. A most striking feature here was the various collections of six splendid baskets of cut flowers, which have not been equalled at any show this season, the competition being a very close one.

The prizes were awarded to Mr. Rayner, Grove House, Shanklin, 1st; Mr. J. Attrill, 2d; Mr. H. Butcher and Mr. H. Tolly, equal 3d.

Gladioli were well shown by Mr. Attrill was 1st, Mr. G. Spragg, 2d.

Dahlias very good, Mr. W. Matthews, 1st; Mr. J. Flux, 2d; Mr. J. Tilden, 3d.

Single Dahlias formed a pretty show: Mr. H. Butcher, 1st; Mr. J. Flux, 2d.

The cut Roses were rather below average—Mr. E. Williams, nurseryman, Ryde, 1st; Mr. E. Park, 2d. Zinnias and Marigolds very good.

Hand bouquets were very pretty, and in good taste. Mr. Banting, florist, Shanklin, 1st; Mr. E. Brading, 2d; Miss Cus, 3d.

Zonal Pelargoniums, twenty-four distinct, were shown well by Mr. James, florist, Ryde, who was 1st.

Tent No. 2 was devoted to specimen plants and groups, table plants, Ferns, &c., Begonias, Balsams, Cockscombs, Coleus, Lilies, zonal Pelargoniums, &c. —Mr. James carrying off the 1st prize, a special prize for the group, presented by Professor Simonds.

Tent No. 3 was devoted to fruit and vegetables, Mr. J. Mearns being the principal prize-taker in fruit, and Mr. Pouchon, Banting Barrow in vegetables.

Special prizes, presented by Mrs. Gibbs, for three lady's sprays—Mr. J. Dale, 1st; Mr. J. Banting, 2d.

Special prize, model garden, B. Barron, Esq., 1st; Mr. G. Spragg, 2d; Mr. J. Burt and Mr. C. Price, equal 3d.

Messrs. W. & G. Drover, florists, Farcham, exhibited some splendid bouquets and lady's sprays, not for competition. Correspondent.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, SEPTEMBER 1, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.		HYGROMETRIC DEGREES FROM GLOBE'S TABLE 7th Edition.	WIND.	RAINFALL.
	Mean Reading Reduced to Sea Level.	Difference from Average of 48 Years.	Highest.	Lowest.			
Aug. 26	29.89	+0.04	74.3	53.5	50	S.W.	0.00
27	29.98	+0.13	76.5	55.5	51	S.W.	0.00
28	29.93	+0.07	75.9	57.8	46	S.W.	0.00
29	29.85	+0.00	73.5	57.3	33	S.W.	0.00
30	29.88	+0.03	75.5	54.1	57	S.W.	0.00
31	29.85	+0.00	75.9	57.2	42	S.W.	0.00
Sept. 1	29.93	+0.08	75.5	59.0	54	S.W.	0.00
Mean	29.90	+0.04	75.5	57.8	47	S.W.	0.00

Aug. 26.—Fine, but dull till 4 P.M.: fine afternoon.

27.—Fine day throughout.

28.—A fine warm day.

29.—A very fine day.

30.—A fine warm day throughout.

31.—Fine and very warm; deep blue sky.

Sept. 1.—Fine and very warm day.

LONDON: Atmospheric Pressure. — During the week ending August 28, the reading of the barometer at the level of the sea increased from 30.03 inches at the beginning of the week, to 30.07 inches by the

morning of the 22nd, decreased to 29.99 inches on the same day, increased to 30.06 inches by the afternoon of the 23d, decreased to 29.93 inches by 5 P.M. on the 24th, increased to 30.17 inches by 9 A.M. on the 27th, and was 30.05 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 30.06 inches, being 0.05 inch lower than last week, and 0.38 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 76°.5 on the 27th; the highest on the 23d was 70°.5. The mean of the seven high day temperatures was 74°.2.

The lowest temperature in the week was 53°.5 on the 26th; the lowest on the 28th was 57°.5. The mean of the seven low night temperatures was 55°.7.

The greatest range of temperature in one day was 21° on the 27th; the smallest was 15°.5 on the 23d. The mean of the seven daily ranges was 18°.5.

The mean daily temperatures were, 64°.2 on the 22nd; 61°.6 on the 23d; 64°.8 on the 24th; 63°.4 on the 25th; 63°.6 on the 26th; 65°.3 on the 27th; and 66°.1 on the 28th. These were all above their averages by 3°.5, 0°.9, 2°.9, 3°.2, 5°, and 5°.9 respectively.

The mean temperature of the week was 64°.1, being 4°.9 higher than last week, and 3°.7 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 133° on the 28th. The mean of the seven readings was 121°.2.

Rain: none fell during the week.

ENGLAND: Temperature.—During the week ending August 28, the highest temperatures were 79° at Cambridge and Hull, 77° at Truro and Sheffield; the highest at Preston was 70°, at Plymouth 72°, and at Bristol, 73°. The general mean was 74°.9.

The lowest temperatures were at Wolverhampton 45°.8, at Sunderland, 47°, and at Truro and Bristol 49°; the lowest at Liverpool was 55°.3, at Leeds and Preston 54°. The general mean was 51°.3.

The greatest ranges were at Truro and Hull 28°, and at Wolverhampton 27°.6; the least ranges were 16° at Preston, 18°.7 at Liverpool, and 19° at Plymouth. The general mean was 23°.6.

The mean of the seven high day temperatures was highest at Cambridge 76°.1, at Blackheath 74°.2, and at Truro 72°.3; and lowest at Sunderland 66°.7, at Preston 67°.8, and at Bradford and Newcastle 68°.1. The general mean was 70°.4.

The mean of the seven low night temperatures was highest at Liverpool, 57°.2, at Plymouth, 57°, and at Preston 56°.8; and was lowest at Sunderland, 50°.7, at Wolverhampton 52°.2, and at Hull 53°.1. The general mean was 55°.4.

The mean daily range was greatest at Cambridge, 21°.3, at Blackheath 18°.5; and at Hull 17°.6; and was least at Preston 11°, at Liverpool 11°.9, and at Plymouth 12°.1. The general mean was 15°.

The mean temperature was highest at Blackheath 64°.1, at Cambridge 63°.9, and at Leeds 63°; and was lowest at Sunderland 57°.1, at Wolverhampton 59°.1, and at Newcastle 60°.1. The general mean was 61°.4.

Rain.—The largest falls were at Bradford 0.7 inch, at Wolverhampton 0.06 inch, and at Preston 0.04; no rain fell at several stations. The general mean fall was 0.02 inch.

SCOTLAND: Temperature.—During the week ending August 28th, the highest temperature was 74°.1 at Leith; the highest at Perth was 67°.5. The general mean was 70°.8.

The lowest temperature in the week was 42° at Aberdeen; the lowest at Leith was 49°.3. The general mean was 46°.1.

The mean temperature was highest at Leith, 59°.5; and lowest at Perth, 57°.4. The general mean was 58°.5.

Rain.—The largest fall was 0.8 inch at Greenock, and the smallest was 0.09 inch at Leith. The general mean fall was 0.22 inch.

JAMES GLAISHER, F.R.S.

Obituary.

MR. BERNERS.—We have to regret the decease of Mr. Berners, of Woolverstone Park, Ipswich, at the ripe age of 86. He was an enthusiastic horticulturist, and carried out many improvements at Woolverstone, where our well-known correspondent Mr. J. Sheppard has been gardener for many years.

Answers to Correspondents.

BOOK ON SHRUBS, TREES, &c.: D. B. & T. J. Grigor's *Arboreal Culture*.

BOOKS: J. J. S. R. Certainly, you should get the fourth edition; the third is nearly ten years old. Van Tieghem's *Triclit* can be had from Messrs. Williams & Norgate, or other foreign bookseller.

CATERPILLAR: W. F. The caterpillar of the Lime Hawk-moth.

CATTLEYA GRANULOSA: F. G. T. A large flower of this seldom seen Guatemalan species. The spotting on the sepals and petals is not so profuse as in some others we have seen.

FUNGUS: E. C. The examples reached us in bad condition, and imperfect as regards the stem. For the names of fungi young, sound, and perfect examples must always be sent. Your specimens do not appear to belong to the edible series. W. G. S.—F. The fungus is the common Stink Horn (*Phallus impudicus*). Try a strong solution of carbolic acid, if you can do so without hurting other vegetation.

FUNGUS FROM ROOF OF CELLAR: B. B. W. The fungus of dry-rot (*Merulius lacrymans*) in its most dangerous state, actively vegetating and full of spores. W. G. S.

GALL ON OAK: H. N. E. The Artichoke Gall.

GINGER-BEER PLANT: *Constant Subscriber*. See *Gardener's Chronicle*, vol. xxi., p. 542, April 26; and vol. xxi., June 13. The articles are too lengthy for us to republish again, after so short an interval.

LARVA AND CATERPILLAR: W. M. P. & Co. The larva is that of the Privet Hawk Moth (*Sphinx ligustri*); the caterpillars those of the Goat Moth (*Cossus ligniperda*). Trees infested with these moths should have the bark smeared with clay and cow-dung, to prevent the moth laying her eggs in the bark. The reddish chrysalids should be sought for in June and early in July, when they will be found at the entrances to their burrows.

MUSHROOMS: R. W. P. The Mushrooms sent represent a worthless variety of the "Horse Mushroom" (*Agaricus arvensis*). Sometimes the "Horse Mushroom" is very indigestible, and as you confess your examples to be both "tough" and "very tasteless," will trouble about the safety or otherwise of eating them, especially as they grow with you in such a vile position? W. G. S.

NAMES OF FRUIT: Geo. Dyke. Apples: Nos. 1 and 4, identical, not half grown or developed—sent later on; 2, Brownlee's Russet; 3, Calville St. Sauveur; 5, Chrysal Codina; 6, probably Gioia Mundi—not sufficiently developed.

NAMES OF PLANTS: K. L. Shrub, *Viburnum Lantana*. Beech Hill, *Agrostis Eupatorium*.—E. V. B. The Bee Nettle (*Galeopsis versicolor*), and *Mimulus luteus*—the latter not a born Scot, but an introduction from North America.—G. & J. L. 1, *Pavia macrostachya*; 2, *Thymum repens*, variety; 3, *Arista lochia Clematis*; 4, *Helianthus scapellatus*; 5, not recognised; 6, *Artemisia maritima*; 7, *Agopodium Podagraria* with variegated leaves; 8, *Abutilon megapotamicum*.—W. & S. 1, 2, and 4, *Helianthus rigidus*; 3, *H. scapellatus*.—A. J. S. 1, *Sidalcea oregana*, small-flowered form.—J. T. S. 1, the double *Pomegranate*; 2, *Diplacis glutinosus*.—H. J. Norwich. *Hemerocallis flava*, with double flowers.—A. Chalmers. *Onocidium Schillerianum* and *Stanhopea aurea*.—J. D. D. *Silenea spectabilis*.—Colonel Berkeley. *Dendrobium Brymerianum*.

PEAR LEAVES: J. W. The larva of the Pear Sawfly. Dust with quicklime, or syringe with paraffin emulsion. Scrape off the surface soil and burn it with the garden rubbish to destroy the chrysalis.

PEAS: W. G. Holmes. Of the various sorts of Peas forwarded to this office all were, with two exceptions, too old for good cooking examples; and with the exception of St. Duthus—of which a plant was sent bearing 45 pods, with about 300 Peas in all, an average which can scarcely be called—the others appeared to be selected pods. This latter method of sending Peas for an opinion is very unsatisfactory, as it is impossible to infer anything from the pods as to the cropping qualities, either as to quantity or successful formation of pods. British Lion, cooked of a good colour, was a large seed, wanted sweetness. John Bull was too old, therefore it boiled of a light colour; it was rather sweeter than the first named. Duke of Albany, very large seed; cooked of a good colour, was not sweet. St. Duthus, large seed; colour dark green; sweet in flavour. Alfred the Great was too old; colour good; not sweet. Progress, not sweet-flavoured; the younger seeds were of a good dark green colour. Evolution (1) averaged 10 seeds in a pod; colour good; flavor wanted sweetness; this kind has curved pods. Evolution (2) averaged 8 seeds in a pod; colour good; rather sweeter than No. 1; the pods of this kind are slightly hooked at the end, otherwise they are straight. Duke of Connaught had the lowest average (51) of Peas in a pod, was not sweet, and the colour was light in consequence of the pods having been too old. The average number of seeds in a pod of the kinds not specially mentioned above was 7.

YOUNG GARDENER EMIGRANT: C. J. D. If you would turn your hand to anything that offers on arrival, and not stay idling about in the port of arrival,

you would obtain a knowledge of the country and its people that would be of inestimable advantage to you when you should at length decide on the line you would definitely adopt. Journeyman gardeners, and indeed, few other gardeners, are wanted in any but the oldest colonies.

INTELLIGENT READERS, DO PLEASE NOTE.—*Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and NOT to the Editor.*

CATALOGUES RECEIVED.

SMITH & SIMONS, 36 to 38, Howard Street, Glasgow—Bulbs.

W. LOVEL & SON, Driffield—Strawberries.

J. MEREDITH, Warrington—Bulbs.

CENTRAL SOCIETY, Fawcett, Velschow, Lower Bavaria—Strawberries.

W. SMITH & SON, 18, Market Street, Aberdeen—Bulbs.

W. PAGE & SONS, Waltham Cross—Bulbs.

B. GILBERT, Dyke-Bourne, Lincolnshire—Bulbs, Plants, &c.

P. BARR & SON, 12, King Street, Covent Garden, W.C.—Daffodils.

T. KENNEDY & CO., Dumfries—Select Bulbs.

R. CLEAVER, Lichfield—Seeds, Bulbs, and Sundries.

VICARS, COLLYER & CO., Leicester—General Autumn Catalogue.

W. STRIKE, Stockton-on-Tees—Bulbs, &c.

W. BULL, New Plant Merchant, 536, King's Road, Chelsea—Bulbs, Tubers.

CARTER & CO., 237 and 238, High Holborn, London—Flowering Bulbs, &c.

ROBERT VEITCH & SONS, 54, High Street Exeter—Flower Roots, &c.

FISHER, SON & SIBRAV, 4, Market Street, Sheffield—Dutch Flower Roots, &c.

COMMUNICATIONS RECEIVED: J. T. B.—H. W. W.—R. D.—A. D.—J. B.—M. S.—W. G. S.—E. V. B.—Jules de Cock—J. T. D. L.—W. G. S.—R. V. B.—A. J. D.—J. D.—H. M.—A. D. W.—J. Anderson.—T. B.—H. M.—Dickson & Co.—J. B.—G. B.—Webb & Sons.

Markets.

COVENT GARDEN, September 2.

[The subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, and also several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. Ed.]

MARKET very quiet, with large supplies of hard fruit. Heavy consignments from Channel Islands. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	d. s. d.		d. s. d.
Aralia Sieboldi, doz.	6 0 8 0	Foliage Plants, var.	
Balanis, per dozen	3 0 6 0	Each one	0 10 0
Begonia, per dozen	6 0 12 0	Fuchsia, dozen	3 0 6 0
Bouvardias, doz.	12 0 18 0	Gladioli, 12 pots	6 0 9 0
Calceolarias, per doz.	4 0 12 0	Hydrangeas, doz.	6 0 12 0
Cockscombs, dozen	3 0 6 0	Lilies, in var., doz.	12 0 30 0
Cyperus, per dozen	4 0 12 0	Lobelias, per dozen	3 0 4 0
Dracena terminalis,		Marguerites, Daisy,	
per dozen	30 0 60 0	per dozen	0 12 0
—viridis, per doz.	12 0 24 0	Mignonette, per doz.	4 0 6 0
Euonymus, in var.,		Myrtles, per dozen.	6 0 12 0
per dozen	6 0 18 0	Palm in var., each	2 0 21 0
Evergreens, in var.,		Pelargoniums, doz.	6 0 12 0
per dozen	6 0 24 0	—scarlet, per dozen.	6 0 9 0
Ficus elastica, each	1 6 7	Pennis, dozen	2 6 0
Ferns, in var., dozen	4 0 18 0	Rhodanthes, doz.	3 0 6 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	d. s. d.		d. s. d.
Arum lilies, 12 blms.	6 0 6 0	Marguerites, per 12	
Asters, 12 blooms	0 2 0 4	Bunches	3 0 6 0
Bouvardias, per bun.	6 0 12 0	Mignonette, 12 bun.	1 0 3 0
Carnations, 12 bun.	3 0 6 0	Hydrangeas, 12 bunches	1 0 3 0
Conflowers, 12 bun.	1 6 0	Pelargoniums, per 12	
Daisies, common, 12		trusses	0 9 1 0
—bunches	2 0 4 0	—red, 12 trusses	0 2 0 6
Eucharis, per dozen	3 0 6 0	Pyrthrums, 12 bun.	2 0 4 0
Forget-me-Not, or		Rhodanthes, 12 bun.	6 0 9 0
Myosotis, 12 bun.	2 0 4 0	Roses, 12 bunches	1 0 3 0
Garlands, 12 blooms	2 0 4 0	—red, per dozen	0 9 1 0
Gladioli, 12 sprays	1 0 2 0	—outdoor, 12 bun.	2 0 6 0
Heliotropes, 12 spr.	0 6 0	Siepiantums, 12 spr.	1 0 3 0
Isaacs, white, bun.	0 6 0	Sweet Peas, 12 bun.	1 6 0
Lapageria, 12 bl.	2 0 6 0	Sweet Sultan, 12 bun.	3 0 4 0
Lavender, 12 bun.	3 0 5 0	Tropeoliums, 12 bun.	1 0 2 0
Lilium longiflorum,		Tuberose, 12 blms.	0 4 0 9
12 blooms	4 0 6 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	d. s. d.		d. s. d.
Artichokes, per doz.	4 0 4 0	Mint, green, bunch	0 4 0 0
Aubergines, each	0 3 0	Mushrooms, punnet	1 6 0 6
Beans, Kidney, lb.	0 4 0	Mustard, pressed	4 0 4 0
Beet, red, per dozen	1 0 0 0	Onions, per bushel	4 0 0 0
Carrots, per bunch	0 6 0	Parsley, dozen bunch	3 0 0 0
Calliflowers, per doz.	3 0 0	Peas, French, 12 bun.	1 0 0 0
Herbs, per bundle	1 6 0	—kidney, per cwt.	4 0 5 0
Cucumbers, each	0 6 0	Shallots, per pound	0 3 0 9
Endive, per dozen	1 0 0	Spinach, per bushel	4 0 0 0
Fennel, per bunch	0 4 0	Tomato, per lb.	0 3 0 0
Leeks, per bunch	0 3 0	Turnips, bunch	0 0 0 0
Lettuce, per dozen	1 0 0	Veget. Mar., each	0 3 0 0

POTATOS:—Kent Regents, 8s. to 9s. 6; Schoolmasters, 7s. 6; Beauty of Hebron, 10s. per ton.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½ sieve	1 6 3 6	Peaches, per dozen	2 0 6 0
Figs, per dozen	0 6 1 0	Pears, per dozen	2 0 6 0
Grapes, per lb.	0 6 2 0	Fine apples, Eng. lb.	2 0 3 0
Kent Filberts, per lb.	0 8 1 0	— St. Michael, each	2 0 6 0
Lenons, per case	18 0 36 0	Plums, ½ sieve	1 0 2 6
Melons, each	1 0 2 0		

SEEDS.

LONDON: September 1.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that in the continued absence of rain the sowing demand for seeds is naturally small. As regards values no important change can be noted. Samples of new foreign Alsike and red Clover seed are now showing, but no business has yet resulted. New Mustard is also offering. For winter Tares less money is taken. Bird seeds are firm. Fine new blue Peas command full prices. New Rape seed is exceedingly cheap.

CORN.

MARK LANE: Aug. 30.—The weather continues all this could be desired for the harvest, and reaping makes rapid progress. The quality of the Wheat that have been cut varies a good deal, but the condition is perceptibly improving, from the continued brilliant weather. Samples of new Wheat were shown to-day of a mixed character. The sales made were chiefly at 30s. to 33s. for red, and 32s. to 35s. for white, but some of the better samples were held 1s. above these rates. Old Wheats were 1s. lower on the week to sell. Foreign Wheat was virtually neglected, and although there were sellers at 6d. and 1s. reduction, scarcely anything was done. Flour ruled generally 6d. per sack lower, with a very limited demand. Grinding Barley fully supported late value, though the trade was quiet. Beans and Peas were also firm. Common Oats, of which the supplies are large, tended in buyers' favour. Fine qualities upheld their value.

Sept. 2.—English Wheat met but few bids, and these were at reduced rates, whilst sellers of foreign were willing to accept easier prices, but found opportunity of doing so only upon a very small scale. About the same remarks will apply to flour. For Barley the market was barely so steady, but good malting kinds were firm. Beans and Peas maintain late value. Oats tended in buyers' favour.

Average prices of corn for the week ending August 28:—Wheat, 33s. 2d.; Barley, 24s. 5d.; Oats, 21s. 9d. For the corresponding period last year:—Wheat, 33s. 3d.; Barley, 28s. 4d.; Oats, 20s. 6d.

FRUITS AND VEGETABLES.

COLUMBIA (East London): Sept. 1.—Good supplies. Trade fair, prices moderate. Quotations:—Apples, 3s. to 6s. per bushel; Pears, 2s. 6d. to 5s. 6d. do.; Black Plums, 1s. 3d. to 2s. 3d. do.; Orleans do., 1s. 6d. to 2s. 6d. do.; Egg do., 1s. to 1s. 6d. do.; Scarlet Beans, 1s. to 1s. 6d. per sieve; French do., 1s. 6d. to 2s. do.; Vegetable Marrows, 1s. 6d. to 2s. 6d. per tally; Cabbages, 3s. to 4s. do.; Carrots, 1s. 6d. to 2s. per dozen bunches; Turnips, 1s. 6d. to 2s. 6d. do.; Onions, 2s. to 2s. 6d. do.; Sage, 1s. 6d. to 2s. do.; Parsley, 1s. 6d. to 2s. do.

STRATFORD: August 31.—Supplies have been good, and a fair trade has been done at the following prices:—Cabbages, 2s. to 3s. per tally; Cauliflowers, 1s. to 1s. 6d. per dozen; Turnips, 1s. 6d. to 2s. per dozen bunches; Carrots, household, 1s. to 1s. 6d. do.; Apples, 2s. 6d. to 3s. 6d. per bushel; Watercress, 6d. per dozen; Pears, Williams, 4s. 6d. to 5s. per bushel; Cucumbers, 6d. to 9d. per dozen; Plums, 2s. 6d. to 3s. per bushel; Tomatoes, 1s. 6d. to 1s. 6d. per dozen; Marrows, 1s. to 1s. 3d. per dozen.

POTATOS.

BOROUGH AND SPITALFIELDS: Aug. 31.—The trade continues to move very slowly, and prices are without improvement. Quotations:—Magnum Bonum, 60s. to 80s.; Kent Regents, 60s. to 80s.; Hebrons, 70s. to 80s.; Essex Shaws, 50s. to 70s.; Early Roses, 50s. to 70s.; and Jersey kidneys, 80s. to 100s. per ton.

COLUMBIA (East London): Sept. 1.—Quotations:—Magnums, 50s. to 65s.; Regents, 60s. to 65s.; Victorias, 50s. to 60s.; and Beauty of Hebron, 55s. to 60s. per ton.

STRATFORD: Aug. 31.—Quotations:—Roses, 55s. to 60s.; Regents, 55s. to 60s.; Magnums, 60s. to 65s.; and Beauty of Hebron, 60s. to 65s. per ton.

Imports.—The imports into London last week consisted of 46 tons 43 bags from Barleur.

HAY.

WHITECHAPEL: Aug. 31.—Trade dull, with good supplies. Prices:—Clover, 30s. to 30s.; inferior, 70s. to 85s.; hay, prime, 70s. to 92s.; inferior, 45s. to 65s. Straw, 26s. to 37s. per load.

Sept. 2.—A large supply was on offer. The trade was dull, at previous prices.

STRATFORD: Aug. 31.—Quotations:—Hay, 80s. to 100s.; Clover, 90s. to 100s.; and straw, 30s. to 35s. per load.

Government Stock.—Consols closed on Monday at 104½ for delivery, and 104½ to 104½ for the account. Tuesday's closing prices were 104½ to 104½ for delivery, and as on the previous day for the account. The final quotations of Wednesday were 104½ to 104½ for delivery, and 104½ to 104½ for the account. Thursday's closing prices were 104½ to 104½ for delivery, and 104½ to 104½ for the account.

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To Her Majesty The Queen.  To H.R.H. The Prince of Wales.

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SUTTON'S AUTUMN CATALOGUE

FOR 1886,

Which contains complete Cultural Instructions and Select Lists of the best kinds of Flower Roots;

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ILLUSTRATIVE OF

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ARALIA SIEBOLDII, in 4½, 1½, per dozen.
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ADIANTUM CUNEATUM, in 4½, 1½, per dozen.
PTERIS TREMULA, in 4½, 1½, per dozen.

Package extra.
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FOR SALE, 16,000 GENISTAS, out of Thumbs. Good plants at 10s. 6d. per 100. For cash only. Postal orders payable at Leyton Green.
T. BALDWIN and SON, Edith Nurseries, Birchall Wood, Leyton.

FERNS—FERNS—FERNS.

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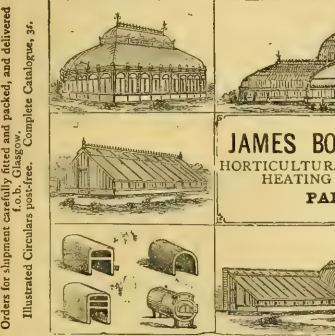
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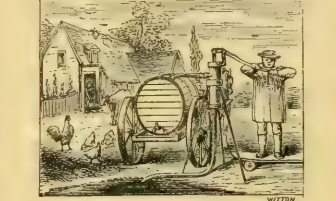


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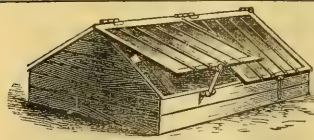
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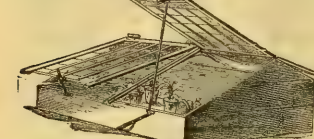
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Colonial and Indian Exhibition, 1886.

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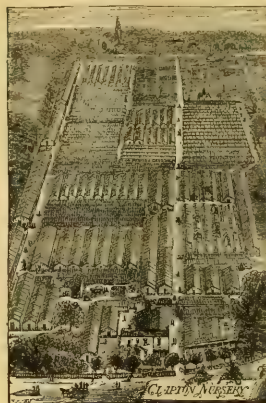
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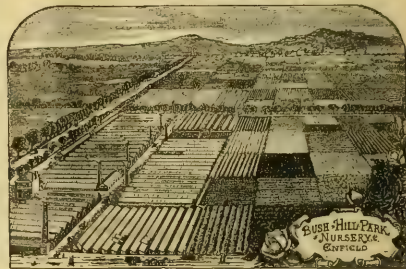
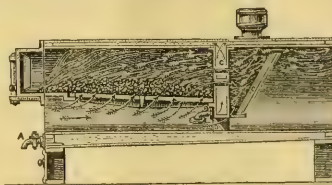
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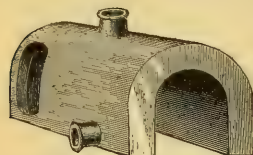
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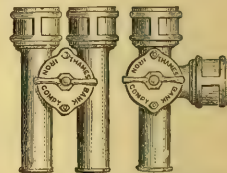
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SALES BY AUCTION.

Bulbs—Bulbs—Bulbs.
MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., every **MONDAY, WEDNESDAY, and SATURDAY**, first-class **Bulbs** from Holland, fitted to suit all Buyers.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7200.)
SPECIAL SALE OF ORCHIDS IN FLOWER.
MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY**, September 16, at half-past 12 o'clock precisely, a fine **COLLECTION OF ORCHIDS IN FLOWER**, including *Cattleya* (dark var.), *C. Gaskelliana*, *Odontoglossum* plants and varieties; *O. Roelii*, *D. formosum giganteum*, *D. bigibbum* (dark var.), *Saccobolium Blumei* n. sp. (specimen plants), &c.; also twenty fine large **WAX CAMELLIAS**.

On view morning of Sale and Catalogues had.

Thursday Next.—(Sale No. 7200.)
VALUABLE IMPORTED AND ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will include in his **SALE BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY** NEXT, September 16, a fine lot of **CENTRAL AMERICAN ORCHIDS**, comprising fine specimens of *Cypripedium caudatum*, *Fria cinnabai* new and very beautiful plant, *Hydrochloa tils*, *Warszewiczella discolor*, *Trichopila lepida*, *T. suisva* (a true), *Odontoglossum Kramerii*, and many other **ORCHIDS** from the same sources, also several sets of **OPONTIOGLOSSUM WALLISII**, *O. RAMOSISSIMUM*, *L. PATINII* (new), *ANGULOAS*, *BULLIA LAINDLEI*, *B. PAPINII*, *BURTONIA FRAGRANS*, *ROSEA*, &c., collected by Mr. C. Patin, of Antiochia.

On view morning of Sale, and Catalogues had.

Dutch Bulbs.

Every **MONDAY, THURSDAY, and SATURDAY.**

MESSRS. PROTHOROE AND MORRIS will **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every **MONDAY, THURSDAY, and SATURDAY**, at half-past 12 o'clock precisely each day, extensive consignments of **DUTCH BULBS**, *TULIPS*, *CRUCIFERAE*, *NARCISSUS*, and other **BULBS** from Holland, in excellent quality, and fitted to suit the Trade and Private Buyers.

On view morning of Sale, and Catalogues had.

Monday Next.

30,000 **DOUBLE AFRICAN TUBEROSES.**

MESSRS. PROTHOROE AND MORRIS will include in their sale of **BULBS** on **MONDAY** NEXT, 30,000 **DOUBLE AFRICAN TUBEROSES**. Very fine bulbs in cases.

On view morning of Sale and Catalogues had.

Sales Next Week.

GREAT HORTICULTURAL SALE WEEK.
ANNUAL TRADE SALES OF WINTER-FLOWERING HEATHS, GREENHOUSE PLANTS, &c.

MESSRS. PROTHOROE AND MORRIS respectfully give notice that they have arranged these Sales for next week as follows:—

MONDAY, September 13, Great Sale of DUTCH BULBS, at PROTHOROE AND MORRIS' ROOMS.

TUESDAY, September 14, at the BURNT ASH LANE NURSERIES, LEA, by order of Messrs. B. Maller & Sons. (See following Advertisement.)

WEDNESDAY, September 15, at the NURSERIES, LEA BRIDGE ROAD, by order of Mr. J. Fraser. (See following Advertisement.)

THURSDAY, September 16, Great Sale of DUTCH BULBS, at PROTHOROE AND MORRIS' ROOMS.

At the BRUNSWICK NURSERIES, TOTENHAM, by order of Mr. J. Maller. (See following Advertisement.)

FRIDAY, September 17, Great Trade Sale of 4500 ESTABLISHED HEATHS, without Reserve, at PROTHOROE AND MORRIS' ROOMS, by order of Mr. F. Sander.

At the LONGLANDS NURSERIES, SIDCUP, by order of Messrs. Gregory & Evans. (See following Advertisement.)

SATURDAY, September 18, Sale of DUTCH BULBS, at PROTHOROE AND MORRIS' ROOMS.

At the DYON'S LANE NURSERY, UPPER EDMONTON, by order of Mr. H. B. May. (See following Advertisement.)

Catalogues of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

Lea, Kent, &c.

GREAT ANNUAL TRADE SALE to commence punctually at 11 o'clock, in consequence of the large number of lots.

MESSRS. PROTHOROE AND MORRIS are instructed by Messrs. B. Maller & Sons to **SELL** by **AUCTION**, on the Premises, the **BURNT ASH LANE NURSERIES, LEA, S.E.**, adjoining the Railway Station, on **TUESDAY, September 14**, at half-past 12 o'clock precisely, the following:

25,000 **WINTER-BLOOMING HEATHS**, beautifully grown and remarkably well set with bloom-buds, including 15,000 *Erica* *hymenalis*, 500 *Crataegus*, and large quantities of *Melanthera*, *Vestrum*, *Persicaria erecta*, *Cavendishii*, and other best kinds; also a large quantity of small *Erica* *hymenalis* for growing on; 8,000 *SOLANUM CAPSICASTRUM*, unusually well grown; 6,000 *BOUVARDIAS*, including *Lemoine's* New Doubles; 2,000 *GENISTAS*, very fine; 1,000 *CYCLAMEN PERSEICUM*; 2,000 *ADIANTUM CUNCRATUM*; 2,000 *LOMARIA GIBBA*, true, compact variety, and other *PERNS*; 500 *EPACRIS*, well grown; a quantity of extra strong *Marchal Niel* and other *Tea ROSES*; five English-grown *Tea ROSES*, including *Queen of Wales*, *Robusta*, *PALMS*, *FICUS ELASTICA*, *GREENHOUSE PASSIFLORA*, *POINSETTIA*, *AMPELOPSIS VEITCHII*, a fine lot of *RAUCARIA EXCELSA*, *STEPHANOTIS*, and other stock.

May now be viewed. Catalogues may be had on the Premises, or of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

N.B.—Messrs. P. & M. desire to call the attention of intending Purchasers to the fact to be offered above. The Plants are remarkably well grown, and the quality of the whole will be found in an equally good condition as in former years.

Lea Bridge Road Nurseries, Leyton.

Annual Sale of winter-blooming and other **HEATHS**, remarkably well set with bloom, including *HYMENALIS*, *CRATILIS*, *HYBRIDA*, and others; 10 *EPACRIS*, of the choicest kinds; 4,000 *CYCLAMEN PERSEICUM*, Fraser's superb strain; 4,000 *GENISTAS*, including *Leucoanthemum* and *Noisette ROSES*; 4,000 *SOLANUM CAPSICASTRUM*, in berry; 4,000 **DOUBLE WHITE PRIMULAS**; 4,000 **BOUVARDIAS**, well set; 4,000 *RAUCARIA EXCELSA*; 2,000 *ROSEA SUPERBA*, *CLEMATIS INDIVISA*, *LO-BATA*, and other greenhouse Climbers; a beautiful lot of *HOLLYHOCKS*, named *Dr. H. B. May*, 2,000 *early flowering* and other *CHRYSANTHEMUMS*; 2,000 *Marchal Niel* and other *ROSES*, from 7 to 10 feet; a large quantity of fine plants of *AMPELOPSIS VEITCHII*; 2,000 *MAUIA*, *CRATAEGUS*, and others, a splendid lot of variegated *IVIES*, 8,000 *GENISTAS* for growing on, and other stock.

MESSRS. PROTHOROE AND MORRIS are instructed by Mr. John Fraser to **SELL** the above valuable Stock by **AUCTION**, on the Premises, The Lea Bridge Road Nurseries, Leyton, E. (a few minutes' walk from the Hoe Station, Great Eastern Railway), on **WEDNESDAY, September 15**, at 11 o'clock precisely, in consequence of the large number of lots.

May now be viewed. Catalogues may be had on the premises; or of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C., and Leytonstone.

Totenham, N.

Great Annual Trade Sale of Winter Flowering Heaths, Stove and Greenhouse Plants, &c. To commence punctually at 11 o'clock, there being upwards of 1200 lots.

MESSRS. PROTHOROE AND MORRIS are instructed by Mr. John Fraser to **SELL** by **AUCTION**, on the Premises, The Brunswick Nursery, Totenham (close to White Hart Lane Station, G. E. Ry.), on **THURSDAY, September 16**, at 11 o'clock precisely, without reserve, 2,000 **Winter-blooming Heaths**, including *hymenalis*, *Graciosa*, *cafra*, *Willmores* and other best varieties.

4,000 *Epacris*, in best varieties
 5,000 well-grown *Ferns*, including
Adiantum, *Pteris*, &c.
 1,000 *Double white Primulas*
 500 *Crotas*, beautifully coloured
 500 *Ficus elastica*

2,000 small *Ericas*, *Ceanothus*, *Ferns*, &c., for growing on; large *Camelias* and *Azaleas* for cutting, *G. Golden Eucyomus*, and the usual great variety of *Stove* and *Greenhouse* Plants suitable for the Trade and extensive buyers.

May now be viewed. Catalogues may be had on the premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C., and Leytonstone.

The whole of the Stock is in first-rate condition, the *Ericas* being especially well set for flower.

Sidcup, Kent, &c.

GREAT ANNUAL TRADE SALE of Winter-flowering **HEATHS** and other **PLANTS**, for the purpose of collecting entries ever submitted to the Public. The stock of *Heaths* is unrivalled (without doubt the finest lot ever offered by Messrs. Gregory & Evans), the plants being particularly well grown, and especially well set with flower, and worthy of inspection by intending purchasers.

MESSRS. PROTHOROE AND MORRIS are instructed by Messrs. Gregory & Evans to **SELL** by **AUCTION**, on the Premises, the Longlands Nursery, Sidcup (ten minutes' walk from the Station, South Eastern Railway), on **FRIDAY, September 17**, at 11 o'clock precisely (there being upwards of 1200 lots), an enormous lot of unusual quality of **WINTER-BLOOMING HEATHS** and other **PLANTS**, including:—

20,000 *Erica hymenalis*, well set, and *E. hymenalis* *superba*
 4,000 *Erica gracilis*
 1,000 *Erica* *cafra*
 4,000 *Erica* *ventricosa* and *per-
 spicata*, of sorts
 10,000 *Erica Cavendishii*
 7,000 *Erica*
 2,000 *Tea* *Roses*, splendid
 3,000 *Solanums*
 3,000 *Adiantum* *cuneatum*

Thousands of small **HEATHS** for growing on, &c.
 The stock is now on view. Catalogues may be had on the Premises, or of the Auctioneers, 67 & 68, Cheapside, London, E.C., and Leytonstone.

Upper Edmonton.

THE FIRST ANNUAL SALE of 30,000 beautifully grown **GREENHOUSE and other PLANTS.**

MESSRS. PROTHOROE AND MORRIS are instructed by Mr. H. B. May, to **SELL** by **AUCTION**, on the Premises, Dyons Lane Nursery, Upper Edmonton, on **SATURDAY, September 18**, at 12 o'clock precisely, 30,000 **GREENHOUSE and STOVE PLANTS**, remarkably well grown and in the best possible condition, comprising 10,000 *Tea* *Roses*, including *Queen of Wales*, *Robusta*, *Lucifer*, &c.; 2,000 *Tea* *Roses* in Pots, of the best sorts; 3,000 variegated *Ivies*, 2,000 *Clematis*, finest varieties; 5,000 *Ferns*, beautifully grown, and including *Adiantum cuneatum*, *Farfense*, *Patoti*, &c.; *Pteris* *crinita*, *Mayii* (a lovely new Fern), *Davallias*, and others; 2,000 *Ampe-
 lopis Veitchii*, 200 *Azaleas*, *Fielder's White*; and 4,000 *MAUIA*, *CRATAEGUS*, and others, such as *Equil-grown* *CAMELLIAS*, *EUCARIS*, *Double PRIMULAS*, *DRACENAS*, *GENISTAS*, *MYRTLES*, &c.

May now be viewed. Catalogues may be had on the Premises, or of the Auctioneers, 67 & 68, Cheapside, London, E.C., and Leytonstone.

Friday Next.

SPECIAL TRADE SALE WITHOUT RESERVE.
 4500 **ESTABLISHED ORCHIDS.**

MESSRS. PROTHOROE AND MORRIS are instructed by Mr. F. Sander to **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **FRIDAY** NEXT, September 17, at half-past 12 o'clock precisely, 4500 **ESTABLISHED ORCHIDS**, comprising all leading kinds.

This Sale offers a splendid opportunity to the Trade and large buyers for securing healthy well-grown Orchids, and Gentlemen for collecting choice lots to apply to the sale.

The entire 4500 plants will be sold without the least reserve. On view morning of Sale, and Catalogues had.

The Celebrated Fernfeld (Bride of Allan) COLLECTION of **ESTABLISHED ORCHIDS**, formed during the past thirty years, the whole of which are in the best possible condition.

For Sale, by order of Dr. Paterson, entirely without reserve.

MESSRS. PROTHOROE AND MORRIS are favoured with instructions to **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **TUESDAY and WEDNESDAY, September 21 and 22**, at half-past 12 o'clock precisely, his entire **COLLECTION OF ESTABLISHED ORCHIDS**. The plants are in the most luxuriant health, and amongst them will be found the following:

Lycaste Skinnerii alba
Cyclopogon *Gardneriana*, very fine plant
Crataegus, *Chatsworth* variety, large plant
Lelia elegans *Turmenii*, said to be the finest plant in the country
Clusia alba
purpurata alba
superbissima
Pernis alba
Cypripedium *Dominianum*
villosum
ayanum
Aspidolobos *Clowesi*, grand plant
Agave *burneum* *viridis*
Saccobolium *gemmatum*
Aspidolobos *suavis*
Reichenbachia
Cattleya *Trianae*, magnificent variety
Miltonia *Morelana* *atro-rubens*
Cattleya *Trianae* *Symii*
Clusia alba
labiata, autumn flowering
Dendrobium *thysanotum* *Wal-*
kerianum
Ainsworthii
Griffithianum
Guzmania *carolinensis*
Vanda *Cattacutai*
Sanderiana
suavis, Dr. Paterson's variety
tricolor *Patonii*
Cymbidium *Lowianum*
Guzmania *carolinensis*
Odontoglossum *Alexandrae*, large plants and fine variety
Klabochorum
Karwinskii
Urochloa *variegata*

On view morning of Sale, and Catalogues had.

Flowering Orchids.—Special Sale
MESSRS. PROTHOROE AND MORRIS beg to announce that their **NEXT SPECIAL SALE** of the above, will take place on **THURSDAY, September 28**, for which they are glad to receive **NOTICE OF ENTRIES** as soon as possible.

Hereford.
In Liquidation. The Cranston Nursery and Seed Company, NINE DAYS' SALE.

GREAT UNRESERVED CLEARANCE SALE of the whole of the **NUSSERY STOCK**, now in splendid condition, and extending over 80 acres of ground, being one of the largest Auctions held for many years. Important to the Trade and others largely engaged in planting.

MESSRS. PROTHOROE AND MORRIS are favoured with instructions from the Liquidator to **SELL** by **AUCTION**, on the Premises, the King's Acre Nurseries, near Hereford, on **MONDAY, October 4**, and eight following days, at 12 o'clock precisely each day, the whole of the unusually well-grown **NUSSERY STOCK**, which has been carefully selected and removed to Hereford in excellent and thriving condition. To convey an idea of its magnitude, the following items may be mentioned:—

Enormous quantities of *Conifers*, including splendid specimens, from 6 to 20 feet in height, and thousands of younger plants.

11,000 standard *Ornamental*
 Trees, consisting of
 Pines, extra fine
 Purple Beech, double
 Scarlet Thorns, &c.
 500,000 *Forest Trees*, Larch,
 Spruce, &c.
 100,000 *standard* *Ash* and
Oak
 20,000 *3 to 5-yr.* *Cork*
 7,000 *Aucubas* of sorts
 4,000 *English* *Yew*, various
 sizes
 2,500 *Hollies* of sorts
 15,000 *Laurels* (common, *Caucasian*, *calceolice*, and *roundifolia* varieties)
 11,500 *Evergreen* and *Ornamental* *Shrubs*
 20,000 *Deciduous* and *Flowering* *Shrubs*
 10,000 *standard* and *Dwarf* *Roses*, and other *Stock*.

May be viewed any day (Sunday excepted) prior to the Sale. Catalogues may be had on the Premises, or of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C., and Leytonstone.

N.B.—Purchasers can arrange with the Manager, at the Nurseries, to have their lots lifted and conveyed to the Hereford Stations, whence goods may be despatched to any part of the country without charge of truck.

Preliminary Notice of Forthcoming Sales

Important to Gentlemen and the Trade intending to Plant during the coming season.

MESSRS. PROTHOROE AND MORRIS beg to announce that they have fixed the following Sales:—

OCTOBER 4, and seven following days, at the **KING'S ACRE NURSERIES**, near Hereford, by order of the Liquidator of the **NUSSERY STOCK**.

OCTOBER 5, at the **UPPER TOOTING PARK NURSERIES**, Upper Tooting Park, S.W., by order of Messrs. F. Sander & Co.

OCTOBER 13 and 14, at the **ELVASTON NURSERIES**, 10, Rowan, Derby, by order of Messrs. Byron & Son.

OCTOBER 15 and 16, at the **NURSERIES**, Llewellyn, by order of Messrs. C. Lee & Son.

OCTOBER 27 and 28, Two Days' Sale at the **AMERICAN NURSERIES**, New York, by order of Messrs. J. B. Goubert.

OCTOBER 10 to 20, at the **ANGIER NURSERIES**, Cambridge, by order of Mrs. Trevellick.

OCTOBER 20 and 21, at the **NURSERIES**, Brixton, by order of Messrs. F. Sander & Co.

NOVEMBER 2, at the **NURSERIES**, Greenbridge, by order of Mr. E. Hollamby.

NOVEMBER 2, at the **HALE FARM NURSERIES**, Tottenham, by order of Mr. J. B. Goubert.

NOVEMBER 4, at the **BOWER and LING NURSERIES**, Maidstone, by order of Messrs. Frost & Sons.

NOVEMBER 5, at the **NURSERIES**, Feltham, by order of Messrs. C. Lee & Son.

NOVEMBER 9 and 10, at the **ROYAL NURSERIES**, Ascot, by order of Messrs. J. Standish & Co.

Other Sales of choice lots of fine seed, and will be announced in future Advertisements.

Central Auction Rooms and Estate Offices, 67 and 68, Cheapside, E.C.

Catalogues—Important Notice.

MESSRS. PROTHEROE AND MORRIS have compiled permanent Lists of those to whom their Catalogues are forwarded regularly, which enables them to bring before the notice of probable Buyers all classes of Sales. Gentlemen wishing to have their names entered on these Lists are requested to forward their full Addresses with a note of their particular requirements, when Catalogues will be posted free of charge.

Central Auction Rooms and Estate Offices, 67 and 68, Cheapside, E.C.

Six Days' Sale of

THE WHOLE EXTENSIVE NURSERY STOCK, in 4000 Lots. GREENHOUSES, &c., belonging to John Stewart & Sons, Dundee and Broughty Ferry, N.B., from MONDAY, SEPTEMBER 13, to SATURDAY, 19th. The Stock is in well-grown and good condition for removal this Autumn, and consists of Choice Specimens of ORNAMENTAL TREES, EVERGREENS and FLOWERING SHRUBS, CONIFERS, &c., to SATURDAY, 19th. FOREST and FRUIT TREES, GOOSEBERRIES, BLACK RED, and WHITE CURRANTS, HERBACEOUS FLOWERING PLANTS, GREENHOUSE and STOVE PLANTS, and includes 50,000 SWEET BRIER, 200,000 BIRCH, 5000 IVIES, 100,000 PINUS MARITIMA, 25,000 LABURNUMS, 1000 ROSES, 20,000 LEO D'ARBORE MANETTI STOCKS, 50,000 PRIVET, 20,000 FRUIT TREE STOCKS, 2000 STANDARD LIMES, 2000 LARGE AUSTRIAN PEAR, 1000 ARBOREUS, 2000 AUSTRIAN, 10,000 HOLLIES, 1000 PURPLE BEECH, 10,000 CURRANTS, 50,000 GOOSEBERRIES, &c.

Catalogue on application.
ANDREW MONCUR, Auctioneer, Dundee.

WANTED TO RENT either a Private GARDEN, with Glasshouses or small NURSERY. Address, C. Mr. Beasley, Earl's Barton, Northampton.

To Nurserymen, Fruit Growers, &c.

FOR SALE, situated in the Parliamentary Borough of Bristol, a well stocked and in full working order, comprising nearly 20 Acres of Freehold Land, tithes free and land tax redeemed, with all Minerals, which include large and valuable beds of Pennant Stone with Coal underlying. The House, built six years ago, is large and convenient; on ground floor, entrance hall, drawing-room 27 feet by 16 feet, dining-room, 18 feet by 16 feet, breakfast-room, two kitchens, larder, china room, and office; on first floor, five bedrooms and a large room, 24 feet by 16 feet, used as billiard room and library. The Glasshouses are two ornamental Ferneries, opening from drawing-room, large double-hall, and two Vinerys, each 55 feet by 16 feet; Rose-house, 64 feet by 16 feet; Fernery, 61 feet by 21 feet; Cucumber-house, 64 feet by 14 feet; range of three forcing-houses, 120 feet long; Stove, Propagating-house, Potting-house, range of Pits, &c., with several hundred hand-glasses. The whole is heated by two large boilers, and from 3000 to 4000 feet of hot-water pipes.

The other buildings consist of two nearly new Cottages, stabling for three horses, potting sheds, Mushroom-house, 64 feet by 15 feet; range of laths used as fruit-rooms, &c., 100 feet long; sheds, &c. The Working Stock is too large and varied to put in an advertisement, and includes many thousands Standard, Pyramid, and Bush Fruit Trees; of Pears alone there are over 1000 standard and pyramidal trees of the choicest and best bearing kinds; also large numbers of Cherry, Apple, and Plum trees of the best cropping sorts.

The greater part of the fruit trees have been planted nearly twenty years, are in full bearing, and the crop of fruit is very heavy and valuable.

Photographs of house, &c., with fuller particulars, or to view, apply to GEO. HARDING, The Grove, Ffiponds, Bristol.

To Florists, Gentlemen's Gardeners, and others.

TO BE DISPOSED OF, a most compact and well-established NURSERY BUSINESS, situated in a good locality, within easy distance of the London Markets, and only a few minutes' walk from two Railway Stations. There are seven capital Glass Houses, including Show House, Tool House, Stable, Convent Dwelling-House, &c. A rare opportunity is here afforded to a practical young man of energy and perseverance, of acquiring a genuine *bona fide* business.

Apply to Mr. LANE, Surveyor, 23, Elm Street, Cambridge, London, S.E.

Vintners Nurseries, near Plymouth.

TO BE LET, from Lady-day next, for a Term of 7, 14, or 21 years, these well-known NURSERIES, for many years so successfully carried on by the late Mr. Pontey, and since by Mr. Serpell, situated about a mile from Plymouth, and 10 miles from Exeter. The Nurseries are situated on 6 Acres in extent, with a Dwelling-house, Two Gardener's Cottages, large Greenhouses, Melon-pit, &c.

Apply to WOOLCOMBE and FRIDHAM, Solicitors, Plymouth.

Little Fobrook, South Hants.

1½ miles from Fenchurch Railway Station. TO MARKET GARDENERS, FLORISTS, FRUIT GROWERS, and OTHERS.

TO LET, with immediate possession, solely in consequence of the death of the Manager, a range of 20 VINEYERS, GREENHOUSES, ORCHARD, CUCUMBER, and TOMATO HOUSES, covering about 1½ acre. The Houses are heated by 3 Boilers, and work on the most economical principle. The above will be let on 10 years of LAND, of the finest quality, partly planted with Orchard Trees, now in full bearing. There is a good Manager's House, and 1 Cottage. The whole is well stocked, and one of the best in England for the growth of Fruit, Roses, Cut Flowers, or for Market Garden purposes. The whole of the plant and stock may be taken by valuation in the usual way. Further particulars may be had of C. R. SMITH and GOLDSMITH, Fareham and Portsea, Hants.

DUTCH BULBS.

DIRECT FROM THE GROWERS.

ANT. ROOZEN and SON, NURSERYMEN, Overveen, near Haarlem, Holland. Intending purchasers of DUTCH BULBS are invited to read ANT. ROOZEN & SON'S CATALOGUE for 1886, and see the large and complete list of bulbs effected by DEALING DIRECT WITH THE GROWERS. The Catalogue, containing details of their immense Collections of New, Rare, and Fine Bulbs and Plants, and also particulars as to the various modes of purchase, will be sent post-free, on application to them, or to their Agents, MEERTENS and CO., 3, Cross Lane, St. Mary-at-Hill, London, E.C.

SPECIAL NOTICE

B. S. WILLIAMS

Has this year been favoured with the Orders for the whole of the **BULBS** required for the following London Parks, &c., viz.:

HYDE PARK.
REGENCY PARK.
VICTORIA PARK.
BATTERSEA PARK.
KENNINGTON PARK.
BETHNAL GREEN MUSEUM.

HAMPTON COURT.
FINSBURY PARK.
SOUTHWARK PARK.
VICTORIA EMBANKMENT.
LEICESTER SQUARE.
CHILSEA EMBANKMENT.

His Tenders, in open competition, having been accepted by Her Majesty's Commissioners of Works and the Metropolitan Board of Works.

EARLY ORDERS ARE SOLICITED FOR

HYACINTHS for Pots and Beds.
TULIPS
NARCISSI
CROCUS.
ANEMONES.
RANUNCULUS.
FREESIAS.
LILUMS.
SNOWDROPS, &c., &c.

The quality of the Bulbs is unusually fine this year.

Special quotations will be given for large quantities on application.

Illustrated Bulb Catalogue

Is Now Ready, and will be forwarded, Gratis and Post-free, to all applicants.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

A. B. C. BULB GUIDE.

Prepared with very much care, containing much reliable information upon Bulbs generally, including the following families:—

HYACINTHS, TULIPS, CROCUS, SNOWDROPS, CHIONODOXAS, GLADIOLUS, &c.

Very extensive lists of varieties of these are included, consisting of nearly every variety which can be considered worth growing.

IRIS—Of these I hold one of the finest collections in the world, six pages are devoted to this family alone.

HELLEBORES, or CHRISTMAS ROSES are a great specialty at Tottenham. The collection is very complete, and the plants are exceptionally good. I have thousands of fine strong, healthy clumps of the varieties *major*, *maxima*, *caucasica*, *Madame Fourcade*, and many others.

DAFFODILS and LILIES

constitute Part II. of my Bulb Catalogue,

Twenty-six pages being devoted to them. Both families are cultivated by me most extensively, my collection including almost every variety in cultivation. These have been shown most extensively during the present season at the Great London Shows, and have been very much admired, and have done much to assist in securing for me the many Awards it has been my pleasure to receive.

Copies of this most complete and interesting Catalogue may be had gratuitously upon application to

THOMAS S. WARE,
HALE FARM NURSERIES,
TOTTENHAM, LONDON.

FERNS A SPECIALTY.

An IMMENSE STOCK, in SPLENDID CONDITION. ILLUSTRATED CATALOGUE, containing "Hints on Fern Cultivation," 12.

SMALLER CATALOGUE, of over 1300 species and varieties, including Descriptive "LIST of NEW, RARE, and CHOICE FERNS," and "HARDY NORTH AMERICAN FERNS," free on application.

W. & J. BIRKENHEAD,
FERN NURSERY, SALE, MANCHESTER.

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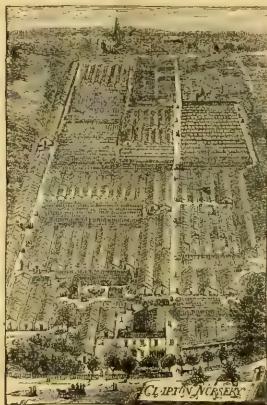
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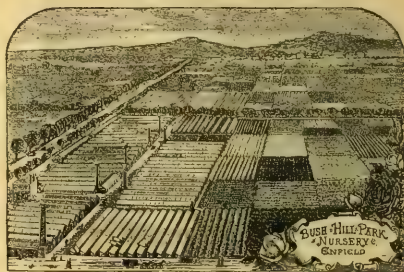
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THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 11, 1886.

DROP MORE.

IT is always a pleasure to visit Dropmore, and, after an interval of several years I was glad once more to inspect its great Conifers and to incite their guardian, Mr. Frost, who seems as evergreen and sturdy as any of them, to tell his old stories and to fight his old battles over again. See Dropmore, if you can, in its glory about June 1, when the Rhododendrons are in bloom. My recent visit fell two months later on a hot day of mixed sunshine and cloud, when the atmosphere was softened by an occasional shower which evaporated quickly in the shrubberies, and increased the foreign aspect imparted by the Conifers to the spot where they are now assembled and where they appear, almost without exception, thoroughly at home.

A small point in regard to treatment in the young days of an exotic Conifer may make or mar its fortune. How often one may see specimens that deserved good management and the timely pruning knife, or the application of the axe to some over-crowding neighbour, or a little fresh soil for its subsistence, ruined for want of necessary care! But Mr. Frost knows the needs of each, and has taken care to supply them during the lengthened period of his superintendence. The great Araucaria imbricata was described ten years ago as 60 feet in height and 45 years old. It has grown about a foot in each subsequent year, and stands now a perfect pyramid of nearly 70 feet from the base to the apex, its branches resting on the ground. At a distance of 12 feet or 15 feet from the trunk on the south side the ground slopes off towards an adjacent pond, and this would probably have occasioned a lop-sided growth, as the tree was planted in made earth of unequal depth, owing to the slope, it Mr. Frost had not come to the rescue and levelled the slope partially with many barrow-loads of fresh soil. But the better the soil the thicker the branches. A Lime tree on rich soil becomes as bushy as a magpie's nest, and the big pet of Dropmore, since the extra feeding has developed a number of spiny twigs on the trunk, particularly on its southern side. It is a male tree, and the shrivelled catkins showed brown towards its top.

The Abies Douglasi here of more than 120 feet in height is another pet of the pinetum, and its pride. It has offspring around it, especially a tree of 1835 growing by the carriage-drive, a cutting from the original tree, and laden with heavy branches bearing many cones. The original tree carries us back to the days of Mr. Frost's honoured master, Lord Grenville, the founder of Dropmore, and the encloser of the roughs and wastes which he supplanted by the present grounds 600 acres in extent. Lord Grenville, being a Fellow of the Horticultural Society, sent to Dropmore some of the seed which the Society had received from Mr. Douglas. It was sown in 1827, and the big tree was planted in 1830.

A *Pinus insignis* of 1839 stands here 75 feet high and well protected among other exotics, a handsome, big fellow, in grass-green livery. The trunk is covered with red spongy bark risen into vertical cracks. I omitted to take notes of the broad-spreading *Abies cephalonica*, or of *A. pinsapo*, with its thickest leaves, but I find from Messrs. Veitch's *Manual of Conifera* that these two trees were introduced from Cephalonia and the South of Spain respectively in 1824 and 1839. They must have reached Dropmore betimes, for their growth seems to have reached 50 feet or 60 feet in the first case, and 60 feet or 70 feet in the second, which is not far short of their reputed natural growth. I noted *Pinus Lemoniana* of 1839 as a tree of no beauty, with rough bark, few lower branches, and long leaves. On the other hand, *Abies grandis*, 70 feet high, and dated 1861, forms a noble pyramid now showing cones near the top, and with tier upon tier of flat rhomboidal branches. It was thirty years reaching Dropmore; *Abies Albertiana* was here within ten years of its introduction, bearing the date of 1861, and the name of the Prince Consort, the patron of the Scotch Association, who imported it from the north-west coast of America, in 1851. It is closely allied to that graceful tree, the Hemlock Spruce, with its pendulous branches and ample foliage, and the perfect specimen at Dropmore, though by no means the rarest, is one of the most beautiful trees in the grounds, having much of the graceful habit of the Deodar. *Cedrus atlantica* of 1847, and 70 to 80 feet high, is another very handsome tree which came here, as the above date shows, in the seventh year of its introduction. The magnificent *C. Deodara* is nearly 70 feet high. *Sequoia gigantea* (the Wellingtonia), introduced by Messrs. Veitch in 1853, through their collector Mr. William Lobb, is dated here 1862, measures 65 feet, and is a tall, pointed pyramid, fortunately full of foliage, and therefore looking its best, for when the foliage is scanty it is a rigid plain-looking tree.

The best *Sequoia sempervirens* in the pinetum stands 80 feet high, and droops its heavy foliage on the ground; and as pheasants crowded around I could imagine a hare sitting in the sunny shelter of this tree. I missed the best deciduous Cypress, but saw, among other Conifers too numerous to name, *A. morinda*, 55 feet high, with branchlets drooping from the main branches, and festoons of Woodbine hanging high from the tall trunk; I also noted during our tour of inspection *Pinus excelsa*, *P. pyrenaica*, *Abies concolor*, 1862, foliage in handsome flakes; *Pinus Benthiana*, 1843, 70 feet, with very bushy long foliage; and *Abies Bruniana*, 1847, the Himalayan Hemlock Fir from Nepal, together with grand examples of *Thuja gigantea* from Oregon.

A noble Birch is also worthy of inspection. It is an old tree whose short trunk divides at a little distance above the soil into three spreading much contorted arms, from which diverge forests of young twigs. In size, as in habit, this tree is very remarkable. Heaths of various kinds abound, the introduced ones now as much at home as the real natives, and the same remark applies equally well to the common Musk, *Mimulus moschatum*, which looks as much a native as the grass amid which it grows.

The bedding-out system is still carried out here in what we may now call old-fashioned style, and it is supplemented by a large collection of still older fashioned herbaceous plants, full of variety, redolent of perfume, and particularly as a mosaic. A still greater blaze of colour is to be seen in the Pelargonium-house.

Those who know Dropmore may like to be reminded of the long avenue of Cedars of Lebanon; and gardeners may like to hear of the silver cup and 200 sovereigns, invested as an annuity, which his horticultural friends

in all parts of the country presented to Mr. Frost in 1872, to commemorate fifty years' public and private service as a gardener of worth and note. I must add, in regard to the ownership of this noted place, that "tis as 'twas"—Lady Louisa Fortescue still reigns. The number of gardeners is now only twelve. A bit of clay ground which the veteran gardener has turned topsy-turvy and chalked heavily, and finally induced to yield extraordinary crops, deserves a separate article. It is now a most productive kitchen garden, which may serve to assure us how excellent the effect of Frost is upon clays with double digging and free exposure. *H. E.*

It may be serviceable to append in this place a list, showing the height to which some of the more remarkable trees had attained in the spring of this year (1886):—

- Cedrus Libani*, planted in 1792, height 100 feet, girth at 3 feet, 15 feet.
- In the long avenue above referred to, the trees average 50 feet in height, with a girth from 8 to 10 feet.
- "*deodara*, 65 feet in height, with a girth of 5 feet.
- "*atlantica*, planted in 1847, 70 feet high, bearing cones, a splendid tree.
- Abies Douglasi*, planted in 1830, height 124 feet, girth 15 feet; spread of branches, 22 yards. Another planted in 1865, height 90 feet, girth 5 feet 4 inches.
- "*grandis*, planted in 1861, height 70 feet, a splendid tree.
- "*amabilis*, planted in 1847, height 30 feet, girth 6 feet.
- "*nobilis*, planted in 1835, height 80 feet; branches down to ground.
- Pinus macrocarpa*, fifty-one years old.
- "*Lemoniana*, planted in 1839.
- "*insignis*, planted in 1839, girth 12 feet.
- Sequoia gigantea*, planted in 1862, height 70 feet, girth 11½ feet.
- Arucaria imbricata* (Chili Pine). There are many of these, the largest, planted in 1830, having a height of 63 feet, girth 8 feet 2 inches.
- Taxodium sempervirens*, 80 feet in height.

New Garden Plants.

CYPRIPEDIUM CALLOSUM, n. sp.*

THIS was imported from Siam by Mons. Regnier, Fontenay-sur-Bois, 49, Avenue de Marigny. It looks like *Cypripedium Argus*, with nearly green leaves, and curious pendulous petals. The peduncle is very long, as in *Cypripedium Argus*. The upper sepal is very large, transversely elliptic-acute, with very numerous green nerves, and some purple wash on a white ground. The lateral sepals form a small ligulate, acute, few-nerved body, half as long as the lip, and quite hidden by it. Petals ligulate, blunt, acute, quite deflexed, so much so that the two nearly touch one another on their inner sides, green, purple at the top, ciliated, with several, conical, shining, black papular warts on the margins, and thick ones on the disc, partly also papular. This is new. The lip is like that of *Cypripedium superbiens*. Staminode reddish, with some green marbling on the anterior part of the disc, emarginate, bilobed at the top, forcipate in front, with a small dark apiculus in the middle. *H. G. Rehb. f.*

ONCIDIUM POLLETTIANUM, n. sp. (hyb. nat.?).†

A remarkably fine and exceedingly rare *Oncid.*, most probably a hybrid, though I know well that it has been recently stated that *Oncidia* produce very seldom and but a few capsules. I should value such

* *Cypripedium callosum*, n. sp.—(Venusta deflexa) foliis coriaceis viridibus obscurissime tessellatis; pedunculo elongato; bracteis acutis ovarium pedicellatum longe non aequantibus; sepalis impari elliptico acuto transverse multivertis; sepalis lateribus in corpus triangulum coactis labelli dimidium vix aequans; tepalibus omnino deflexis exilis ciliatis callis coarctis quibusdam in margine calli paucis incrassatis in disco; labello margine unguiculari utrinque obtusangulo, orio superiore utrinque angulato; staminodii cruribus apiculis forcipatis, processu mediano minuto acuto papuloso. Ex Siam introduct. Regnier vivanque plantam misit. *H. G. Rehb. f.*

† *Oncidium Pollettianum*, n. sp. (hyb. nat.?).—Pseudobulbis foliisque *Oncidii dasystylis* cui vicinum; racemo plurifloro; floribus illis *Oncidii Gardneri* aequantibus, sepalis lateribus apicem usque bidentatum connatis; tepalibus oblongis obtusis, labelli auriculis obtusis minutis, isthmo lineari, lamina antica transversa obtusangula quadriobis, lobis medianis parvis, callis in basi subquadrate lobato antepositis carinis longis teretibus, carina utraque basi extrorsum undentata antice clavata, callo lobulato uno utrinque extus ad apicem calli basilaris; columnae humilis albi rotundatis. *H. G. Rehb. f.*

remarks were they the result of long observations during many years. If a New Zealander saw with us hundreds of thousands of trees of *Fagus sylvatica* without fruits, and declared they produced nearly none, what should we say? There are, however, fruits of *Oncidia*. Thus I have before me what must be *Oncidium Lawrenceanum* as first collected by Professor Suringar. The group of altilissimum is often seed bearing; echinatum is very often fertile, and why should there not be a hybrid? This may be a mule between *Oncidium dasystyle* and perhaps *Oncidium Gardneri*. The connate side sepals are bidentate, the upper sepal oblong acute, the petals cuneate, obovate, blunt. Lip with very small rounded auricles at the base, a long narrow isthmus and a wide transverse quadriobis blade with two small inner and two broad outer lobes. The column is short, with two fleshy ovate wings. The calli are long, running from the base over the isthmus, dark brown-purple. The column is of the lightest whitish-yellow; wings spotted with purple on a light whitish-yellow ground. Petals, horse-chestnut brown with a narrow yellow border; sepals yellow with horse-chestnut bands.

It comes from Mr. H. M. Pollett, Fernside, Bickley, and was kindly sent me by Mr. Harry Veitch. Mr. H. M. Pollett states that the bulbs and leaves are exactly those of *Oncidium dasystyle*, say a trifle larger. The inflorescence is stated to be a simple raceme. It duly bears Mr. Pollett's name. *H. G. Rehb. f.*

MILTONIA PEETERSIANA, n. hyb. nat.?

THIS has the bulb and leaf of *Miltonia Clowesii*. The peduncle is very strong, not markedly two-edged but more rounded. The shading of the inflorescence is rather flexuous in one specimen, with ancipitous triangular large bracts, nearly equal to the stalked ovaries. The flowers would be difficult to distinguish from those of *Miltonia spectabilis* Moreliana, but the lip is narrower at the base and dilated suddenly and acutely at the top. Both the sepals and petals are a little narrower and more acute, of the finest dark horse-chestnut-purple (s. v. v.). The lip is of the richest purple, with five unequal yellow keels at the base, and numerous dark purple blotches with nearly white margins occupy the base, and inside line of the disk. The auricles of the column are bilobed. The yellow tabula infrastigmatica is provided with two erect teeth. It is probably a hybrid between *Miltonia spectabilis* Moreliana and *M. Clowesii*. I received five flowers, an inflorescence, bulb, and leaf from Mr. A. A. Peeters, horticulteur, St. Gilles, Bruxelles, to whom it is dedicated with pleasure. I believe I saw the very same plant at Mr. W. Bull's some days ago, when it was nearly dark. *H. G. Rehb. f.*

CATTLEYA GUTTATA LEOPOLDI IMMACULATA, n. var.

THIS fine sub-variety has both the sepals and petals of a mauve-brown colour, and there is no vestige of any spots. The lip is white, the anterior lacinia of the finest purple. Column purple. It was kindly sent me by Mr. A. A. Peeters, horticulteur, St. Gilles, Bruxelles. *H. G. Rehb. f.*

FRUIT NOTES.

BIGARREAU LEONA QUESNEL.

A CHERRY with fruit nearly 1 inch in diameter, rounded, with scarcely any furrow, skin yellow flushed with red, flesh white, juicy. The tree is fertile, of pyramidal habit. This variety was raised by Mr. Tyman, and is highly spoken of by the editor of the *Bulletin d'Arboriculture* for August.

APPLE BEAUTY OF BATH.

I can scarcely think this Apple is known as widely as it deserves to be. I have seen it on several occasions in excellent form this season, particularly at the Taunton and Trowbridge shows; at the latter place, where dessert Apples are shown in excellent form, Beauty of Bath was conspicuous for its handsome and pleasing appearance. Mr. George Cooling, of Bath, who distributed it, states that it is a seedling from the Juneating, and originated some twenty years ago in the neighbourhood of Bath. It is of medium size, and extremely handsome in appearance, being beauti-

fully striped with crimson towards the sun. It ripens early in July in a good season, and can be had in a late one up to the third week in August. In flavour it appears to surpass in briskness and piquancy the Irish Peach and Juneating. It can, therefore, be classed as a first early dessert Apple, and it frequently takes 1st prizes at the West of England show. To show its prolificacy, Mr. Cooling states that two years ago he planted out 200 three-year old trees, and has taken a great crop from them this season; and from eight small trees he gathered as many as 18 pecks. It is found to come in very useful as a side dish in a dessert at a time when Strawberries are over. On p. 168 of the *Report of the Apple Congress* it is stated to resemble Small's Admirable. It is obvious that something other than the true sort was shown at the Apple Congress under the name of Beauty of Bath, as it will not keep beyond August; and Mr. Cooling further states it is entirely distinct in character. R. D.

THE HISTORY OF PLANTS.*

THE literature of science is of little, if any, value in tracing the history of species, and in determining the modification or the persistency of characters which may be essential or accidental to them.

HERBARIA.

But the means of comparison which we look for in vain in the published literature of science may be found in the collections of dried plants which botanists have formed for several generations. The local herbaria of our own day represent not only the different species found in a country, but the various forms which occur together with their distribution. They must supply the most certain materials for the minute comparison at any future epoch of the then existing vegetation with that of our own day.

The preservation of dried plants as a help in the study of systematic botany was first employed in the middle of the sixteenth century. The earliest herbarium of which we have any record is that of John Falconer, an Englishman who travelled in Italy between 1540 and 1547, and who brought with him to England a collection of dried plants fastened in a book. This was seen by William Turner, our first British botanist, who refers to it in his *Herbal*, published in 1551. Turner may have been already acquainted with this method of preserving plants, for in his enforced absence from England he studied at Bologna under Luca Ghini, the first professor of botany in Europe, who, there is reason to believe, originated the practice of making herbaria. Ghini's pupils, Aldrovandus and Casalpini, formed extensive collections. Caspar Bauhin, whose *Prodromus* was the first attempt to digest the literature of botany, left a considerable herbarium, still preserved at Basle. No collection of English plants is known to exist older than the middle of the seventeenth century; a volume containing some British and many exotic plants collected in the year 1647 was some years ago acquired by the British Museum. Towards the end of that century, great activity was manifested in the collection of plants, not only in our own country, but in every district of the globe visited by travellers. The labours of Ray and Sloane, of Petiver and Plukenet are manifest not only in the works which they published, but in the collections that they made, which were purchased by the country in 1759 when the museum of Sir Hans Sloane became the nucleus of the now extensive collections of the British Museum. The most important of these collections in regard to British plants is the herbarium of Adam Buddle, collected nearly two hundred years ago, and containing an extensive series which formed the basis of a British flora, that unhappily for science was never published, though it still exists in manuscript. Other collections of British plants of the same age, but less complete, supplement those of Buddle: these various materials are in such a state of preservation as to permit of the most careful comparison with living plants, and they show that the two centuries which have elapsed since their collection have not modified in any particular the species contained in them. The early collectors contemplated merely the preservation of a single specimen of each species; consequently the data for an exhaustive comparison of the indigenous flora of Britain at the beginning of last century with that of the present are very imperfect as compared with those which we shall hand down to our successors for their use.

The collections made in other regions of the world in the seventeenth century, and included in the extensive herbarium of Sir Hans Sloane, are frequently being examined side by side with plants of our own day, but they do not show any peculiarities that distinguish them from recent collections. If any changes are taking place in plants, it is certain that the three hundred years during which their dried remains have been preserved in herbaria have been too short to exhibit them.

TIMBER.

Beyond the time of those early herbaria the materials which we owe in any way to the intervention of man have been preserved without any regard to their scientific interest. They consist mainly of materials used in building or for sepulture. The woods employed in medieval buildings present no peculiarities by which they can be distinguished from existing woods; neither do the woods met with in Roman and British villages and burying places. From a large series collected by General Pitt-Rivers in extensive explorations carried on by him on the site of a village which had been occupied by the British before and after the appearance of the Romans, we find that the woods chiefly used by them were Oak, Birch, Hazel, and Willow, and at the latter period of occupation of the village the wood of the Spanish Chestnut (*Castanea vulgaris*, Lamk.) was so extensively employed that it must have been introduced and grown in the district. The gravel beds in the north of London, explored by Mr. W. G. Smith for the palæolithic implements in them, contained also fragments of Willow and Birch, and the rhizomes of *Osmunda regalis*, L.

EGYPTIAN TOMBS.

The most important materials, however, for the comparison of former vegetation of a known age with that of our own day have been supplied by the specimens which have been obtained from the tombs of the ancient Egyptians. Until recently these consisted mainly of fruits and seeds. These were all more or less carbonised, because the former rifting of the tombs had exposed them to the air. Ehrenberg, who accompanied Von Minutoli in his Egyptian expedition, determined the seeds which he had collected, but as he himself doubted the antiquity of some of the materials on which he reported, the scientific value of his enumeration is destroyed. Passalacqua in 1823 made considerable collections from tombs at Thebes, and these were carefully examined and described by the distinguished botanist Kunth. He pointed out, in a paper published sixty years ago, that these ancient seeds possessed the minute and apparently accidental peculiarities of their existing representatives. Unger, who visited Egypt, published in several papers identifications of the plant remains from the tombs; and one of the latest labours of Alexander Braun was an examination of the vegetable remains in the Egyptian Museum at Berlin, which was published, after his death, from his manuscript, under the careful editorship of Ascherson and Magnus. In this, twenty-four species were determined, some from imperfect materials, and necessarily with some hesitation as to the accuracy of their determination.

The recent exploration of unopened tombs belonging to an early period in the history of the Egyptian people has permitted the examination of the plants in a condition which could not have been anticipated. And, happily, the examination of these materials has been made by a botanist who is thoroughly acquainted with the existing flora of Egypt, for Dr. Schweinfurth has for a quarter of a century been exploring the plants of the Nile valley. The plant-remains were included within the mummy-wrappings, and being thus hermetically sealed, have been preserved with scarcely any change. By placing the plants in warm water, Dr. Schweinfurth had succeeded in preparing a series of specimens gathered 4000 years ago, which are as satisfactory for the purposes of science as any collected at the present day. These specimens consequently supply means for the closest examination and comparison with their living representatives. The colours of the flowers are still present, even the most evanescent, such as the violet of the Larkspur and Knapweed, and the scarlet of the Poppy; the chlorophyll remains in the leaves, and the sugar in the pulp of the raisins. Dr. Schweinfurth has determined no less than fifty-nine species, some of which are represented by the fruits employed as offerings to the dead,

others by the flowers and leaves made into garlands and the remainder by branches on which the body was placed, and which were enclosed within the wrappings.

The votive offerings consist of the fruits, seeds, or stems of twenty-nine species of plants. Three Palm fruits are common—the *Medemia Argun*, Würt., of the Nubian Desert, and the *Hyphene thebaica*, Mart., of Upper Egypt, agreeing exactly with the fruits of these plants in our own day; also Dates of different forms resembling exactly the varieties of dried Dates found now in the markets of Egypt. Two Figs are met with—*Ficus carica*, L., and *Ficus Sycomorus*, L., the latter exhibiting the incisions still employed by the inhabitants for the destruction of the Neuropterous insects which feed on them. The *Sycamore* was one of the sacred trees of Egypt, and the branches used for the bier of a mummy found at Abd-el-Qurna, of the twentieth century (1000 years before the Christian era), were moistened and laid out by Dr. Schweinfurth—equalling, he says, the best specimens of this plant in our herbaria, and consequently permitting the most exact comparison with living *Sycamores*, from which they differ in no respect. The fruit of the Vine is common, and presents, besides some forms familiar to the modern grower, others which have been lost to cultivation. The leaves which have been obtained entire exactly agree in form with those cultivated at the present day, but the under surface is clothed with white hairs, a peculiarity Dr. Schweinfurth has not observed in any Egyptian Vines of our time. A very large quantity of Linseed was found in a tomb at Thebes of the twentieth dynasty, now 3000 years old, and a smaller quantity in a vase in another tomb of the twelfth dynasty, that is, 1000 years older. This belongs certainly to *Linum humile*, Mill., the species still cultivated in Egypt, from which the capsules do not differ in any respect. Braun had already determined this species preserved thus in the tombs, though he was not aware of its continued cultivation in Egypt. The berries of *Juniperus phœnicea*, L., are found in a perfect state of preservation, and present a somewhat larger average size than those obtained from this Juniper at the present day. Grains of Barley and Wheat are of frequent occurrence in the tombs; M. Mariette has found Barley in a grave at Sakhara of the fifth dynasty, 5400 years old.

The impurities found with the seeds of these cultivated plants show that the weeds which trouble the tillers of the soil at the present day in Egypt were equally the pests of their ancestors in those early ages. The Barley fields were infested with the same spiny Medick (*Medicago denticulata*, Willd.) which is still found in the grain crops of Egypt. The presence of the pods of *Sinapis arvensis*, L., among the Flax seed testifies to the presence of this weed in the Flax crops of the days of Pharaoh, as of our own time. There is not a single field of Flax in Egypt where this Charlock does not abound; and often in such quantity that its yellow flowers, just before the Flax comes into bloom, present the appearance of a crop of Mustard. The Charlock is *Sinapis arvensis*, L. var. *Allionii*, Jacq., and is distinguished from the ordinary form by its globular and inflated silicles, which are as characteristically present in the ancient specimens from the tombs as in the living plants. *Rumex dentatus*, L., the Dock of the Egyptian fields of to-day, has been found in graves of the Greek period at Dr. Abu-Negga.

It is difficult without the actual inspection of the specimen plants employed as garlands, which have been prepared by Dr. Schweinfurth, to realise the wonderful condition of preservation in which they are. The colour of the petals of *Papaver Rhœas*, L., and the occasional presence of the dark patch at their bases present the same peculiarities as are still found in this species growing in Egyptian fields. The petals of the Larkspur (*Delphinium orientale*, Gay) not only retain their reddish-violet colour, but present the peculiar markings which are still found in the living plant. A garland composed of wild Celery (*Apium graveolens*, L.) and small flowers of the blue Lotus (*Nymphaea corallina*, Sav.), fastened together by fibres of Papyrus, was found on a mummy of the twentieth dynasty, about 3000 years old. The leaves, flowers, and fruits of the wild Celery have been examined with the greatest care by Dr. Schweinfurth, who has demonstrated in the clearest manner their absolute identity with the indigenous form of this species now abundant in moist places in Egypt. The same may be said of the other plants used for garlands, including two species of Lichens.

* Extracted from Mr. Carruthers' presidential address to the Biological Section of the British Association at Birmingham.

It appears to have been a practice to lay out the dead bodies on a bier of fresh branches, and these were inclosed within the linen wrappings which enveloped the mummy. In this way there have been preserved branches of considerable size of *Ficus Sycamorus*, L., *Olea europæa*, L., *Mimusops Schimperii*, H., and *Tamarix nilotica*, Ehrh. The *Mimusops* is of frequent occurrence in the mural decorations of the ancient temples; its fruit had been detected amongst the offerings to the dead, and detached leaves had been found made up into garlands, but the discovery of branches with their leaves still attached, and in one case with the fruit adhering, has established that this plant is the Abyssinian species to which Schimper's name has been given, and which is characterised by the long and slender petiole of the leaf.

In none of the species, except the Vine to which I have referred, which Dr. Schweinfurth has discovered, and of which he has made a careful study, has he been able to detect any peculiarities in the living plants which are absent in those obtained from the tombs.

Before passing from these Egyptian plants I would draw attention to the quality of the cereals. They are good specimens of the cereals still cultivated. This observation is true also of the cultivated grains which I have examined, belonging to prehistoric times. The Wheat found in the purely British portion of the ancient village explored by General Pitt-Rivers is equal to the average of Wheat cultivated at the present day. This is the more remarkable, because the two samples from the later Romano-British period obtained by General Pitt-Rivers are very much smaller, though they are not unlike the small hard grains of Wheat still cultivated on thin chalk soils. The Wheat from lake dwellings in Switzerland, for which I am indebted to J. T. Lee, Esq., F.G.S., are fair samples. My colleague, Mr. W. Fawcett, has recently brought me from America grains of Maize from the prehistoric mounds in the valley of the Mississippi, and from the tombs of the Incas of Peru, which represent also fair samples of this great food substance of the New World. The early peoples of both worlds had then under cultivation productive varieties of these important food-plants, and it is remarkable that in our own country, with all the appliances of scientific cultivation and intelligent farming, we have not been able to appreciably surpass the grains which were harvested by our rude ancestors of 2000 years ago.

(To be continued.)

TEAK-WOOD AND PAPER-MAKING IN SIAM.

REFERRING to Teak-wood, in his report on the trade of Bangkok for the past year, Mr. Consul French says:—

Throughout the year the prices offered for Teak in Europe and China were good, and the export from Bangkok was, although below that of the two previous years, above the average of the preceding five years. The rivers have now for two years past been very low, and consequently much of the wood could not be floated down. There is now a considerable quantity of logs up country, the accumulation resulting from two bad seasons, awaiting favourable floods to get down. More European capital is now being invested in the working of the Teak forests, and it is to be hoped that the experiment will result successfully. Hitherto the forests have been leased chiefly to Burmese, very few of whom have sufficient capital. The result has been that the forests have been worked in a meagre and unsatisfactory fashion, and litigation between the foresters and the persons advancing their money has been bitter and constant. The export of Teak may be said to almost entirely depend upon the ship building business in Europe, and as long as the present stagnation in that trade continues the prospect before Teak merchants will not be encouraging.

Native paper, it is said, is manufactured from the bark of a tree called "Toukou," the process of which is a simple one, described as follows:—The smaller branches of the tree are cut and steeped in water for two or three days. The bark is then stripped off, and brought in bundles and sold to persons who make the paper. The bundles of bark are put in water for two or three days by the paper-maker, and having been cleansed from dirt, are taken out and steamed over a slow fire for two days, a little clean stone-lime being sprinkled through the bark. It is then steeped

in water in earthen jars, and more lime is added. After a few days it is taken out of the jars, and having been well washed, to free it from the lime, it is beaten with a wooden mallet until it becomes a mass of soft pulp. A frame of netting about 6½ feet long, and of width varying from 18 to 25 inches, is set afloat in water, and the pulp, having first been again mixed up with water, is skillfully poured out on to the frame, so as to be equally distributed over it. The frame is then lifted out of the water, and a small wooden roller is run over the surface of the pulp. By this process the water is squeezed out and the pulp pressed together. The frame with the pulp on it is then set to dry in the sun. In the course of some ten hours it is quite dry, and the sheet of paper can be lifted off the frame. It now only remains to smooth the surface; this is done by applying a thin paste of rice-flour to the surface, and then rubbing it down with a smooth stone. A black paper, which is written upon with a slate or steatite pencil, is made by colouring the surface with a mixture of charcoal. The paper here described is made from the bark of *Broussonetia papyrifera*. J. R. J.

PAPAYER PAVONINUM.

I VENTURE to send you a few specimens of a new annual Poppy, *Papaver pavoninum* (fig. 67, p. 329), Schrenk. It is of dwarf habit, few of the plants exceeding a foot in height. The foliage strikes one as being neater and decidedly less weedy than in most of the annual Poppies; but it is the bud and expanded flower which offer the most remarkable features. The two sepals are each prolonged at the tip into a curious hornlike appendage, which would have justified some such specific name as *bicornutum*, but I presume Schrenk's name must have the priority.

The petals are of a brilliant scarlet, each being marked near the base with a zone of glossy black, the united bands forming a complete ring of a striking effect during the first hours of the day. When fully expanded they are nearly 4 inches across. The plant is very free flowering, one of moderate size will produce a hundred flowers. It is a native of Turkestan, whence seeds were sent by Dr. Albert Regel. W. Thompson, Ipswich. [The plant is also found in Afghanistan, being the *P. Cornigerum* of Stocks (see Boissier, *Flora Orientalis*, i., 116). Ed.]

MARKET PLANTS.

THE establishment of Messrs. Gregory and Evans, at Sidcup, is one of the large nurseries that have come into existence in recent times, where plants and flowers are grown to supply the all but insatiable market Covent Garden. The land, some eight acres, was bought about seven years ago. Now considerably over half the space is covered with glass. The houses, in common with those now built by the leading market growers, are span-roofed, and so constructed as to give a maximum amount of light to the various plants grown in them. Yet in one respect Messrs. Gregory & Evans' houses differ from those in most of the market places so far that they have side-lights about 18 inches deep, and by this arrangement still more light is admitted. Needless to say that at the present day, with the keen competition that exists, anything in the shape of flowering plants that are not as short-jointed, compact, and sturdy as the tufts of Heather that grow on the mountains, are useless in Covent Garden. This is so well understood by the growers that those who are unlucky enough to be in possession of the old-fashioned erections, deficient of light, occupy them with Palms, Ferns, Aspidistras, and other fine leaved plants, and even in the case of these those who have thoroughly light houses have a decided advantage in the prices they can realise.

Pelargoniums are a leading feature at Longlands, the greater part of a block of eleven houses, each 100 feet by 15, being filled with them. The varieties comprise those that find the most favour in the market. The public who buy these plants know and care nothing about the niceties of the florist's standard. What they require are decorative plants of pure and bright colours, with the markings well defined, combined with a short-jointed sturdy habit, and a profuse disposition to flower so as to form a sheet of bloom backed with healthy foliage. To those who have not an opportunity of seeing the favourite market varieties, yet who may be desirous to grow kinds

that will give the best return in the shape of telling flowers, a short list of the leading varieties grown by Messrs. Gregory and Evans, with their colours, may be of use; Braid's Decorator, white, with deep crimson spots on the petals; Haye's Decorator, deep reddish-pink; grandis odorata, brilliant crimson, with dark feathered markings; Smith's Regale, petals pink, edged with white, dark feathered markings; Alfred Brown, a high coloured flower, with large conspicuous spot on all the petals; Kingston Beauty, pure white ground, with maroon blotch on top petals, smaller spots well defined on lower petals; virginale, white, with maroon spots, a very early sort; Mrs. Bradshaw, flesh white, with large blackish-purple feather; a seedling raised here is one of the best sorts, crimson ground colour, with dark blotch on top petals; another seedling named Fire Ball, vivid carmine with deep feathered markings; Charles Braid, bright red, with violet centre and dark blotch on top petals; Alice, flesh colour with small red spots on lower petals, and large feathered blotch on top petals; Miss Wetherall, pink ground, white centre, large feathered spot on top petals; Robert, green, ground colour a vivid shade of violet crimson, dark spots on top petals; Duchess of Bedford, pure white ground colour, small pink feathered spot on top petals; Hercules, crimson, with dark feathered spots on top petals; Miss Nellie, pure white, crimson feathered spots on all the petals; Marmurens Improved, a bright-coloured effective variety; Black Prince, maroon, petals edged with white. The remaining portion of this lot of houses is filled with Ferns, mostly *Adiantum cucullatum*, of which 100,000 are raised from seed annually, all grown in 48-sized pots. A favourite combination in the market now is a plant of *Pteris cretica* and *Adiantum cucullatum* growing together in the same pot. A pretty crested form of *Adiantum* has appeared here; it is distinct and effective in appearance. *Pteris tremula* is largely grown at Messrs. Gregory & Evans' other place at Lee; ten houses are filled with this Fern and *Cyperus*. *Polypodium aureum*, another good market Fern, is grown in considerable numbers.

Dracænas in quantity are grown, consisting principally of *D. terminalis*, *D. rubra*, and the narrow-leaved *D. cuneata*, which is one of the best plants for a room.

Several houses are occupied by Fuchsias, that take the place of Pelargoniums and other things, which are cleared off early in spring. Of the yellow *Marguerite*, *Etoile d'Or*, numbers are grown.

A large span-roofed house is devoted to Azaleas for cutting; the old indica alba and Fielder's White are liked better than the more formal-shaped kinds.

Rhodanthes, both the red and white varieties in various stages, so as to keep up a supply all the season, are grown by the thousand.

A set of houses, five in number, each 150 feet long, are filled with various things. Two others, each 180 feet long and 25 feet wide, are filled with *Gardenias*, *Ficus elastica*, *Pandanus Veitchii*, *Croton Weismannii*, and Palms, of such kinds as *Phoenix reclinata*, *Scaevolaria*, and *Lantana borbonica*.

A commencement has been made with pot Roses, a house 150 feet long, by 30 wide, is filled with plants that have been grafted this year, many of which, at the end of May, when I saw them were from 4 to 5 feet high; *Maréchal Niel*, *Gloire de Dijon*, *Niphetos*, and *Isabella Sprunt*, are the principal varieties grown. Another house of the same length as the last, is similarly occupied.

Another lot of nine houses, each 100 feet by 12, is principally devoted to pink, white, and red zonal Pelargoniums. A long house contains *Cyclamens* raised from seed last summer, and ready for removal to the pots in which they are to flower. A pair of houses, each 200 feet long by 24 wide, and 12 feet high, were just being finished. Heaths, both winter and spring flowering varieties, are a speciality at this nursery; in addition to various long pits, two houses, each 200 feet by 15 are occupied by them. The varieties grown to bloom during autumn and winter are *E. Caffra*, (syn: *E. prolifera*), *E. gracilis*, and *E. hymenalis superba*, which has larger flowers than the old *E. hymenalis*; of these from 50,000 to 60,000 are grown. *E. perspicua nana*, *E. perspicua erecta*, *E. ventricosa coccinea minor*, and *E. ventricosa magifica* are the leading spring flowering varieties for which there is a demand in Covent Garden. It may seem strange, that out of the hundred, of beautiful varieties of these plants that are in cultivation there should be so few that

have been found that will conform to the small-pot culture indispensable in a market plant, and that suit the taste of the public. In fact, a new plant, or even an old one, that will answer all that is required by both the growers and the buyers is a

upon by plant growers as evidences of more than ordinary skilful cultivation. Most people who are conversant with plant-growing know what is done with the late-flowering Heath (*E. hyemalis*) already named; the size the plants are grown to, coupled

high-fed plants out of each dozen of this variety that is grown lives to see the summer following its blooming; and in the case of a variety such as the Cavendish Heath, that after making its growth remains all but dormant through the winter, the use of manurial stimulants to the extent necessary to get such growth with the limited root-space is much more difficult. Some of the plants are flowered at two years old, but the majority are three years; many of the latter were 15 inches through, by as much or more in height, with eight or ten spiky shoots, 9 or 10 inches long, the flowers almost hiding the foliage. From 2000 to 3000 of these were grown this year, and found ready sale.

Eight of Rochford's boilers are at work in the place, some of them 15 feet long, others 9 feet—in some respects the latter are liked best. As an evidence of the power of the smaller size I may mention that one of them is heating two of the 200 feet by 15 houses, each of which has four rows of 4-inch piping, which, with the mains, connections, and the lengths running across the end of the houses, will collectively be not less than 18,000 feet; yet I was informed that there is never any occasion to push the fire, but rather a necessity for keeping it checked by banking up. *T. B.*

THE COLONIAL EXHIBITION.

NO. X.

INDIA (*continued*)—Dye products, and the method of their manufacture or preparation, are well illustrated in the Indian Court. Amongst the products themselves the samples of Annatto (*Bixa Orellana*) will be noticed for the brightness of the colour, and the large size of the seeds. This product is well represented amongst the Ceylon and West Indian exhibits, and is referred to under those heads. Here are also large samples of Tissoo or Palas flowers (*Butea frondosa*), of a bright, fresh yellow colour, used for dyeing yellow and orange-red. The tree is one of those which yield a variety of products. The root-bark gives a good fibre used for coarse cordage, also for making slow matches, and for caulking the seams of boats. The gum or resin, under the name of Bengal Kino, is astringent, and is used in medicine, while the seeds are used as a purgative and vermifuge, and the leaves are employed as plates. Here are pods of *Acacia concinna*, which contain a quantity of saponaceous matter, and are used as soap, especially for washing the hair. The leaves of this species are eaten on account of the acid flavour they possess. Of indigo the exhibits are both good and numerous, and the model of an indigo factory will not fail to attract the attention of all visitors, so accurate is it in detail and so perfect in finish. The model shows the process of steeping the plants and pressing them in the vats or divisions, from which the water runs by a kind of pan into a large receptacle below, in which the workmen stand up to their middles in indigo, stirring it with long poles, and in a room behind is seen wire or wicker frames on which the cakes of indigo are placed to dry. The model gives a very good idea of the preparation of an important article of commerce about which but little is popularly known.

The other models illustrating Indian industries are oil pressing, Sugar-cane pressing, and the preparation of sugar from the Date Palm, in which the collector of the toddy is represented in the crown of leaves drawing the juice from the freshly cut spathe.

In the matter of direct forest produce, such as timbers and Bamboos, many excellent examples are shown. The timber trophy or screen at the entrance of the Economic Court is composed of small specimens of a great variety of useful timbers, the most striking specimens, however, are the large planks and blocks of Padonk (*Pterocarpus indicus*), of which also an enormous squared trunk lies outside in the adjoining promenade. The Padonk, or as it is sometimes called Andaman Red-wood, is a lofty tree of Burmah and the Andaman Islands. The wood is fairly hard, even grained, and easily worked, and is well known for its deep red colour, which darkens or becomes brown on exposure to the light. It is a very useful wood, and is much used for furniture as well as for cabinet work, carriage wheels, and similar purposes in India.

Another wood that will no doubt attract considerable attention amongst cabinet makers, is the Andaman marble wood (*Diospyros Kurzii*), an evergreen, the native of the Andaman Islands, as its common name indicates. The wood is very hard, irregularly



FIG. 67.—*PAPAVER PAVINUM*: HARDY ANNUAL: FLOWERS SCARLET, WITH A GREY EYE BORDERED WITH BLACK. (SEE P. 328.)

rarity. Yet now and then one turns up, such as the marvellous examples of *Erica Cavendishii* that during the last two or three seasons Messrs. Gregory & Evans have produced, and which for their size and strength of growth, smothered with flowers as they are, and grown in such little pots—40's and 48's—are looked

upon with the profusion of flowers they produce in the little pots, which growth is the outcome of careful observation in ascertaining how much manurial feeding the plants will bear without its killing them before they bloom; and though the experienced cultivator can manage this, it is a question if one of the

blotched with black markings upon a greyish ground, usually arranged in alternate streaks of grey and black, but in the plank exhibited at Kensington, the figuring resembles as near as possible what might be effected by the casual upsetting of an ink-bottle, an appearance not to be found in any other wood. The smaller specimens of woods are too numerous and too well-known to claim any special notice, notwithstanding that many of them are of excellent quality, both on the score of durability and for their fine markings or figure, and ought to be better known amongst English hard wood dealers.

In the matter of Bamboos, the well-known bridge in the centre of the Court will be remembered as an excellent illustration of what these gigantic grasses can be applied to, besides which the numerous uses to which they are put in India are well shown in the couches, chairs, baskets, &c., which surround the bridge, some excellent photographs of Bamboos bridges spanning the Sutelej, are also shown in close proximity. A stem of a species of Calamus, a slender climbing Palm, often popularly confounded with the Bamboos, is shown under the roof of the court, and reaches almost its entire length. This, though a fine specimen, is not however, so long as one contained in the No. 2 Museum at Kew, which measures over 400 feet, or about the height of the dome of St. Paul's Cathedral. These stems are very pliable, and some of the more slender species are known as canes and are used when split for the bottoms of chairs. Another Palm product which will attract attention is a dug-out or canoe, such as is ordinarily used in India, consisting of the hollowed stem of a Palm from which one side has been cut away and the central, cellular portion removed. The bottom of the canoe has therefore no approach to a keel, but is simply rounded—the shape or form of the trunk.

As stated before, the Indian exhibits are extremely numerous and interesting. A fine set of the products have been obtained for the Kew Museums, and we may have an opportunity of referring to them more in detail at a future time. *John R. Jackson, Curator, Museums, Royal Gardens, Kew.*

THE HYACINTH, TULIP, AND OTHER DUTCH BULBS.

THE history of the Hyacinth, Tulip, and other Dutch roots has been written more than once, and it is unnecessary to say any more on that subject. I am constrained to pen a few remarks at this time because we are now making preparations for next season's display. Suggestions have been made, from time to time, to our English florists to grow their own bulbs rather than trust to the Dutch to supply them. If these suggestions had been practical they would doubtless have been carried out long ago. The trade find it answers their purpose best to purchase Dutch-grown roots, but it seems to be a question now whether the business is profitable to the growers. The competition has been very keen in recent years. We can in our own gardens imitate the careful culture of the Dutch growers and grow Hyacinths out-of-doors year after year, as well as they do, and save the continual annual expense for border culture. The system of culture pursued in Holland may be different now than it used to be, but an excellent article was published in a Dutch paper nearly half a century ago entitled "A Year's Culture of the Hyacinth at Haarlem."

THE COMPOST.

October being the season for planting was a good date to begin with, and the preparation of the soil was very minutely described, and I know from experience, that the cultural directions given there, are admirably adapted for English gardens. The soil should be very sandy, fine and light without any appearance of stones or gravel, and should look as if it had been passed through a sieve. All kinds of loam or stiff soil should be avoided. The soil should be such that the wind can separate the particles. The thin sand of the Dutch downs, which is of a pale yellow colour, is extensively used to make the light loam still lighter, and it is made rich by placing a layer of cow manure below the bulbs; the base of the bulbs should be 6 inches from the manure. Dry weather is always chosen for planting, but the reasons for this are obvious and need not be mentioned. The beds after being planted, are covered with reeds to still further protect them from wet. All this, and the further cultural requirements, can be done in this

country as well as anywhere else, and few flowers better repay attention than the Hyacinth. What are termed common Hyacinths can be purchased cheaply in the first place, and they can be grown on from year to year if the leaves are allowed to decay. The bulbs should be dug out of the ground about the end of June, and this will allow of its being planted with Asters, Stocks, or other plants for late summer and autumn flowering. We have mixed the compost for our bulbs that have to be grown in pots to-day. This is usually done in August, but we are rather later this year. For Hyacinths, the mixture is two parts loam, one leaf mould, one of river sand, and one of leaf-mould, and one of cow manure. We use the same for Tulips, except that the manure is taken from the stable instead of the cow-house. For Narcissus, Crocus and a few other things we mix the two composts together. I do not know whether there is so much in the potting soil as we have been led to suppose. Perhaps another mixture would give equally as good results. The every day after treatment of the plants has, perhaps, more to do with the full perfect development of the flowers than anything else. At the same time, I would not care to use a different potting soil. By the advice of an eminent cultivator I used a larger proportion of manure, but found this was an error, as they did better with the proportion I have stated. About twenty years ago I was advised to pot the Hyacinths in pure two-year-old cow manure, reduced almost to mould, which crumbled into powder on being broken up with the hands. I tried a few bulbs only, and scored a lamentable failure.

BUYING BULBS.

The bulb catalogues are now coming in, and most of the dealers have obtained their supply. Some amateurs wait until the end of the season, thinking that they will get bargains in that way, or will pick up cheap lots at auctions. Goods may be obtained for less money, but it does not follow that they will be cheap. No greater error is made by purchasers of any kind of goods than to suppose because they cost little money therefore they are cheap. The highest priced articles are invariably the cheapest, and the most satisfactory, both at the end and at the beginning. Having, therefore, obtained a good article from a respectable dealer, proceed to examine the bulbs to see that they are all right, and according to the order.

POTTING.

Those intended for early flowering should be potted about the middle of September, on to the end of that month—the ordinary collection about the end of October. The dried roots begin to push out their roots by that time, and they should not be left out of the potting soil after that. The rough and ready way of potting these bulbs is to push them into the potting soil, level the mould with the fingers, and the operation is completed. The right way is to make a space with the fingers, place a little clean sand in the bottom, the base of the Hyacinth bulb will rest on the sand, the potting soil should then be gently pressed round the bulb, leaving the crown just above the surface, another pinch of sand should be placed over it, so that the compost is not firmer under the bulb than it is any where else; the same remark holds good with all the other bulbs. When potted place out-of-doors in an open place, and cover with Cocoa-nut fibre refuse. They should be placed on a dry hard bottom of ashes; through which worms are not likely to push their way. I may say we treat all our bulbs alike.

NARCISSUS.

The varieties of Narcissus Tazetta (Polyanthus Narcissus) have always been favourite plants for pot culture; but during recent years I have grown many of the border varieties in pots; with a little forcing they come in before those out-of-doors. Horsefieldii, maximus, princeps, and obvallaris are very distinct, and are much valued for forcing. I grew a few spurius coronatus (General Gordon) last year, and they formed a very good addition to our collection. None of them are taken out of the plunging material until they have started to grow; they must at least have made considerable root growth. A good place for them when taken out of the damp Cocoa-nut fibre is a close frame; a mat may be thrown over the glass, to keep the blanched growth dark, but they must be gradually inured to the light and air. The pots may either be removed to the greenhouse or conservatory, as circumstances demand.

WATERING.

The whole of these bulbs require considerable attention as regards watering. Many persons fancy that because Hyacinths can be grown and flowered in glasses filled with water, that the soil in the pots may be water-logged, like a marsh, and suppose that Hyacinths will do well with such treatment. The fact is they do not need, and ought not to receive, so much water as the Tulip and Narcissus pots. The bulbs of Hyacinths are potted singly in 6 inch pots; they have therefore plenty of soil to grow in, and, as a rule, do not require water more than twice in a week, even when in the flowering stage; in the early stages of their growth, once a week may be enough. These may seem to some experienced gardeners trifling details, but many persons miss their way for lack of such knowledge.

GOOD VARIETIES OF BULBS.

There is no need to grow a large number of varieties of any of these bulbous plants. We grow of Hyacinths the following:—Cavaignac, pale pink; Fabiola, pale rose, slightly striped; Garibaldi, crimson; Gigantea, very pale rose; King of the Reds, bright red; Macaulay, deep rose; Solfatere, orange-red; Von Schiller, salmon; Vuurbaek, rich, bright red, white varieties; Alba maxima, La grandesse, Mont Blanc, Grandeur à Merveille, blush, blue; Baron van Tuppil, dark blue; Blondia, pale blue; Czar Peter, pale blue; De Candolle, reddish-lilac; Grand Maître, violet-blue; King of the Blues, the best dark blue; Lord Derby, the best of the pale blue kinds; Marie, purple-blue; Masterpiece, black; Princess Mary of Cambridge, lavender; Souvenir, J. H. Veen, purple blue; The Sultan, purple-yellow; King of Yellows, Bird of Paradise, and Ida. The above are all single. We grow of double varieties, Koh-i-noor, salmon; Laurens Koster, dark blue; and Van Speyk, pale blue. Of Polyanthus Narcissus, the best are Bathurst, Gloriosa, Grand Monarque, Her Majesty, Newton, and Queen of the Netherlands.

The few Tulips cultivated in our garden, are Chrysolora, yellow; Fabiola, rose, white feather; Joost van Vondel, crimson; and the same variety, white; Keizer Kroon, crimson and yellow; Ophir d'Or, pure yellow; Prosperine, rose; Van der Neer, purple; Vermilion Brilliant, and Wouwerman, violet-purple. *J. Douglas.*

THE CULTIVATION OF TOBACCO IN DEVONSHIRE.

As our readers are already aware, experiments in the culture of Tobacco in England are in full swing, and to Mr. Elliott (Lucombe, Pince & Co.), of Alphonso Road, St. Thomas, has fallen the distinction of experimentalist in this portion of the country. There are so many restrictions connected with the "trial growths," and the revenue authorities treat these experiments for the commercial welfare with so much severity of condescension that persons undertaking the cultivation for experiments' sake are to be congratulated both for their courage and for their desire to find out whether the growing of the fragrant weed in this country will be likely to prove a source of profit. Trials in other places thus far are encouraging, and Mr. Elliott's efforts are certainly to be commended.

Mr. Elliott put in his Tobacco plants about June 1 in this year, raising from seeds of the Virginia plant. Acting upon the advice of an authority of some note in the matter of Tobacco cultivation, no manure was used by Mr. Elliott, whose idea throughout has been to produce quality instead of quantity. The plants have an exceedingly healthy look, but they nevertheless require a good deal of attention. The plucking of the laterals which form at the base of every leaf is the matter of daily attention, and flower-spikes have to be just as carefully and persistently removed. The object of this is to throw all the vigour of the plant into a limited number of leaves—main strength being the desideratum. Mr. Elliott's plants have from nine to thirteen leaves, the average size being 2 feet long by 10 inches broad. If the weather continues fine the plants will be cut about September 14, and the process of drying and fermentation will then be resorted to. After being cut, and before being hung up to dry, Tobacco plants are allowed to lie an hour or two on the ground, when the leaves will become wilted and drooping—a convenience in regard to the ensuing process. It is whilst drying that the leaves begin gradually to assume the rich brown colour proper to the com-

merical article. The leaves are afterwards stripped from the stalks, damped, and tied into a bundle of a dozen or more of leaves, strings being tied towards the base of the footstalk. The bundles are packed symmetrically in boxes or between boards, and heavily weighted. Whilst in this state a process of slow fermentation occurs, the Tobacco not being fit for use until this takes place. Mr. Elliott intends to conduct his plants all through these operations, and he has no reason whatever to fear anything like failure. Very wisely, however, he has set before him the sole task of discovery whether smoking tobacco can be successfully cultivated in this country—the question of profit he has very properly made a matter of after consideration. He has been in communication with that well known authority on the subject, Col. R. Trevor Clarke, of Axminster, who applauds the mode of procedure adopted by Mr. Elliott, and thinks that with the climatic advantages which we possess in Devonshire, a creditable crop of “a smokeable article” ought to be cultivated. The other day a competent writer in a well-known London journal said that he knew of no place in England better suited for Tobacco cultivation than the valleys of Torquay, which was equivalent to saying a good word for the rest of this lovely county. In fact, it was this recommendation that prompted Mr. Elliott to his present experiments.

It may be stated that that gentleman has had to give sureties to the extent of £50 to abide by Government stipulations, and after he has taken the trouble to cultivate and prepare the Tobacco for smoking purposes he will either have to pay the ordinary duty on it, or send it to authorised custom stores. Cultivators of over an acre have to find surety for £100, but Mr. Elliott's is under the acre. There is a penalty amounting to £1600 for cultivating more than half a land yard of Tobacco, whilst purchasers of the weed, when illegally cultivated, are liable to be called upon to forfeit £1000. It will be seen, in face of all the restrictions pointed out, how much the experimentalists are entitled to public gratitude. Visitors to the American Tobacco plantations—gentlemen conversant with the growth and habits of the plant—have seen Mr. Elliott's crop, and their comparative comments are most favourable. We hope, later on, to record that the anticipations formed in connection with Tobacco growing at the Exeter Nursery have been fully realised. “*Devon Evening Express*.”

Orchid Notes and Gleanings.

ANGRECEUM SCOTTIANUM.

AMONGST the various forms with which the southern half of Africa, Madagascar, and the neighbouring islands abound, the subject of this note is interesting, and pretty as it is rare. The latter statement applies to the plant in this country, for when figured in the *Gardeners' Chronicle*, 1880, vol. xiv., p. 137, fig. 30, there were evidently only two plants in the country. It comes from the Comoro Islands, and forms an excellent companion plant to *A. Kotschyi*, from Zanzibar. The latter is notable not only for the length of its spur, but also from the fact that it is spirally twisted. The spur in both cases is intermediate between that of the common species and the now well known and popular *A. sesquipedale*. The spur of *A. Scottianum* in the *Botanical Magazine*, 6723, where the plant is figured, is said to be 4 inches long, but a plant flowering at Kew has a spur almost or quite 6 inches long. It is round, not compressed, as in *A. citratum* and some others, of a pale brownish-yellow, and white at the base, but seems to vary somewhat in that respect. The sepals and petals are narrow and white, but altogether surpassed by the size and purity of the labellum, which constitutes the most conspicuous feature of the flower. All this agrees with the usual characters of *Angraecum*, but the slender stems and almost terete, fleshy leaves, remind one of *Vanda teres*, a *Luisia*, or a *Brassavola*. It should be fastened to a block or raft, mossed over with sphagnum, and hung up near the light in the East Indian house, as it requires a moderately high temperature, and such a position is also favourable to the pendent inflorescence and resuplicate flowers. *J. F.*

“LINDENIA.”

The plants figured in the last number are *Epidendrum atropurpureum* var. *Randi*, t. 49, a racemose species with oblong brown segments, edged with yellow, and a white 3-lobed lip streaked with violet. The variety is stated to be a Brazilian (Amazon) form of a species widely distributed from Guatemala southwards. Much heat and a position near the glass are cultural requisites. After the plant has flowered it should be allowed to go to rest, and the supply of water consequently diminished.

Cypripedium microchilum ×, t. 50, is a hybrid between *C. niveum* and *C. Druryi*. It has white flowers, with a central violet streak on the segments. See *Gardeners' Chronicle*, xvii., p. 77.

Stanhopea tigrina, t. 51, a grand old plant, so handsome, so extraordinary, so fragrant, that we wonder we do not see it more frequently, especially as its culture is comparatively easy. The short duration of the flowers, however, is one reason why these plants are not in much favour.

Phalenopsis sumatrana, t. 52, a species with a flat 5-starred flower, the segments obovate-acute, cream-coloured, with transverse bars of pale purple. The lip is small and white, with orange spots on the lateral lobes, while the central one is streaked with purple and brown. A high temperature, combined with abundance of moisture, is requisite in the growing season. If grown in pots the greatest care must be taken to secure adequate drainage.

ORCHIDS IN FLOWER AT THE FIRS, LAWRIE PARK, SYDENHAM.

This is perhaps the duller season of the whole year to visit a collection of Orchids with the expectation of finding a display of plants in flower, but the recent importations have very much added to our stock of species flowering at this season. The field from which our supply is obtained is the world, and few corners have been left unexplored by the persevering collectors. Quite a recent introduction is that singular looking plant *Oncidium Jonesianum*, a species that has been introduced in abundance during the last year. It is now flowering in great beauty in Mr. Dorman's garden; there are a number of good specimens; one plant has five spikes on it. The longest spike is 2 feet 6 inches long, and has sixteen flowers on it, the number of blooms on the plant being fifty-two. The flowers also last long in beauty, even in the warmest house; some of them have been in good condition six weeks, and show no signs of fading. There is great variety in the reddish-brown spots and blotches; also in the size of the flowers, which are all creamy white, with a greenish tinge. The plants seem to succeed best on teak rafts. In the same house are three handsome examples of *Vanda Sanderiana* with a flower spike on each; eight flowers on one spike. This is a splendid addition to the September flowering Orchids, and it also seems to succeed well in the warmest house near the glass. The flowers have been so recently described, that no more need be said about them, but those Orchid fanciers who had not had an opportunity to see them, have a pleasure in store of no ordinary kind. These two Orchids are at present the principal feature in the warmest house; in the adjoining house, which is for Cattleyas, *C. luteola* is what the ladies would call “sweetly pretty,” it is very small as a Cattleya, but the flowers have yellow sepals and petals; the lip of the same colour, orange at the base, with purplish lines in the throat. In the large Cattleya-house, *Lælia elegans prasiata* is very charming; it is quite distinct as a variety, the sepals and petals are dull rose-purple, with a violet-purple lip. Mr. Dorman possesses one of the largest specimens of the new white *Lælia anceps* type, but neither that nor any other of the white type show flowering sheaths, but this shy habit of flowering is a characteristic of *L. anceps Dawsonii*; they are all growing well, however, and will flower in due course. Yet, another Cattleya-house, in which is to be found a famous collection of no less than eight varieties of *C. Eldorado* in flower. The pure white form is very beautiful, the white is of the purest, with a very rich orange blotch in the centre of the lip. This is grown here under the name of *C. Wallisii*; but probably *C. virginialis* of the *Ill. Hort.*, t. 257, has a prior claim; another form has white sepals and petals, the lip has a purple margin with yellow blotch in centre; a very handsome variety has rosy-lilac sepals and petals with orange blotch. The flowers of all of them have the sepals

and petals well opened. The usual fault with this species is that the flowers do not open out well like most other Cattleyas. A plant or two of the shy flowering, but handsome *C. speciosissima* is an attraction in this house. Another lovely Orchid in flower here is *Sobralia viridialis*, the flowers of good form, large in size, and pure white. The lip is slightly crumpled and reflexed, marked with gamboge-yellow in the centre. A nice group of *Vanda cerulea* is doing well in one of the Cattleya-houses, they are placed near the door, which is kept open to admit air freely amongst the plants. In one of the cool houses there are three plants of *Maxillaria Sanderiana* growing very freely, this is undoubtedly the finest species in the genus, and no more to be named with *M. grandiflora* than moonshine is to be compared to sunshine. *Oncidium Phaleopsis* is also very pretty in the form of a good spike in the cool-house, this and an allied species, *O. cucullatum*, ought to be in the most select collection of cool Orchids. *J. D.*

CATTELYA LODDIGESII CANDIDA.

A lovely variety of this old well known plant; flowers snow-white with green tips of sepals and green middle lines of them outside. There is a certain ætherean lightest hue of lightest purple on the petals. It was kindly sent by Mr. Tautz, of Studley House, Goldhawk Road, London, W. *H. G. Rehb. f.*

VANDA SANDERIANA.

When *Vanda Sanderiana* was first imported, one heard the idea expressed now and again that it would prove itself to be a shy bloomer, but really there was no foundation for such an idea, for it was clearly seen by the abundance of old flower stems upon the imported plants, that they had flowered very freely in their native homes, and since we have had them in our Orchid Houses, such an idea must have exploded long since. For we flowered here (W. Vanner, Esq., Camden Wood), last year, three small plants of this beautiful *Vanda*, one 5 inches high with one spike, another 6 inches, one fine spike, and one 12 inches high, with two very fine spikes, and they are showing the same floriferousness again this year, which proves that it is one of the freest to flower while they are small, and certainly it is one of the most beautiful of the *Vanda* tribe. *W. Robbins, Chislehurst.*

CATTELYA CROCATA.

Some confusion and uncertainty have evidently arisen in the minds of the writers whose contributions respecting this plant have recently appeared in your pages. Perhaps the best way of clearing away this uncertainty is to permit you to have an opportunity of inspecting a flower of the original plant. I send you therefore a bloom of *Cattleya (labiata) crocata*, as named by Professor R.ichenbach for my employer, E. G. Wrigley, Esq., Howick House, Preston. The label of the plant has: Rehb. 27—4—82; whether the date the bloom was received by the worthy Professor, or the returned communication with name attached, I am not prepared to say. However, the bloom was then considered worthy of a distinct name, and the plant is now known as *C. crocata*.

In your number for June 12, 1886, p. 767, Mr. De B. Crawshaw says:—“*Cattleya Percivalia* alba was certified by the Royal Horticultural Society's Committee, and was named afterwards by Professor H. G. Reichenbach as *C. crocata*. Holding the same opinion as others, that the Professor, who does his best to please all, knows what he is about, I fancy that his name ought to stand, and *C. P.* alba should fall through. I would be the last to cut away a *protégé* of my friend. I know very little of *C. Percivalii* alba, so far as growing the plant is concerned. I remember a plant in the Percival Collection so marked, that was pointed out to me during the time the plants were on view at the nursery grounds of the Liverpool Horticultural Company; this plant flowered in February, 1884, and was exhibited by the late Mr. Percival at South Kensington shortly afterwards (see the *Orchid Growers' Manual*, sixth edition, p. 197). This, I think, clears away the statement that the name of *C. P.* alba was given first, and *C. crocata* afterwards. Still it does not follow that either one or the other name should be allowed to fall, for there can be no doubt as Mr. D. B. Crawshaw says, the Professor knows what he is about, and it is more than probable that both names must be retained, as they will refer to two distinct varieties

of plants. Surely the group of *C. P. alba* will be similar to the type *C. Percivaliana*. The growth of *C. crocata* is more in the way of *C. Eldorado*, and since it flowers when that species is in bloom, we cannot but think it is very closely connected with it. To my mind it is so much like *Cattleya Wallisii*, the true pure white form, that it is difficult to tell the two varieties when severed from the plants.

I remember the late Mr. G. Toll, whose knowledge of varieties of Orchids was so extensive and withal so clear, that very few ventured to question the accuracy of his opinions, showing me two plants he had in his nursery, and always spoke of them in the highest terms of approbation and delight. I remember, too, that when his plants were sold some two years ago a good plant of *C. crocata* was knocked down to Mr. Riley, of Burnley; when, however, at the close of the sale the plants came to be delivered, this identical plant could not be found. A reward for its recovery was offered in the *Manchester Guardian*, describing the plant and number of the lot; but so far as my knowledge goes, nothing further was ever heard of the plant. This plant was true, had flowered once or twice, healthy and vigorous, with two or three leading growths.

In the number of June 19 (p. 799), M. J. O'Brien says:—Mr. Gaskell has a delicate rose-coloured form of it (*C. crocata*?). I send you a delicate rose-coloured form of *C. Eldorado*, which I fear is confounded with *C. crocata*. This bloom much resembles *C. crocata* truly, but it is just a variety of *C. Eldorado*, and might just as easily be termed a rose-coloured form of *C. Wallisii*. In the *Orchid Manual* referred to, on p. 207, I find the name of *C. Virginalis*, Linden et André; the description of this variety is so similar to what might be affixed to *C. crocata* as well as *C. Wallisii*, that I think it would be extremely difficult to distinguish one from the other. Still I am not prepared to say that they are all one and the same thing. The plant from which the bloom of *C. crocata* was taken is now blooming with several spikes, two flowers on a spike. The flowers are not so erect as *C. Wallisii*, nor are the bulbs so stout, and the leaves, which are more rounded at their tips than *C. Eldorado*, are not so straight and erect as that species, but bent over more like some forms of *C. speciosissima*.

I send you also a fine form of *C. Gaskelliana*, 8 inches across, deep in colour, very broad expanded lip of the deep rosy-purple, covering the entire portion of the labellum. *W. Swan*.

GARDENS, ALLOTMENTS, AND SMALL HOLDINGS FOR LABOURERS.

We have lately seen several highly coloured representations, from a gardening point of view, confidently setting forth the national prosperity which would surely follow the wholesale establishment of small holdings to be taken up by agricultural labourers. In connection with this subject it will be well to consider a few of the difficulties with which the occupiers will have to contend, and to ask ourselves the plain question whether or not the adoption of small holdings, excepting under favourable circumstances, will prove beneficial or otherwise?

If the now strictly agricultural farmers are going to turn their attention to the production of vegetables for market and still continue to use the plough as a means of cultivation, will it be possible for men in small holdings, with land under spade cultivation, to compete favourably in the open market with their produce against the fast increasing number of market garden farmers growing crops on a much larger scale, and having the advantages of improved implements worked by horse or steam power? If thousands of small holdings are going to be allotted out will not their produce, added to the present and rapidly increasing supply of home-grown and foreign vegetables and fruit, quickly exceed the demand? I think the answer to this must be in the affirmative. At any rate, it can at the present only be answered, even by our best informed authorities, theoretically. No one is prepared to say that a limited number of small holdings, relying mainly on the sale of garden productions, would not prove profitable investments in the hands of industrious men, providing the same could be obtained in the neighbourhood of populous towns, where the transit of fruit and vegetables, without much expense in packing, could be easily accomplished to the nearest market,

It takes a longer period of time to successfully develop an horticultural undertaking than an agricultural one; hence the necessity for the occupant to

to lay the foundations from which in a great measure would spring his ultimate success. Admitting that many would, in all probability, be able to secure a lease as a further inducement for labourers and others to invest their small capital and labour in small holdings, are we to look upon this movement as a sure cure for the present depression? No; I am inclined to think, as many others do, that only under special circumstances will they be found to answer expectations. Let us now enquire what the newly-created peasant proprietor is going to grow when he becomes securely established in his holding, of such quality as would bear favourable comparison with productions seen daily in our central provincial markets. He would probably excel in the growth of such kinds of vegetables as he had been accustomed to grow for home consumption in his previous home cottage garden or allotment. In the main these would be Broad Beans, Cabbage, Carrots, Onions, Peas, Parsnips, Potatoes and Turnips. The cultivation of choicer and better class vegetables from a market value being rarely attempted. Will an extensive cropping of such give him when marketed a fair return for the land on which they grew and his labour? From my experience they certainly will not, as most excellent samples of all these kinds of vegetables can be produced under a system of deep-plough cultivation by the larger market farm gardener. The latter, when he further turns his attention to this recent help to pay rent more extensively, would have many advantages over the man in a small holding, even if he succeeded in making two blades of grass grow where only one formerly grew.

What measure of success he would meet with following the occupation of a small farmer I am not in a position to say, but the present state of agriculture may be taken as a criterion as to this. If the labourers had only a superficial knowledge of gardening, which would certainly be the case, many would ultimately learn more by a succession of bungs, therefore the undertaking at the commencement would be more speculative than useful. But how many would be able to withstand this temporary state of affairs without running themselves seriously into debt in providing themselves and family with the other necessities of life. I am now alluding to men who would probably give up going out to work for a daily wage, and undertake small holdings with the scanty knowledge gained from observation and experience simply in their cottage gardens. The supporters of this movement will naturally expect (and so will employers of labour) that a man when in possession of a small holding would be quite independent of him finding sufficient work (no doubt exists about this) and profit in connection with his holding for the support of himself and family. If it were otherwise he would have done better to remain as before—a day labourer, as his interest and the interests of a labour master would be distinctly antagonistic. When the latter required his (the labourer's) services it would often happen that he had work at home, or *vice versa*. The end of this would be that when he had not employment at home he would have to tramp the country in search of it. If small holdings cannot become remunerative from an agricultural point of view I think it is equally certain that they will not, from an horticultural standpoint, unless they are in the hands of men who have moved about the country a bit, and have become conversant at least with the rudiments of market garden work, and men who possess some knowledge and forecast to enable them to realise the best prices, according to season, for what they grow. I think it is apparent that if success is to attend this great movement too much reliance should not be placed on the gardening part of the undertaking.

Should many of these forthcoming small holdings result in failures—let us hope they will not—the aspirations of many labourers will have been gratified so far as a trial goes. By their failures they will have learnt what the difficulties of others must be who are engaged in similar occupations only on a much larger scale. They will then return to their old employment as day labourers again free from the many anxieties which attended them when thrown entirely on their own skill and resources and when they have found out by experience that there is something more than manual labour required to successfully manage and make the land pay.

It is much easier for a man to learn the management of a small stock of animals, and a little land for their maintenance, than for him to become suddenly a



FIG. 68.—*FERULA GLAUCA* AT CHLSEA (SEE P. 335).

obtain a long lease on his premises. Remaining simply as a yearly tenant would not be an adequate guarantee, from a horticultural point of view, for him

qualified market gardener, able to produce such samples as would meet with a ready sale in these days of keen competition.

By contributing these few remarks, I do not wish to be understood as in any way underrating the great national importance of establishing as many permanent tillers on the land as it is capable of supporting. But when such a great movement as this is contemplated, and is now pending in the balance, for better or for worse, it is interesting before its final solution, to discuss the subject in all its bearings. *One who Markets.*

BRITISH ASSOCIATION.

PROFESSOR BOWER opened the business in the Biological section on Tuesday last with three

would deny the theory that the ants benefited by the relationship, though the converse proposition was not so clear. In some cases the ants were known to protect the plants by driving off other insects, and Beccari pointed out that the plants derived nutriment from the excreta of the ants; but that was a view open to considerable discussion. The conclusion he (the writer) had come to was, that the ants alone were benefited by the connection. Not only were they by this means provided with a capital lodging, but it might fairly be assumed that they derived food from the plants.—In the course of a short discussion, Dr. Trimen said that the ants took advantage of the hollowness of the plants, but he did not think the latter derived any benefit from their presence.—The other papers contributed by the Pro-

period. The cause was that there was no safe apparent guide as to the exact ripeness of the leaf. The colour of the leaf failed to afford that information, and the fall of the leaf was no guide. His method of experiment had been to tie the leaves to the twigs, so that when the former gave way they were suspended by the twine. If the fall occurred during frost or windy nights the leaves were discarded, only those being selected that apparently fell in perfect maturity on a comparatively still and not frosty night. The subject had been approached from two points of view—the mechanism of leaf-falling and the transfer of the cell contents from the leaf to the stem, the former dealing with the power of the leaf itself and the latter with the amount of loss that took place to the plant itself by the fall of leaves over and

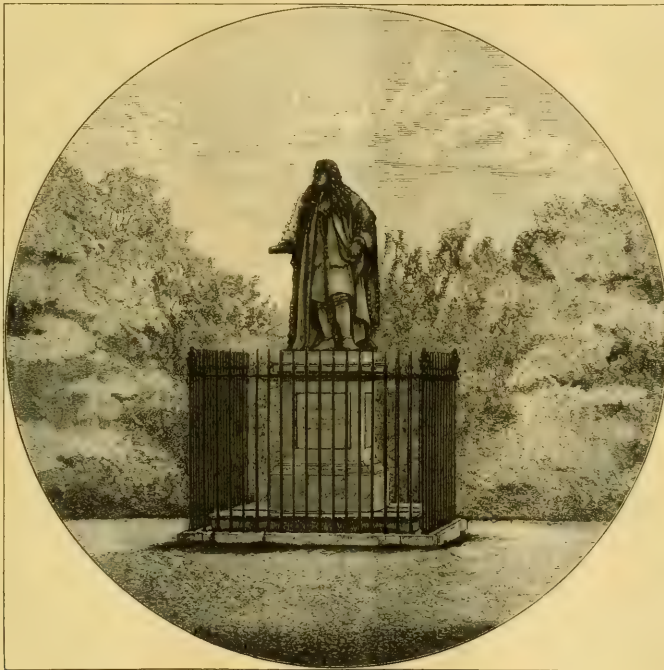


FIG. 69.—THE STATUE OF SIR HANS SLOANE, CHELSEA. (SEE P. 336.)

papers. The first related to the plants which furnish a residence for ants. The peculiar relation between plants and ants, he observed, had been the subject of considerable observation from time immemorial. The literature on the subject could be traced as far back as 1750, and Captain Cook, in describing his voyage, distinctly alluded to the matter.

In one place he pointed out that on a tree he saw a number of black ants, which perforated the twigs, and, after eating out the pith, formed a lodging in the cavity, and yet the tree continued in a flourishing condition. In tropical climates there were many plants pre-eminently associated with ants. The Italian botanist, Beccari, contended that the relationship was advantageous alike to the plants and the ants. The former afforded shelter for the latter, and in some cases supplied them with food. No one

fessor were on "Positive Geotropic Shoots in Cordyline," and on "Apospory in Polystichum angulare."

POTATO DISEASE.

Professor Marshall Ward, in a contribution on "The Germination of the Spores of *Phytophthora infestans*," explained the method by which these spores grew so rapidly, and how it was that when the disease appeared among Potatoes it was apt to spread very quickly throughout the crops of the country.

THE FALL OF THE LEAF, ETC.

Professor Hillhouse, in a paper entitled "Preliminary Note on the Falling of Leaves," said he had taken observations on this subject every autumn since 1882, and hoped in the course of twelve months to complete them. At first sight it might seem peculiar that a question of that kind should be spread over so long a

above the actual skeleton, so to speak, of the leaves themselves. He found that the leaf fell from the increased turgidity of the cells, which became strongly rounded, greatly diminishing their adhesiveness. The turgidity appeared to arise from the root-absorption of water continuing at a greater pace than the leaves could pass the water off, so that the accumulation of water caused an expansion of the tissue, consequently the cells became rounded, and disconnected. Tannin and starch were especially abundant in the layer at the base of the leaf-stalk, but in naturally fallen leaves starch was rarely found, except at the very base of the stalks, and then in small grains. Professor Hillhouse afterwards described an apparatus for determining the rate of transpiration in plants. He observed that no apparatus having been devised for the purpose above named, he had experimented with an apparatus of his own construction.

Professor Hiltzhouse showed the workings of the apparatus, and the minute records made of the transpiration of plants.

GERMS.

Dr. Percy Frankland contributed a paper on "The Distribution of Micro-organisms in the Air of Town, Country, and Buildings." It contained the results of a number of experiments which the author had made on the relative abundance of micro-organisms in the air of different places, and of the same place at different times. In these experiments the number of microbes contained in a given volume of air had been supplemented by the determination of the number falling upon a unit of horizontal surface (1 square foot) in a unit of time (one minute). The air on the roof of the Science Schools at South Kensington was very considerably richer in micro-organisms than that collected in the London parks, and this again than that of the country. The gradual attenuation of the microbes in ascending St. Paul's and the spire of Norwich Cathedral was also very striking. The figures obtained in museums, railway carriages, and hospitals for consumption showed how in confined spaces the number of micro-organisms present in the air was influenced by the number of persons moving about.

CONFORMATION OF CYPRIPEDIUM.

Dr. Masters sent a note on the "Floral Symmetry of the Genus *Cypripedium*." In this note the author adverted to so much of the normal structure of Orchids in general, and of *Cypripediums* in particular, as was necessary for the elucidation of his subject, and proceeded to describe a case of regular peloria in *Selenipedium caudatum*, which showed a reversion to the typical form of Orchids, and went to prove that the so-called genus *Uropedium* was only a pelorian form of *Cypripedium*. The construction of the androecium in these plants was then alluded to, and illustrations given of the presence of from one stamen only to that of six stamens in two rows, of all intermediate stages, that is, from monandry to hexandry. The frequently observed tendencies to a dimerous condition, and to the development of the inner row of stamens, were also alluded to, and the significance of these changes pointed out. The morphological changes consequent upon hybridisation, and the inferences to be derived from them, were passed under review, and the paper concluded with a general summary of the teratological changes observed in the tribe *Cypripideæ*.

SEEDLING FERNS.

Mr. J. Morley contributed a note on the cultivation of Fern *Prothallia* for laboratory purposes. He remarked that amongst British Ferns the spores most easy to germinate are those of *Osunda regalis* and *Lustrea filix-mas*. Rather less easy are those of various species of *Polystichum* and *Adiantum*. To collect the spores, lay the frond, when the sporangia are dark brown, between sheets of unglazed paper, and keep dry till wanted. The spores would fall into the paper, and when wanted tip off all that were loose. The spores could be grown on pieces of sandstone, slate, peat, &c., but whatever the growing medium it should be previously sterilised by pouring over boiling water.

Florists' Flowers.

CARNATION SOUVENIR DE LA MALMAISON AT RANGEMORE.

SEVERAL of your readers will remember the fine display of *Souvenir de la Malmaison* Carnation that Mr. Jennings, of Ascot, Leighton Buzzard, made at the Royal Horticultural show at Liverpool a few weeks ago. During the past two months, those who have visited Lord Burton's, Rangemore, Burton-on-Trent, have seen a most striking display of the same Carnation. Mr. Bennett had arranged the middle staging of a span-roofed house entirely of *Souvenir de la Malmaison*, between 400 and 500 plants, averaging from five to ten blooms on each plant. In the centre of the stage he had some noble flowered plants of the red variety, known by many under the name of Madame Blechroder. Those who grow Carnations should not fail to obtain the red variety, it is a very pleasing contrast to the pink.

The house of Muscat of Alexandria at Rangemore is again this season a grand sight, the bunches and berries are everything that could be desired. H. Z. C., Highgate.

COLONIAL NOTES.

THE FALKLAND ISLES.

THERE is certainly a remarkable contrast between this place and Seychelles in the way of vegetation. There the most redundant tropical growth, here all as bare as your hand. It is about this very bareness that I am going to trouble you. I am very anxious to try and grow some hardy bushes and shrubs here; and in sheltered spots they will grow I know, to a certain height, though I doubt if one could expect anything above 12 or 15 feet at most. Still this would be something better than "diddle dee" and Bilsam Bog. Could you advise me what to try, and perhaps send me a few seeds or roots, with directions as to the best way of managing them. I have a good gardener here who was at Paul's Nursery Gardens, and will take pains with plants. The soil, as of course you know, is chiefly peat, and the winds are high and cold. The latter, I suppose, would always prevent trees of any size growing. But it is wonderful what can be done here in sheltered spots, and the flowers do capitally. I have never seen such Pansies, Pinks, Picotees, &c., as are grown here. Fruit seems to degenerate—Strawberries, Raspberries, and Currants, all get small by degrees and beautifully less, year by year. So far as I have yet seen, the climate has been too much abused, chiefly by people who, like Sir Wyville Thompson, happened to come here during bad weather. It is now over three months since my arrival, and I find from my journal that more than half the days have been fine and calm, and when it is fine it is lovely—like spring weather at home. To be sure it does blow "whiles," and snow, too; and, unluckily, visitors generally arrive when it is doing one or the other, or both, and at its best it looks a little bare and dreary, but would be vastly improved if a few nice evergreen bushes and shrubs could be induced to grow here and there in sheltered places. About the town I do not see why Laurels, Hollies, &c., should not do, but I should be very glad of your advice and assistance to think of me. Extract from letter from Hon. A. C. Barkley, late Commissioner at the Seychelles, now Acting Governor of the Falkland Islands, to Mr. W. T. Threlton Dyer, F.R.S., C.M.G., Director, Royal Gardens, Kew. [We should be glad of suggestions. In the meantime the system of procuring shelter in the first instance, and then of growing plants which will withstand sea breezes and a cold temperature might be tried. Tamarisk, Tussock-grass, Gorse, Austrian and Corsican Pines, Griselinia, Hippophae, Escallonia, and hosts of hardy shrubs would probably thrive, once shelter were obtained. Ed.]

The Flower Garden.

VIOLETS.

IN late localities, which are liable to early frosts, no time should be lost in having winter Violets transferred to their blooming quarters; in more favoured localities this may be deferred for some little time. The most suitable place to bloom Violets successfully is one with a south or south-west exposure, where every ray of the sun can strike the frames. I am not an advocate of using fermenting material underneath the plants; this has a tendency to weaken the plants, and small blooms are the result. There is also a large amount of moisture to contend with in the frames, and damp is the worst enemy that attacks the Violet in winter. My practice is to fill up the frame to within 9 or 10 inches of the top with spent leaves from old hotbeds; this secures ample drainage for the plants, and there is not sufficient heat to injure them. This is trodden down as hard as possible, to prevent subsidence. The plants are lifted with as large balls as possible, 9 to 10 inches in diameter; the balls are stood on the leafy bottom,

and the spaces between the balls are firmly packed with fine compost of a light nature. As soon as the pits are filled they receive a good soaking of clear water, and the sashes are kept off until frosts set in, or heavy falls of rain take place. A good surfacing of Cocoa-nut refuse helps to ward off damp, and also serves to keep the rain from washing the soil up on the flowers and foliage of the plants.

BULBS.

In order to secure the pick of bulbs for planting the flower-beds next month, no time should now be lost. It is false economy to spend money on cheap articles of this sort, as much disappointment will be the result. See that the bulbs are firm and well matured about the crown; if they feel soft they will not give satisfactory results.

ALPINES.

Many of the more delicate alpine plants in pots should now be placed under protection in such structures as it is intended to winter them in. With regard to these plants, especially those which are natives of barren or rocky situations, the coverings should not be placed over them unless to shield them from excess of wet; if they receive too much cooling they will become weak and less able to withstand the dull months of winter. Where any are observed to be too wet they may be turned over on their sides for a time to drain. Wherever watering is necessary worms are not long in making their way towards it. The pots should be frequently watered with lime-water, and occasionally the occupants should be turned out to see that the drainage is all right.

HERBACEOUS PLANTS, &c.

Continue transplanting hardy perennial and herbaceous plants which have been raised from seed and cuttings. Any of the latter which have not attained sufficient size and strength may be left till spring, otherwise they may perish during the winter, should the autumn not prove favourable for their establishing themselves in the beds or borders. Continue putting in cuttings of Pentstemons, Phloxes, or any other thing of which it is desirable to increase the stock. Pansy cuttings may be put in, in quantity for early blooming in pots. Such as are rooted may be planted out in good light soil. Avoid the use of strong rank manure at this season of the year. W. M. Baillie, Luton Hoo.

THE ORCHID HOUSES.

CATTLEYA GIGAS.

THIS ORCHID with its many varieties or synonyms has been written about often and directions given how to induce it to flower. I think most people advise hanging it near the roof glass, but this is not always practicable if you have many plants and they happen to be in large heavy pots. That being the case, the system adopted here will be found more convenient. Our idea is that if *C. gigas* can be kept from starting very early in spring it will only make one growth in a season; this will keep it strong, therefore more likely to continue flowering. When it commences to grow give it all the sunlight possible and little fire-heat, the early morning temperature during the month of March is often down to 50°. To follow out this plan the plants are placed on a stage in a small division at the south end of the Cattleya house, the boilers being at the north end, the shading is made to roll on the roof and the end of the house is left unshaded.

Plants of *C. gigas* have been grown in suspended baskets; these flowered very well, but began to grow weak after two or three years. A very good time to pot this Cattleya is just as the new growth begins to throw out fresh roots; this it commences to do a week or two after the flower is past. The pot can be placed in a larger one if it is not necessary to turn the plant out to put it in better form. A thin shading might be used for those plants that have been turned out of their pots. Very little water is necessary after the bulbs have done growing.

The fine summer weather that we have been having will greatly assist all Orchids in making firm growth providing they get sufficient air. Do plenty of damping down through the heat of the day, and less in the evening when the houses are closed. We may expect sudden falls of temperature during the present month, and this often happens when there is very little fire-heat, and if the East Indian houses are

heavily charged with moisture while the temperature is low sport in the leaves often follows. Begin to ventilate warm houses that were closed over night by six A.M., if the weather is mild and the temperature in the house rising. *C. Woolford, Downside.*

PLANTS AND THEIR CULTURE.

CAMELLIAS.

Now that the growths of these are being hardened and the flower-buds formed and showing themselves prominently, there is little fear of the plants getting excited into growth. Should any of the plants in pots show signs of weakness this is the best time to shift them; but never shift unless it is required, as by giving a shift of a clear inch all round the ball, using good tough fibrous peat and a third of fibrous loam, plenty of sand, and a sprinkling of small bones, it will last a long time. If this be done the compost should be rammed in firmly, but not carry this to the extreme, as when potting *Ericas*, &c.

BULBS.

Gladiolus The Bride should be grown in quantity, as there is nothing more graceful than this, especially where large quantities are required during the London season for furnishing and decorative purposes; the spotted varieties of the early sorts stand pre-eminent, of which delicatissima, Mary Anderson, Rosy Gem, and Princess Beatrice, are special favourites. *Allium neapolitanum* does well in pots, and will be found useful for bouquets, &c. *Freesia refracta alba* is another beautiful thing for cutting.

A batch of *Sparaxias*, *Ixias*, and *Tritonias* should now be potted up with a second batch of Roman Hyacinths; and as soon as the *Belladonna* and *Guernsey Lilies* can be obtained they should be potted in good rich soil, slightly watered, and placed in a warm pit. The general bulb order should be made up at once, if not already done. The earliest varieties of Hyacinths, Tulips, and Narcissus should be potted up first, and then a second potting should be made; in this way the blooming season is much prolonged. Hyacinths of the single varieties will be found much more useful than the double. The following varieties I have found to force well:—*Princess Beatrice*, *Mont Blanc*, *Royal Bride*, *White Perfection*, *Grand Vidette*, *La Grandeur*, *General Pellissier*, *Homerus*, *L'Ami du Cœur*, *Fabiola*, *Queen of Hyacinths*, *Prince of Wales*, and *Solfaterra*. Of Tulips, the *Duc Van Thol* will be found very useful for early work. Polyanthus Narcissus are fine decorative plants, particularly suitable for pot culture; these, with their large trusses of sweet-scented flowers, the double Roman Hyacinth, and the paper-white Narcissus come in very early. All these should have attention, and if they show the least signs of being exhausted remove as much of the soil as possible without breaking or disturbing the roots to any serious extent, replacing it with the compost given for Camellias. See that the borders and pot plants are thoroughly soaked through the ball, before operations commence. Plants which are outside, if at all exposed, should be securely staked; generally about this time of year we get some strong west and south-west gales, often breaking the plants by blowing them down. *A. Evans, Lythe Hill.*

HARDY FRUIT GARDEN.

PLANTING FRUIT TREES.

Those who intend planting this autumn must now commence the preparation of the soil. The present time and the early part of next month are the best periods in which to get the ground trenched in readiness for planting in October. Taking into consideration the number of years that most fruit trees remain on the same site in our gardens, after being planted, it will only be opportune at this season to point out the great importance of planting at the right time, in the right soil, and in suitable positions. Before purchasing the trees, the soil should be in readiness to receive them, and if this work cannot be carried out in time to get them planted by the end of October, well, don't plant until the early spring months. The importance of planting just before root-

action is at a standstill, or just as it commences in the spring, is now so well recognised that but few trees are plunged into the cold soil during winter.

The nature of the growth made by fruit trees growing in similar soil, in proximity to where the planter anticipates planting fresh ones, should form a guide as to the treatment of the soil before planting, viz., whether fresh soil should be added to that already present, or whether only a thorough working of the latter is necessary. It is folly to plant, for planting sake, unless one can feel assured that everything has been done to ensure success, by adding opening material if the soil is of a too adhesive nature, or by applying some heavy soil if the ground to be planted should be of a poor sandy character, and, above all, to have a sufficient depth of each for the roots to ramble in, resting on perfect drainage, natural or artificial. These are the most important points to be studied to ensure the formation of healthy roots of the right sort. When planting in old garden soil highly charged with humus, the best thing to add to it is some fresh loamy material, or the best that can be obtained in the locality, just to infuse a little of the exhausted virgin qualities into the old soil again. This is far better than the application of manure of any description. The siftings from rubbish heaps, after being charred, may be mixed with stiff maiden soil with great advantage. There are varieties of Apples and Pears (and the same remarks apply to other hardy fruits) that succeed much better in some districts than others; therefore the safest guide, as to the selection of varieties, is to choose from those which appear to afford the best crops in the neighbourhood. But the planter should not be deterred from obtaining other varieties, planting them sparingly until their adaptability has been proved. *S. H. Richards, Somerley, Ringwood.*

FRUITS UNDER GLASS.

PEACHES.

As soon as the crop has been taken from the trees clear out the houses of nets, &c., and give the borders a thorough watering, and the foliage a good syringing with clean water every afternoon during bright sunny weather, so as to dislodge any red-spider that may be present, by that means retaining the foliage till it has performed its proper functions.

EARLY HOUSES.

Trees which ripened their crops early in May will ere this have shed their leaves, therefore the thinning and shortening of the shoots should be proceeded with at once. I need scarcely say that as much of the old wood as can be dispensed with should be cut out, as well as superfluous young shoots, and some of those left should be shortened back to a wood-bud where necessary, to secure balance of growth. This object should never be lost sight of in pruning any tree. The shoots should be thinned out to 6 inches apart, and if necessary be washed with a weak solution of soft soapy water, using a brush sufficiently stiff to remove any scale that may be on them, taking care in doing so not to injure the buds. Then, having previously thoroughly cleansed the house, train the shoots to the trellis at the distance indicated above, and at the same angle on either side the centre of the tree. This done, remove the loose surface soil from the borders, replacing it with a mixture of good turfy loam and one-fourth part of old lime rubble and wood ashes, following this with a mulching of horse-droppings to the thickness of two or three inches, and a good watering of the border with clean water. Leave the house open day and night until the time arrives for starting the trees. In thinning the shoots those of medium size, well-ripened, studded with buds, should be retained in preference to others of stronger growth.

LATE HOUSES.

Trees that have shown signs of distress in swelling their crops should have their roots seen to as soon as the fruit has been gathered. Open a trench about 2 feet wide also the same depth at 3 feet from the base of the trees operated on, afterwards working the soil away with a four-tined fork from underneath the trees until plenty of roots are reached. These should be shortened back and the space refilled with a mixture similar to that advised for top-dressing,

and the trees should be shaded from bright sunshine for a week or ten days afterwards, and be syringed overhead in the afternoon with a view to retaining the leaves on the trees until the roots have pushed into the new soil, and so re-established themselves before shedding their leaves. In the case of worn-out trees they should be removed forthwith, and be replaced by young ones from the walls in the open, and afterwards be treated as recommended above. *H. W. Ward, Longford Castle.*

The Kitchen Garden.

ARREARS OF WORK.

THE present time being one when there is generally less stress of work than at any other period during the year, a little time and attention should be afforded to any details that may have been allowed through over-pressure of more important matters or other causes to have fallen into arrears, and to endeavour, as far as possible, to rectify and make good any deficiency where practical, both as regards the various crops and requirements, and also in the thorough overhauling and clearing up of waste places, garden-refuse, out-of-the-way corners, or any other sources of rubbish which have been allowed from one cause or another to accumulate; these should be collected together, a fire made, the basis being formed of some good logs of wood, and the whole thoroughly burnt over, and afterwards well mixed together, a portion being screened whilst dry, and stored in reserve for dusting purposes. By thoroughly burning up all refuse all seeds and roots of weeds that may have found their way to the rubbish-heap are effectually destroyed, and the residue becomes a valuable ingredient in the preparation and amelioration of heavy soils, and also as a top-dressing, alone, or incorporated with some artificial manure; care should therefore be taken to accumulate for that purpose all the burnt refuse and wood ashes, &c., that are obtainable.

SEEDS AND CROPS.

The results of the present season should be noted, as regards the quality of the seeds sown, and also with reference to the individual merits of the different varieties grown, and their adaptability to the soil and locality, in order that corrections and suitable selections may be made for another season. Amongst Peas, in particular, there is a wide difference of opinion as to their respective merits and demerits, which is probably more to be accounted for by climatic influences than by any real defects or objections in the individual varieties, the appearance, crop, and also the flavour, depending in a great measure on the health, vigour, and free doing of the plants, and to their receiving no check throughout; last season with us nothing could have been more satisfactory, or given better results, than the varieties Telephone, Telegraph, and Giant Marrow. This season they have almost proved a failure, and after the first and second earlies, *Siratagem*, *Veitch's Perfection*, and *Ne Plus Ultra*, have withstood the drought, and consequently mildew, and produced better crops than any other varieties.

GENERAL WORK.

Prepare a plot of ground for planting out the main crop of spring Cabbage; this should be well manured with good rotten dung, and after being dug in, allowed to settle down a few days, and made firm before planting. If plentiful, the small and earlier varieties, such as *Wheeler's Imperial*, &c., may be planted in shallow drills, 9 inches apart and 18 inches asunder, every alternate plant being drawn in spring for early use, and before they become overcrowded, larger and later varieties, such as *Enfield Market*, &c., should have a space of from 18 inches to 2 feet each way; and do not allow the young plants to become drawn and weakly in the seed-beds, rather than this should occur prick out on temporary beds until their permanent quarters are ready to receive them. Heaps of manure that have laid any time on hand should be turned over and prepared ready for use; and where the supply is short, no time should be lost in getting some together in readiness for autumn and winter ground work. Continue to earth up *Celery* in dry weather, also *Leeks* in trenches, and thin out and weed such advancing crops as *Turkey Spinach*, &c. Lift and store *Fatostas* as they become ready, and when in a dry state, the haulm being collected together and burnt if there is the slightest symptoms of disease. *John Austin, Witley Court.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Sept. 13	Sale of Dutch Bulbs and 1000 Tuberoses, at Protheroe & Morris' Rooms. Sale of Bulbs from Holland, at Stevens' Rooms.
TUESDAY, Sept. 14	Annual Trade Sale of Plants, at the Burnt Ash Nurseries, Lee, by Protheroe & Morris. Sale of Bulbs from Holland, at Stevens' Rooms.
WEDNESDAY, Sept. 15	Annual Trade Sale of Plants, at the Lea Bridge Nurseries, Leyton, by Protheroe & Morris. Sale of Flowering, Semi-established, Orchids, in variety, at Stevens' Rooms.
THURSDAY, Sept. 16	Annual Trade Sale of Plants, at the Brunswick Nurseries, Tottenham, by Protheroe & Morris. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Annual Trade Sale of Plants, at the Longlands Nurseries, Sidcup, by Protheroe & Morris.
FRIDAY, Sept. 17	Trade Sale of 4500 Established Orchids, without reserve, at Protheroe & Morris' Rooms. Trade Sale of Plants, at the Dyson's Lane Nursery, Edmonton, by Protheroe & Morris.
SATURDAY, Sept. 18	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Sale of Dutch Bulbs at Stevens' Rooms.

THE PHYSIC GARDEN at CHELSEA has special claims on the sympathies of botanists and horticulturists. Established soon after the middle of the seventeenth century by the Society of Apothecaries of London for educational purposes, it is associated with such names as SLOANE, PHILIP MILLER, who here received the visit of LINNÆUS, WILLIAM CURTIS, of *Botanical Magazine* fame, N. B. WARD, JOHN LINDLEY, ROBERT FORTUNE, not to speak of others still living. The history of the garden has been told in our columns before now, and those who wish to read of its chequered fortunes cannot do better than procure Dr. SEMPLE'S *Memorials of the Botanic Garden at Chelsea*. Our present purpose now is rather with the garden as it is than as it was. Small in extent, low-lying, close to the river, built in by tall houses, surrounded on three sides by a dense population, and plentifully endowed with the smoke and dust of the huge metropolis, this garden might be thought to be of little worth, and to owe what interest attaches to it rather to the past than to the present. But this would not be a just estimate. The Chelsea garden still fulfils its purpose, and in some respects better than ever, while, owing to the additions made a few years back in consequence of the new Embankment, its size has been increased and its general condition improved.

Owing to recent changes in the curriculum of medical education, botany which, from the time of ÆSCULAPIUS downwards, had been inseparably associated with medicine, has now been in a measure divorced from it. Of course there were good reasons for lightening the confessedly overburdened programme of studies for the medical student. Doubtless, too, the method and style of botanical teaching were not always in consonance with modern notions, and with the increased attention now paid to the microscopic structure and to the physiology of plants rather than to their outward conformation and natural affinities. All this may be admitted, but constitute, in our judgment, rather an argument for modification than for the abolition of botanical teaching as an element in medical education.

In these pages we cannot enter into the discussion of what might be done at once to lighten the programme, and to render it more in accordance with the requirements and the fashion of the day, nor can we discuss the desirability of including a full practical course of botanic teaching as an essential preliminary to more strictly professional studies; but we may at least express our opinion, that the utter abolition of botanical teaching is a mistake and a calamity for medical science. It has come, too, at a time when, to a degree, never equalled before, the life-history of plants is shown to be of cardinal importance in understanding the physiology of animals, the natural history of many diseases, and the method of combating them. The Society of Apothecaries has always held a juster conception of the value of botany in

medical education not only for its direct advantages, but also for the excellent training of the observant and reflective powers that it offers, and which render it so valuable as preliminary to the study of medicine. It is hardly likely that the Society will alter its well matured plans, and hence it may well be that the Society will become the sole teaching body of botany in its relation to medicine.

At the present time the Society offers medals to medical students for proficiency in botany—medals which have always been highly reputed among students, and which have been competed for by many of our leading medical men and botanists. Similar prizes are offered for competition on the part of young women, destined, it may be, for the profession of governess. These latter examinations, which are of an elementary, though practical character, are open to young girls throughout the kingdom, and are well attended. In addition to this, during the summer months, Mr. J. G. BAKER gives a course of botanical lectures which are highly appreciated, as may be judged by the well-filled lecture-room.

To provide for these requirements, as well as for the supply of specimens at the periodic examinations of students at the Hall is one main object of the Chelsea garden.

The cultivation of medical plants and of specimens adapted for teaching purposes, therefore, takes precedence over the growth of ornamental plants, though these latter are by no means neglected. The garden is a square enclosure bounded by high walls which afford shelter for many curious plants. The outdoor plants are arranged in their natural orders, and those that require more attention are cared for in some old-fashioned lean-to houses, in a central span-roofed range, in a north-east house, and in various pits and frames. In the middle of the garden is a circular aquarium, surrounded by rockwork with dense masses of *Acantholimon glumaceum*, *Genista tinctoria*, and many other plants, including a large bush of the rare *Astragalus pseudo-Tragacantha*, whose pink flowers are set down in the axils of the pinnate leaves, the midribs of which are persistent and become hard and thorny. Near to it stands a statue of the garden's greatest benefactor, Sir HANS SLOANE. The stone is mouldering away rapidly, but the inscription being better protected, is still plainly legible, and sets forth not only the gratitude of the raisers to their benefactor, but expresses also their sense of the relation of botany to medicine—thus it runs:—

"THEY
being sensible how necessary
that Branch of Science is
to the faithful discharging the Duty
of their Profession,
with grateful Hearts
and general Consent
ordered this statue to be erected
in the year of our Lord, 1733,
that their successors and Posterity
may never forget
their common Benefactor."

Another monument of a different character is afforded by the old Cedar, the survivor of four, of which three have long since been removed. Of the two which once flanked the river gate, one has disappeared, and the other keeps on a lingering existence. These Cedars were planted in 1683, and long constituted a special feature of the garden. The surviving tree is flat-topped, and its bole has now a girth of 12 feet 10 inches at 5 feet from the ground.

The glass houses make no pretence to be show houses, but go when one may one is always sure to find something of interest. We have selected some instances for illustration such as the *Xanthochymus pictorius*, an evergreen shrub with bold shining green foliage, and which bears each year its yellow edible fruits, much esteemed by the natives of Central

India (see figs. 71, 72). This is a plant nearly allied to the *Garcinias* which produce gamboge and indeed itself yields that gum. It is a striking plant not often seen out of a botanic garden, any more than the Dumb Cane, the Mango, the quaint *Dorstenias*, the *Cinchonas*, the weird *Stangeria*, the Betel pepper, the tall *Aloes*, the Candle tree, and dozens of plants of medical or botanical interest. *Pelargoniums*, including some of Dr. DENNY'S seedlings, *Fuchsias*, and *Calceolarias*, serve to keep the houses bright.

The north-east house is given up to Ferns and other plants disposed in beds amid masses of rock, including *Camellias*, *Roses*, *Clematis*, and *Hellebores*, of which latter genus there is an interesting collection. *Saxifraga petalata* shares with the plants just named the shelter of this house. That Ferns should be well represented in this garden is not to be wondered at, for among living *Pteridologists* there is none to surpass the Curator. Other houses contain good examples of *Monstera deliciosa*, the *Sycomore* Fig, *Ruscus androgynus*, a collection of succulents, and other interesting plants.

Among the trees, in addition to the Cedar before mentioned, are an old *Ginkgo*, or Maidenhair tree, a fine evergreen Oak, a Hickory, a white Poplar, a *Ptelea*, a *Planera*, a *Kœlreuteria*, &c. *Hablitia tannoides* may be also mentioned as a very free growing climber, with rich green foliage and profuse clusters of yellowish flowers. It is evidently an excellent plant for town gardens. *Roses* do not fear to display themselves, and *Rosa rugosa* in particular asserts its right to be considered a good town plant. Of herbaceous plants there are many, and those well selected, considerable space being devoted to those of medicinal interest. *Ferulas* have been long a fancy of the Curator, and years before subtropicals and bold plants of that character were fashionable, their merits were recognised and recorded by Mr. MOORE. Our illustration of one species, *F. glauca* (fig. 68, p. 332), shows how fine they are, but it cannot show either the rich green of the young foliage, nor the golden yellow of the leaves in their decay. *Rhubarbs*, including the medicinal species, are strikingly handsome, and equally imposing are the giant *Heracliums*. *Yuccas* flourish well, and single *Dahlias* are known to be a hobby of the Curator's, but we will not belied on to write a catalogue, we have said enough to show how much interest attaches to the old garden. Those who remember, and there cannot be many who have forgotten, the services to horticulture of Mr. THOMAS MOORE, and who miss his presence and feel the want of his unrivalled knowledge of plants at our horticultural gatherings, will join us in the hope that he may speedily be restored to health, and aid us as before with his ripe counsels, full knowledge, and excellent judgment.

—ROYAL HORTICULTURAL SOCIETY.—At a meeting of the Fruit and Vegetable Committee, held at Chiswick on September 8, present, John E. Lane, Esq., in the chair; Messrs. Woodbridge, Norman, Smith, Saltmarsh, Paul, Burnett, Silverlock, and Miles, the collection of Potatoes growing in the Garden was examined, and, on being cooked, First-class Certificates were awarded to the following varieties:—

Fry's Flower (R. Farquhar, Aberdeen).—White kidney, rough skin, yellow flesh, medium-size; heavy cropper.

Seedling A x (A. Harris, Woburn, Beds).—Large white kidney, smooth skin, white flesh; good cropper.

Bouncer (T. Laxton, Bedford).—White round, smooth skin, white flesh, very handsome; moderate cropper.

Maggie (J. Murdoch, Rothiemay, N.B.).—Large white round, smooth skin, white flesh, deep eye; very heavy cropper.

—“STUDIES IN MICROSCOPICAL SCIENCE.”—We are glad to see that this useful publication is continued with its former excellence. The work is published by HAMMOND & Co., of Birmingham (136, Edmund Street), and is divided into four sections, any one of which can be obtained separately. The

botanical section contains a full account of the vegetable cell by Mr. Houston, with an accompanying lithograph. A microscopical slide accompanies each part of which we have had repeated occasion to comment in terms of commendation.

— THE "BOTANICAL MAGAZINE."—The September number contains coloured figures of the following species:—

Befaria glauca, t. 6893, is a very showy evergreen shrub fitted for greenhouse culture. Its leaves are like those of a *Rhododendron*, but the numerous flowers are borne in loose terminal pyramidal panicles. The corolla measures about 2 inches across, is bell-shaped, and made up of seven rose-coloured petals. The genus *Befaria* grows on the Andes, the most

with green, or crimson marked with a glaucous flush with no green.

Corydalis Severasovii, t. 6896.—A handsome *Corydalis* resembling the common *C. bulbosa*, but with much larger yellow flowers with a purplish spur. It is a native of Western Turkestan, whence it was introduced by Dr. ALBERT REGEL.

Gladiolus Kotschyanus, t. 6897.—This is a very interesting blue-flowered species, introduced from North Western Afghanistan by Dr. AITCHISON, of the Afghan Boundary Commission. The foliage is narrow, linear lanceolate. The flowers are in spike-like cymes, each about 1½ inch long, trumpet-shaped, with a somewhat oblique limb.

— VEGETABLE TERATOLOGY.—A German trans-

— THE CONGO FLORA.—M. AUGUSTE LINDEN, as we learn from the *Illustration Horticole*, has sent from the Congo to the Compagnie Continentale d'Horticulture a consignment of plants, including several new Orchids, and with them the beautiful *Lissochilus giganteus*.

— A PUBLIC PARK FOR POOLE.—We learn from the *Devon and Exeter Daily Gazette* of September 4 that the Right Hon. Lord WIMBORNE has presented to the Corporation of the town of Poole 35 acres of land, to be laid out as a People's Park and Recreation Ground. Provision is to be made for a cricket ground, gymnasium, lawn-tennis court, &c. The Corporation invited designs for laying out and planting the ground in an appropriate manner,



FIG. 70.—THE OLD CEDAR AT CHELSEA. (SEE P. 336.)

southerly American *Rhododendron* inhabiting the mountains of Georgia and the Pine flats of Florida, just where the first *Befaria* makes its appearance. The present species was found on the Andes of New Grenada at a height of from 5500 to 7200 feet, where it forms thickets. The specimen figured flowered in the temperate-house of the Royal Gardens at Kew.

Iris Statella, t. 6894, is a yellow flowered *Iris* with reflexed yellow bearded sepals or falls, and erect pale primrose-coloured petals. It was received by Professor FOSTER, from the Palermo Botanic Garden, but its native country is not known.

Tulipa Ostrowskiana, t. 6895, is one of the Central Asiatic species, discovered by Dr. ALBERT REGEL. The perianth segments are acute and furnished with a cuneate blotch at the base of the segments, which are either scarlet flushed outside

lation of Dr. MASTERS' treatise on this subject has been just published by HAESSEL, of Leipzig. The translation has been made by Mr. UDO DAMMER, of Berlin, and numerous additions have been made by the translators, Professors CAMUS and PENZIG, of Modena; CASPARY, of Königsberg; MAGNUS, of Berlin; and Mr. GÖSCHKE, of Proskau. The author has also contributed much additional matter, and some new woodcuts.

— RETURNS FROM "THREE ACRES."—Archdeacon LEA gives the results of an experiment in fruit farming on 3 acres of land for a period of fourteen years, with the receipts and payments during that period, from fruit, pigs, and poultry, with a balance-sheet of the best and worst years. In the worst year, 1877, the net profit was £66s. 3d., and in the best year, 1879 9s. 11d.

and offered a prize of £20 to the competitor whose design was most approved, and £5 as a 2d prize. The prize of £20 has been awarded to Messrs. R. VEITCH & SON, of the Royal Nursery, Exeter; the 2d going to Mr. R. UPCHER, of Scole, in Norfolk. There were eighteen designs sent in from all parts of England.

— ODDS AND ENDS AT MESSRS. CARTER'S.—Some time since we had occasion to comment on a very interesting series of hybrid Wheats raised by Messrs. CARTER at their nurseries at Forest Hill, but it must not be supposed that Wheats supply the only matters of interest, trials of many sorts are carried on there, and their strains of Balsams struck us from their good habit and flowers of large size and good substance. Petunias and Gloxinias also receive attention, and were being "brushed over" to secure new

varieties. China Asters in their various races made a brave show, and it is worthy of note that Messrs. CARTER find that home-grown seed give offspring marked by greater vigour and longer duration of flower than German seed. An interesting sight is a large open shed fitted up with shelves, on which some 5000 or 6000 pots of Stocks were ripening off for seed. The plants are pricked out seven in a pot, the double flowers cut off, and the single ones left for seed. Messrs. CARTER manage to get a large percentage of doubles, but they have not yet found out any secret for increasing the proportion of doubles at will.

— **PHRYNIUM VARIEGATUM.**—This is a very beautiful stove variegated plant. It has stalked, ovate-lanceolate leaves, white, blotched irregularly with green. Each leaf in about 5—7 inches long and 1—3 inches wide. It was introduced to the Compagnie Continentale from the Botanic Garden, Singapore.

— **IRISH AGRICULTURAL STATISTICS.**—We have received an official abstract of the statistics relating to the crops of Ireland for 1885 and 1886. The total extent under crops of various kinds in 1886 is 5,033,846 acres, an increase over 1885 of 76,719 acres, or 1.5 per cent. There was a decrease in the acreage of Wheat and Oats, of Beans and Peas, but an increase in Barley and Rye, a large increase in Potatoes, Turnips, and a small one in Mangels. Cabbages, Carrots, Parsnips, Vetches, and Rape, all show a decrease. The acreage under Flax has increased by no less than 19,718 acres, while the acreage under meadow and pasture has increased by 59,370 acres.

— **LELIA BATEMANIANA.**—Mr. DOUGLAS states that another and much finer form of this wonderful hybrid has flowered in the Exotic Nursery at Chelsea. It certainly is a very distinct and lovely little Orchid, partaking of the character of both parents, as described at p. 263; and not only does it bear the characteristics of its parents in habit of plant, colour, and formation of the flowers, but also in their lasting character. *Sophronites grandiflora* blooms last very much longer than those of *Cattleya intermedia*; and the flowers of *L. Batemaniana* × kept in good condition for a month during the recent hot weather—that is, from the first week in August to September 7. Mr. DOUGLAS measured the flowers, of which there were two on one spike, and found they were 2½ inches across, the sepals and petals a lovely salmon-rose, lip mauve-purple with a white throat; the bulbs are 3 inches long, leaves 3½ inches long by 1½ inch wide. The small plant which flowered first is a pigmy beside it. This bi-generic hybrid promises to be very free-flowering; it has flowered early in comparison to the age of seedling *Cattleyas* before they bloom; and if one may judge from the healthy appearance of the plants, they are likely to flower stronger next year.

— **A NOBILITARIAN GARDENER.**—Mr. THOS. BIRTWELL, who was for sixty years the much valued and respected head gardener of the late JAMES TAYLOR, of Moreton Hall, Whalley, died at that place on September 1, at the age of ninety years. The deceased had served also under four of his first employer's successors.

— **HAZEL-NUTS.**—The prospect from our windows, if not very picturesque, is at least suggestive. As we write, a wagon piled up with Hazel-nuts is drawn up before our doors, and the proprietors are driving a brisk trade in the toothsome nuts, which are selling at one penny the quart. Who says fruit culture is not profitable!

— **CENTIGRADE AND FAHRENHEIT.**—We take the following from the *Indian Gardener*:—"The Centigrade thermometer scale is now becoming so frequently used in English books that a short method of turning incomprehensible Centigrade into intelligible Fahrenheit will be a desideratum. The rule is simple, and the operation, after a little practice, may be performed mentally. All one has to do is to double the Centigrade number, take a tenth away from it, and add 32 to the number obtained. Let us take 60° Centigrade. Twice 60 is 120, take one-tenth away—i.e., 12—and 108 remains, which, added to 32, makes 140, which is the answer. Taking a more difficult number, 32 Centigrade, we double,

and obtain 64, from which we take 6.4, leaving 57.6, to which we add 32, the total being 89.6°." Our contemporary must have strange ideas about incomprehensibility and unintelligibility. It is a scandal on our Anglo-Saxon civilisation that we still continue to use the very inconvenient Fahrenheit's scale, and refuse to adopt the simpler and uniform decimal system of weights and measures. Are we really less progressive than other nations? In this matter certainly not more so.

— **ROYAL CALEDONIAN HORTICULTURAL, EDINBURGH.**—The autumn show of this Society was held in the Waverley Market on the 8th inst., when, as usual at this season's show, there was a splendid display of fruit. Entries greatly exceeded those of last year in nearly every class, but particularly in those of fruit and vegetables. There was a falling off in certain classes of plants and in exhibits from nurserymen, but the great market hall presented a richly pleasing appearance nevertheless from all points of view. A full report of the show will appear in our next issue.

— **AFRICAN OPIUM IN CHINA.**—Considering that the cultivation of Opium, though prohibited by Government, is nevertheless largely carried on in China, it seems like the proverbial "Carrying of coals to Newcastle" to read in a Consular report from Ningpo, that "A chest of African Opium from Quillimane was imported as an experiment, but the local dealers rejected it as containing sugar, and not smoking well."

— **NEWCASTLE-ON-TYNE.**—It was not at all likely that Newcastle would be left behind, so that it is with no surprise that we learn that it is in contemplation to inaugurate in that city in 1887, an International and Colonial Exhibition, of matters relating to mining, engineering, and industry. Division 9 of the programme includes agriculture, horticulture, and arboriculture, under the chairmanship of Mr. JACOB WILSON. For the special class relating to horticulture, the following committee is appointed:—

CLASS B.—HORTICULTURE AND ARBORICULTURE.
THOMAS GRAY, Chairman. W. FELL, Vice-Chairman.
W. R. ARMSTRONG. J. J. GILLESPIE.
A. BALFOUR. J. MILTHORPE.
R. W. BELL. J. WATT.
R. C. SMITH CARINGTON. W. J. WATSON.
J. CARTER. W. G. WEBB.
J. PAXTER ELLIS. ADAM WILSON.
R. G. FORT. E. WILSON.

— **MR. GEORGE THOMSON.**—We learn that Mr. THOMSON, so favourably known in connection with the gardens at the Crystal Palace, and who latterly has been in the employ of Mr. ANTHONY WATERER, intends to devote himself in future to the profession of consulting horticulturist and landscape gardener, a position for which his attainments and experience amply qualify him.

— **ANTHRURIUM ALBUM MAXIMUM FLAVESCENS** alias **ANTHRURIUM SCHERTZERIANUM** VAR. **LACTEUM.**—In spite of the terrible incubus of names with which this is burdened this is a very beautiful variety of *Anthurium Scherzerianum*, with pure white spathes, forming a striking background for the yellow spadix. This is a seedling raised by A. DE LA DEVANSAYE.

— **SESAMUM IN CHINA.**—*Sesamum* (*Sesamum indicum*) is grown to a very large extent in China. In the districts of Kiungchow the crop of seed is reported to have been up to the average, and the seed was largely exported by steamer. The yield throughout the island is said to have been above 120,000 piculs, more than three times as much as was produced ten years ago. *Sesamum* has been found to be a very paying crop, and it is now cultivated in all the thirteen districts of the island, but the largest supplies come from Kiung-shan, Chieng-mai, and Tingan. Two qualities of the seed are recognised in the market.

— **GARDENING APPOINTMENTS.**—Mr. G. W. MAIR, from the Royal Gardens, Edgbaston, has been appointed Head Gardener to W. E. WILKINS, Esq., the Rookery, Birches Green, Edington, near Birmingham. Mr. JAMES WEAVERS, late Gardener to THOS. BEST, Esq., Red Rice, Andover, Hants, has been appointed Gardener to W. L. CHRISTIE, Esq., Glydebourne, Lewes, Sussex. Mr. JOHN WALLACE, Foreman to Mr. THOMSON, Gardener to His Grace the Duke of GRAFTON, K.G., Wakefield, Northamptonshire, has been appointed Gardener to Mrs. SHAKESPEAR, Langley Priory, Diesworth, Derbyshire.

Notices of Books.

How to Grow Peaches, Nectarines, and Pears, on Open Walls. (Robert Smith, Yalding, Kent.)

THIS modest pamphlet, by an experienced grower of these fruits, is well worthy of the attention of young gardeners. In the thirty-one pages of the treatise the writer insists on the possibility of as good fruit crops being obtained from open walls now as for fifty years past, but the trees must have proper attention, and some amount of protection.

Living in the fruit county *par excellence*, he is apt to underrate the importance of blinds and other contrivances to ward off frost, and is content with a simple portable coping of board 11 inches wide, a mode of protection good enough there in the generality of seasons, but not affording enough in other parts of the country. Great stress is laid on thin training of the shoots, root-pruning, shallow planting, mulching, and feeding, the latter two especially where show fruits are desired. He is something of an extensionist, but fails to tell the reader how he gets the middle parts of the trees furnished with bearing wood, so we must imagine he follows a modified mode of extension only.

The chapter on Pears might with advantage have been made more instructive, for Pears are not like stone fruits in their habit of growth and formation of fruit-spurs, but exhibit much variety in these respects, matters which receive no notice whatever. Trustworthy lists of fruits are given under each heading, and simple methods of annihilating insect enemies are supplied.

TREES AND SHRUBS.

THE TAMARISK.

ONE can understand why this handsome sub-evergreen shrub is so frequently planted on the sea coasts, on account of its adaptability for such situations, and its power of resisting the sea breezes. In this particular instance, and for such purposes the majority of shrubs are but ill adapted, and, indeed, signify fail. It is true that *Eunymus*, *Ivy*, *Lycium barbarum*, some species of *Pinus* and others stand the sea breeze well, but they are heavy and inelegant compared with the slender, graceful, and excessively ramified stems and branches of *Tamarix gallica*. The latter attains its greatest dimensions in damp or moist situations, such as the banks of rivers; and instances are recorded of its attaining a height of 20 to 30 feet both in this country and on the Continent. It may be put to purposes of the greatest ornament, however, where great size is not a desideratum, such as at Eastbourne, Brighton, and Hastings, especially the first-mentioned place, where thousands of plants clothe the steep chalk banks along the side of the esplanade, with waving plummy masses of the most delicate verdure. These shrubs are planted in lines (an example, however, which need not be followed) and annually, or at least frequently cut back like so many Willow stools, and the result after growth has proceeded for some time, is to say the least of it encouraging. What would otherwise be dry chalk banks, glaring in their whiteness, where scarcely anything else of an ornamental character except Wallflowers, and Stocks could maintain a footing, is converted into an attractive shrubbery despite the absence of much variety. *Eunymus*, Wallflowers, *Sedums*, and several other rock plants, it might be mentioned, are associated with the Tamarisk in places. This shrub also stands the knife and shears well, making excellent hedges. Something of this sort might more frequently be attempted inland where the shrub succeeds perfectly. It is easily propagated by cuttings in an open border with a northern exposure, whence a good supply could be procured in a comparatively short time. The stiff and formal character of a bank of the common Laurel could easily be dispensed with in many instances, and its place occupied by a bank of Tamarisk, greatly to the satisfaction of all concerned. Sweet Briar hedges have been greatly lauded and recommended lately, with much reason undoubtedly; but hedges of this elegant evergreen might also vary the character of garden scenery with great propriety. The extreme minuteness of the

leaves prevents disfigurement in clipping, a quality which can hardly be claimed even by the Box. If desirable and appropriate for the surroundings, a loose untrimmed hedge could be restrained in due bounds by a judicious use of the pruning knife alone, and such a hedge would be enlivened by myriads of small pink flowers in their season, which if devoid of the fragrance of a Sweet Briar hedge, would not be wanting in attractiveness. *J. F.*

CARPENTERIA CALIFORNICA.

We learn that this beautiful shrub flowered in spring out-of-doors in the garden of Mr. B. H. Brooksbank, of Sandrock, Tickhill, Yorkshire.

ARALIA MAXIMOWICZII

is a hardy shrub of distinct appearance, with its dull purplish spiny stems and bold palmately lobed foliage, hairy on the under surface. Its effectiveness may be well seen when grown in contrast with other shrubs, as at Combe Wood.

EDWARDSIAS.

The Edwardsias are trees of straggling growth, but the Fern-like leafage is so pretty that their presence is a gain to any border, clump, or shrubbery. A branch looks extremely pretty when projected through or above other foliage. *E. microphylla* is perhaps the hardiest.

CLERODENDRON TRICHOTOMUM

is a bold tall-growing shrub, with large cordate ovate leaves, and large upright many-flowered panicles of white flowers, whose delicious fragrance is in singular contrast to the foul odour of the leaves when bruised. Moral: don't bruise the leaves. It is in full beauty at Combe Wood.

HOME CORRESPONDENCE.

The Hardy Jasmine (*Jasminum officinale*).—Notwithstanding the fact that the old white Jasmine is a deciduous plant, it has many merits which make it suitable for the walls of houses, &c. The fact of its being deciduous should not be made to tell too much against it, for many subjects, such as Clematis, Roses, &c., are so, and the Jasmine has the merit of having very handsome foliage, quickly formed, and as readily laid aside, which is worth something on the score of neatness and economy of labour. The common Jasmine is often thought to be of slow growth and bloom. Facts contradict both these ideas. Planted in fairly good soil, kept properly trained as it grows, it produces very long strong shoots, and if planted, as I suggest it always should be, on a sunny wall, it will bloom freely very early. So much for quick covering and bloom capacity; but this is not all. When once these shoots have been well trained in place they will stand there, continuing to bloom each summer *en masse*; the only thing necessary is to clip the young shoots closely back each autumn. Can the same be said for any other climbing plant? I think not. It is but necessary to add to these merits the beauty and fragrance of the flowers, and I think the claims of this good old subject prove unanswerable. How glad I should be to learn where I could obtain the double-flowered variety. *William Early*.

Wild White Poppies.—The white variety of Papaver Rhoeas, see p. 306, is not a novelty; I have long been acquainted with it, although it is undoubtedly rare. Mr. Britten records it, as well as the white *P. Argemone*, in *Journal of Botany*, 1865, p. 336. The faintly rose-coloured varieties of both species occur here with the white. I sent you a note two years ago, of a yellow Poppy that I could not distinguish from *P. Rhoeas*. *W. G. S.*

Peas, Telephone.—I see in your issue of August 21 a few remarks from "W. H. D." upon Peas, Telephone. Your correspondent says that with him the large podded varieties have not done so well as the smaller podded ones. With my little experience I am unable to see why the large podded varieties should suffer from mildew and the small podded varieties not. Perhaps "W. H. D." will kindly give me, and other readers of your paper, his opinion as to the cause of the large varieties, such as Telephone, becoming mildewed, and the small podded ones not being so affected. With me this year, up to the present date (August 24), I have not detected the least sign of mildew in my garden, and I have Peas in all their different stages. I can only wish "W. H. D." had been so fortunate as I have this season as regards mildew. I would just say that I have grown about twenty varieties this year, and from this and past experience, that I cannot give preference to small podded varieties for any purpose when we

have such Peas as Telephone, Stratagem, Pride of the Market, Telegraph, Duke of Albany, Evolution, Walton Hero, Mr. Laxton's No. 6, the name of which I have forgotten, but it is about the same in quality, colour, and shape as Duke of Albany, and is a very large cropper. The Peas I have named are all good croppers, good for exhibition, and good for culinary purposes, and with about two exceptions are very sweet-flavoured. The four largest and best podded Peas, taking all points into consideration, I should say are Telephone, Duke of Albany, Stratagem, and Mr. Laxton's No. 6, and of these I should certainly say Telephone is the best. *Henry Marriott*.

A Fine Liliun Auratum.—I have a specimen of Liliun auratum, var. atro-rubens, with two spikes, one having seven, and the other forty-seven flowers. It has been established for six years, gained two 1st prizes, and, as what rarely occurs with this Lily, is increasing in number, and very floriferous. The method of cultivation explains all. It is out-of-doors. *A. D. Webster*.

Fig Trees from Seed.—I have read the correspondence on the above subject with considerable interest, because, when a boy, I worked for several years, at a garden in Kent, where Fig trees grew in abundance, and where the two standard trees, which generally bear some very fine fruit; but I never saw a seedling Fig tree, and I was so much interested in everything connected with horticulture that they were not at all likely to escape my notice. The variety grown was Brunswick, and often some would get thrown to the ground that were partially destroyed by wasps and birds. There is one point connected with the Fig which has escaped notice in the late correspondence, and which may possibly account for the appearance of some of the young plants. The Fig tree, when it is not restricted by artificial means, sends out its roots to a great distance; if a small piece of one of these roots gets detached, and placed in a favourable position, it will throw up a shoot very much resembling a seedling plant, or rather, what I should suppose a seedling would be like, for, as I have already said, I have not yet seen one. There is another peculiarity about the roots of the Fig, viz., they retain their vitality for a very long time, and the following instance will show how small a house at Burghley once contained a Fig tree which was eventually destroyed, and a Peach tree planted in its stead. Six years afterwards it was found necessary to remove some of the soil to a considerable depth, and a detached piece of the root of the Fig tree was found which had retained its vitality uninjured; this portion was about 1 inch in diameter and 2 inches in length. No shoots had ever been noticed from this buried piece of the root, and it was too far from the surface. *W. H. Divers, Kilton Hall*.

—I have here a seedling raised from Brown Turkey raised in March, 1881, and I am hoping to fruit it next year. If I am fortunate enough in doing so I shall send up a fruit. I was led to understand, when I was apprentice in Scotland, that the Fig sent out under the name of Castle-Kennedy was a seedling raised by Mr. Fowler. Perhaps some correspondent will enlighten us on the subject. *Thrumpton*. [The variety exists here long before Mr. Fowler came there.]

The origin of that Fig is not known. *Ed.*
—I send herewith half a dozen seedling Figs, hundreds of which come up annually in open ground here. Where they come from is a mystery, as no Figs have been grown here for several years. *E. Crump, Ranelagh Gardens, Leamington*. [With this came a small boxful of seedling Figs. *Ed.*]

Kniphofia aloides as a Bee-trap.—Many of the readers of the *Gardeners' Chronicle* have no doubt noticed that the bees are particularly fond of Kniphofia aloides, and swarm about the "red-hot poker" like so many moths round the lamp. It may, however, be somewhat new to them that this (as the following account of my observations will show) is rather a dangerous sport to the bees, often resulting in the painful death of the daring individuals that come too near, just as the moth's perilous dance round the lamp, is apt to be a short but tragic tale. The bee, having selected a young and fresh-looking flower, alights on the long style. Now, if it contents itself with gathering the pollen of the anthers outside the flower it is all right—nay, it may even go so far as to creep more than half-way into the narrow tubular flower, but if, tempted by the excellent quality of the nectar, it creeps right into the flower, its position becomes highly critical. The narrowness of the tube hinders the free movements of its limbs, the smooth inner surface furnishes no firm hold for its feet; moreover, the viscous honey that soaks it and its own hairy skin render its desperate efforts unavailing. Some of the stronger individuals succeed in pulling themselves out, but their weaker brethren soon become exhausted. By-and-by the flower withers and contracts itself at both ends, thus wrapping up the remains of the unfortunate insect in a translucent, tight shroud. A good many bees are thus put to death. I have gathered dozens of such "bee-

mummies" from a single spike. Although of no practical consequence, on account of the scarcity of the Kniphofia, it is interesting as the only instance (as far as I know, at least) of actual danger in connection with the useful task of the "busy bee." *J. E. Lange, Royal Gardens, Kew*.

Tobacco Culture in Shropshire.—Considerable interest is being manifested in the remarkable success which has attended the attempt to cultivate the Tobacco plant in the beautiful Quarry at Shrewsbury. About forty of the plants were placed in the soil in May last, and they are now in a well-developed and thriving condition, the hot weather of the past few days having accelerated their growth in a striking degree. They are dotted about amongst groups of Rhododendrons, and no special preparation was made by way of enriching, or in any way altering, the nature of the soil, neither has any special care been bestowed upon them. They were merely treated as ordinary plants, and therefore the result of the experiment is regarded as being peculiarly satisfactory. The plants stand 4 feet high; the larger leaves are 2 feet long, and 15 inches wide; and the stems measure nearly 4 inches in circumference. The blossom—a bright yellow bell-shaped flower—is now fast fading, and the seed-pods are being rapidly formed and well filled. The leaves, which average from ten to twelve on a stem, are ripening very quickly, and should warm weather continue, they will in a short time be perfectly brown. The plants are being grown merely for ornamental purposes, and as such are not liable to duty. *H.*

Carters' Tobacco Experiments.—I took advantage, with some friends, a short time since, of a spare day in your metropolis, and the courtesy of this enterprising Holborn firm, to see their experiments in Wheat hybridising and the trial Tobacco culture. Looking over the *Gardeners' Chronicle* this morning, after my return here, I find you allude to the above, p. 274, and, I am sure, with your customary courtesy, you will allow me to differ from your representative, who preceded us the previous day there, in a few particulars. The ground would seem to be over, rather than under an English acre, and instead of being well suited to the growth of the Tobacco plant, I am satisfied Messrs. Carter or their excellent manager, Mr. Sharman, will be unable this year, to draw any accurate conclusion as to which of the varieties is the most suitable for growth in Great Britain or Ireland. The lower portion of the field has soil about 4 inches deep, resting on a bed of sand, and even these few inches of soil seem cold and retentive of moisture—exactly the opposite of what the Tobacco requires. The higher lying portion, except where some charred ashes were scattered—where the soil is rich and the crop conspicuously shows—I would consider also as of secondary fertility. I would suggest that the results be carefully noted in connection with the soil formation, but that no conclusion be drawn as to which is the most suitable variety, until after a further trial next year in a deeper, richer, and warmer soil. The price, we understood the firm had to pay for the temporary use of the field seems most exorbitant, and should give them their choice of any field in any country district of Kent. I am growing some quantity for experimental myself, and have already come to the conclusion that the depth and fertility of soil, with a greater or less quantity of manure either in the garden or on the farm, wholly alter results. Again as I noted in the visitors' book at Messrs. Carters' trial grounds, I consider six, rather than nine large leaves as much as can be well matured in that climate, where we were assured frost had appeared in mid-September, and this opinion was shared by several other gentlemen then present. I am very much interested in those experiments in Ireland, especially in this locality, where many well living, remember fields of Tobacco being grown, before its culture was prohibited. *W. J. Murphy, Clonmel*. [We think the land under Tobacco at Plaistow was under an English acre; as a matter of fact we were told by the person in charge of the crop that it was three-quarters of an acre; and it was stated in our note that the land chosen was so far suited to the culture in being sheltered. The bottom of the field is liable to flooding from a ditch close by, but the soil at that part is not retentive, but is a black sandy loam, that gets too much moisture at times. There is not much to be gained for the scheme of Tobacco culture in these islands, when so much stress is laid on the quality of the soil, for, as a matter of fact, if it is of average quality, and neither heavy nor very light, it will grow good Tobacco, provided the proper sort of manure be given, and in sufficient quantity. If Tobacco is to be grown by farmers it will be more moderate itself to great varieties of soils, or it will be useless as a field crop. If only the most suitable soils were chosen for Wheat it would be a prohibited plant in some English counties, but yet we find Wheat grown everywhere with varying success. It is well that the experiments of Messrs. Carter & Co. are carried out on poorish land, and not on that which is first-class, for if the plant will grow well at Plaistow

it will certainly do still better on richer soils. We think it will be advisable to await the results of Messrs. Carters' public-spirited enterprise before venturing to give a decided opinion on the matter one way or the other. Ed.]

A Floriferous Stephanotis.—In looking through the extensive and beautiful gardens at Easton Castle, near Ledbury, a few days ago, I noticed in one of the many houses a plant of *Stephanotis floribunda* growing in a bed at the end of a lean-to house, about 25 feet long, and trained to a trellis fixed underneath the roof. It was in a most flourishing condition, the leaves being large, and of a rich dark green colour, and from the axils of which proceeded large trusses of its ever-welcome flowers, and of which Mr. Coleman, who is as much at home among plants and Conifers as he is among hothouse fruits, informed me there had been 1800 cut within the past few months. The roots of this fine plant are, I believe, growing in a mixture of peat and loam, rather more of the former than the latter. A remarkably fine and healthy batch of plants of *Eucharis amazonica*, growing in pots on the bed underneath the *Stephanotis*, is also worthy of notice. The shade afforded them by the latter evidently suits the *Eucharis* plants, as there was not a scorched leaf to be seen in the house. The condition of the plants gave promise of a rich harvest of this chaste and much esteemed choice flower, the supply of which is not likely to exceed the demand in any gardening establishment. Curiously enough the same day that I was at Easton, I saw at Devonham Park, Malvern, a house the fac-simile of the one of which I write, and in which the *Stephanotis* (also trained under the roof) and *Eucharis* plants gave proof, like the contents of the several Orchid-houses, fruit-houses, &c., that the treatment accorded them by Mr. Jaques was congenial with their requirements. The same may be said of a fine batch of *Eucharis* plants at Madresfield Court, also growing in pots, and within two miles of Malvern Link. It would be interesting to hear from Messrs. Coleman, Crump, and I Jones the kind of compost in which they grow their *Eucharis amazonica*s so successfully, and the general conditions under which their respective collections do so well. *H. W. W.* [We hope the gentlemen in question will respond to the invitation. Ed.]

Surplus Gardeners, and What to Do with Them.—Concerning this subject, which has been treated of at pp. 277 and 306, I might, if permissible, make some observations, relate experiences, and offer suggestions. What to do with our gardeners is merely another form of stating the question what to do with our boys, with a somewhat more limited application, and both questions are constantly recurring in all over-populated countries. In spite of the low wages and the length of time necessarily spent in gaining experience and waiting for a situation as head gardener, or anything remunerative, there are various reasons to account for the surplus of labour with which the profession is burdened. Its ranks are crowded by many who believe it to be an easy occupation, and parents in the same belief, with the additional attraction of a respectable calling, send their sons, because unable to send them anywhere else. Numbers fall back upon gardening who have failed in other pursuits, through faults or inabilities for which they were responsible or, it may be, irresponsible, and hence it often happens that these men are well educated, whether they are adapted for gardeners or not. Fruit and flowers are great attractions, and easily captivate the mind in early years, and many could doubtless trace their first ideas of a liking for gardening to the recollection of a trip to some well-kept garden which they were permitted to visit by way of a school treat in some country place or village. That such visits and recollections foster a love of gardening there can be little doubt, and such are legitimate sources of supply of young gardeners. It would be a difficult and not very laudable task to attempt to limit the supply, and one which might often rob the profession of its most able and deserving members. Many gardens are almost worked by apprentices, firstly, because their labour is cheap, and secondly, because it is more under the control of the gardener; but what is more reprehensible at some places, is the fact that apprentices are allowed to go as journeymen after two years' service. If there are fewer unemployed in this than other professions generally, it must be accounted for by their quiet and steady demeanour, for if not contented with their modest lot, they rarely break out into strikes and other disturbances. The unemployed are often those who succeed in obtaining situations for summer only in places where fewer hands are required in winter. As a counteraction to this surplus of labour, many join the police force, enlist as soldiers, go abroad to fill situations by appointment, or go on chance to rough it as best they may. Some take to market gardening, or become florists, which may be considered a fairly legitimate outcome of their acquirements and well-earned experience. Not a few

condescend to accept what is termed a double-handed job, that is, in addition to gardening, they undertake to mind the pony, or even do the hall boy's work. That such is not very creditable in some instances I admit, but refuse to accept the statement tendered by some, that it lowers or debases the status of the profession. The latter need never fear losing its best ornaments, for it rarely happens that a man of intelligence, great acquirements, experience, and good behaviour, will condescend to accept such a situation. On the other hand, many a gardener could turn his talent to practical account in teaching, for which his early training in many instances would eminently fit him. Every large school should and could easily maintain its garden and lecturer, or gardener whose duties should be to give instruction in botany and practical horticulture as circumstances might require. A practical gardener would certainly be the safest investment for such a school, where instruction might be disseminated to rich and poor alike. In these days of cram it would be impossible for the regular teacher of a school, whose duties are onerous enough already, to undertake such additional labour; besides which he would be greatly deficient in those qualities acquired by practice only during years of untiring energy and patient perseverance. The boys belonging to certain standards could be deputed to attend their instruction in practical horticulture at certain hours of the day or days of the week, so that everything might proceed with regularity, and be as practical as possible. Evening classes might also be instituted where the older pupils and even young gardeners and others could be taught botany, mor-

ject to mildew here, as our garden is situated at the bottom of a narrow valley close to a river and a large pond, and we are, generally speaking 4' or 5' cooler at night than our neighbours, from what I have seen of the country near Mr. Marriott, it is very different to this, and I can quite understand that he has grown the above Peas without being troubled with mildew. He has probably a deeper and richer soil than ours, a more even temperature, and does not feel the effects of dry weather so quickly. We are gaining much in size of pods with these newer varieties, but of what advantage is that? The pods are only thrown away when they get to the kitchen, and consequently a lot of the plant's energy is wasted. A much greater quantity of Peas is obtained from such varieties as G. F. Wilson, Goldfinder, Standard, Marvel, President Garfield, &c., and I could not supply a large family from a very small kitchen garden as I do at present if I depended on the large podded varieties. I admit the smaller pods stand a poor chance at an exhibition with the majority of judges. But why should size alone be considered? In these days of strict economy and keen competition, we want the largest quantity of first-class produce from the smallest space. *W. H. Divers, Ketton Hall.*

Various Plants at Chiswick: Hollyhocks.—In, as it has been well called, the revival of the Hollyhocks the Royal Horticultural Society at Chiswick has played no mean part. In an effectively planted mixed border there, some 90 to 100 feet in length, may be seen a noble line of these stately plants—veritable floral sentinels. Used as a back-



FIG. 71.—XANTHOCHYMUS FRUIT: COLOUR ORANGE; EDIBLE (SEE P. 336.)

phology, physiology, or horticulture according to the desire of the community. In the case of smaller schools two or more might combine and support a garden and instructor for their common good. The most enterprising nations are paying great attention to the education of their subjects, and Britain of all nations should be abreast of the day [but is not. Ed.] *J. F.*

Lythrum Salicaria.—What a very handsome and stately plant is this purple Loosestrife! I lately noticed a fine specimen, about 4 feet high, in Mr. R. Dean's seed grounds at Bedford, its long perennial leafy spikes of densely whorled flowers making it a conspicuous and attractive object, the damp situation in which it was growing seeming to "bring out" its many good qualities. *B.*

Peas mildewed (p. 307).—In answer to Mr. Marriott, I consider the loss of podded varieties failed in this respect from constitutional weakness, as other varieties with smaller pods, sown the same day, side by side, and treated exactly the same, escaped the disease. It is well known that certain atmospheric changes which cause a sudden check to the growth of Peas and other plants, cause also an outbreak of the above disease, and when the smaller and more robust growing varieties escape, and these large podded varieties are attacked, it is a plain proof that the latter are not so well able to withstand the attack. I have noticed the same thing in former seasons with Telephone, Evolution, and Culverwell's Giant, so much so, that I am inclined to think they are all near relations of Prodigy, or rather that all would trace back to one parent. Unfortunately, we are very much sub-

ground what a fine effect these flowers produce. We append names of a few of the most striking sorts:—Warrior, a fine flower, bright crimson colour; Monarch, same colour, a good variety; Diana, bright red. Good yellows are Surprise, Mandarin, and Funia; Norma, pure white; Isabella, pale blush; Mrs. Anstie, bright red; Horace, fine crimson; Mrs. Barnes, delicate pink; Constance, good salmon. Asters.—From that land of fine Asters, Germany, Herr Ernst Benary, has contributed some good flowers this season that at the present time help to impart quite a lively aspect to the old garden. Rose Dark Scarlet, a rich dark crimson flower—one of the finest—very noticeable with the sun full upon it how grand it looks! Mignon, pure white, good; Dwarf Peony Perfection, a dwarf class of great beauty of various hues of colour, the light blues very effective. Another charming class, too, is the Lilliput flowered, producing small flowers in great abundance. Truffaut's Peony flowered, producing flowers from snow-white to purple-violet; large flowered Rose, splendid. *B.*

The Last of Spirantes Romanzoviana.—The following letter, received this morning from Mr. Gumbleton, of Belgrave, Queenstown, Co. Cork, speaks for itself:—"I think it may interest you to hear, and perhaps add to the value of the plants I sent you last year, that in all probability *Spirantes Romanzoviana* will very soon become extinct, and no longer be obtainable in the one locality in Europe—in the neighbourhood of Castletown, Burhaven—to which it has hitherto been indigenous, for on writing recently to my agent, Mr. Barrett, who sent you the plants, to ask him to obtain a flowering

specimen of this rare little terrestrial Orchid for Mr. Burbidge to draw, he sent me, a few days afterwards, a letter from his friend, Dr. Armstrong, who had collected the plants sent to you, stating that on going to the little boggy field where he had hitherto seen it he found the little plot ploughed and planted with Potatoes; and on going to the only other locality where he had ever found it—a narrow headland

character which is so characteristic of the British nation above all others in matters horticultural, or, rather, concerned with the preservation of our native flora. An Edelweiss or a Gentian can receive attention at the hands of a foreign Government, but this sweet little plant, that is a thousand times more rare, and with only one station in Europe, has been suffered by a nation professing themselves high in

garden at Wallington there are none more picturesque and pleasing than the noble clump of Burdocks by the side of the pretty lake. This grand weed is one of the chief favourites of the landscape artist, as it makes a splendid subject for the foreground and margin of streams. The bold and handsome foliage has, under ordinary aspects, a glorious hue, which affords a pleasing contrast to the more lively greens of the meadow-grass and summer leafage. The Burdocks referred to form an effective foreground to a very pretty landscape, especially cool and inviting, no doubt, on a summer evening. A broad green walk of smooth turf, the bold margin of Burdocks, the clear water of the lake broken here and there by rafts of Water Lilies, green slopes on the opposite side with grand masses of scarlet Thorn reflected in the water, and in the distance clumps of Scotch Fir and other trees complete the picture. Mr. Smee is exceptionally favoured by having an arm of the Wandle to flow through his garden, and must be congratulated on the good taste apparent in the disposal of it. The little combs and dingles, musical with the voice of tiny streams dancing and sparkling along them, are just the home for the more stately species of British Ferns: *Filix-femina*, *Osmunda regalis*, *Lastrea dilatata*, *Polystichum*, and *Scolopendrium*, flourish amazingly in the moist, warm, hazy atmosphere. Mr. Smee holds to the good old custom of mixed borders, and there is no hard-and-fast line between the flower and kitchen gardens; there is something to admire at every turn, and there are many turns in this fine garden. The Orchids, of which there were numerous beautiful specimens in a cool, shady house, were arranged in admirable taste; notwithstanding these, however, and many other pretty and interesting subjects, in my hasty visit the features that impressed me most were the grand masses of Burdocks by the lake, and the splendid groups of Ferns in the shady combs. *T. W. Harrow.* [The Burdock here named is, if our memory serves us, the Butterbur, *Petasites vulgaris*. ED.]

The Hartstongue (*Cynoglossum officinale*).—Although this plant has a disagreeable smell, yet its good habit and abundance of purplish-red flowers should alone make it a favourite. On some of our stony wastes along the sea coast it is now blooming freely, and from its appearance attracts a good deal of attention. *A. D. W.*

Reports of Societies.

ROYAL HORTICULTURAL: DAHLIA and FRUIT SHOW, September 7 and 8.

ON this occasion one of the best of the present season's shows of the Society was got together, thanks to the efforts of the Society and of the donors of special prizes. The Dahlias were less numerous represented in the show and fancy classes, while single, Cactus, bouquet, and pompon varieties were in greater abundance than on some former occasions.

The trade exhibits were not fewer in the single flowered class, but it would appear that as a decorative plant its day is on the wane, for the Cactus and the chaster bouquet varieties are usurping the place once held by the single-flowered Dahlia amongst those who set the fashions in flowers.

We were glad to see a well known firm—Messrs. C. Lee & Son—put in an appearance, with a remarkable collection of leafy shoots and perfect plants of trees and shrubs possessing variegated or coloured foliage.

Mr. Ware's collection of flowers in season, was likewise greatly admired for its extent and variety; and Messrs. Kelway's Gladioli were remarkably fine.

FLORAL COMMITTEE.

Present: G. F. Wilson, in the chair; and Messrs. H. Bennett, W. Bealby, T. Baines, H. Herbst, J. Hudson, R. Dean, A. F. Lendy, J. O'Brien, J. Dornay, C. Noble, H. Turner, G. Paul, C. Duffield, E. Hill, J. Douglas, W. B. Killok, H. Cannell, J. Walker, and M. T. Masters.

Messrs. Paul & Son, The Old Nurseries, Cheshunt, showed amongst a collection of hardy subjects, branches of *Ulmus myrtifolia* purpurea, a handsome and distinct variety; *Hydrangea paniculata*, with immense spikes; and *H. nivea*, an equally large truss, with white flowers. This latter is not of the Chinese hortensis section, but is of North American origin, and is as yet rare in gardens. The chief other exhibits comprised a number of varieties of *Helianthus*, mostly single flowered; *Philadelphus coronarius* variegatus, a very boldly marked leaf of white and green; *Ulmus plumosa aurea*, a yellow-flowered Rusch, *Shepherdia argentea*, a grey-green leaf, the under side silvery; many beautiful cut blooms of Roses and Dahlias, some Lilies, and a variety of flowers of herbaceous plants.

Messrs. H. Cannell & Sons, Swanley, exhibited several boxes of single Dahlia, pompons, bouquet, Cactus, show and fancy sorts; Cactus Dahlias *Lady E. Dyke*, a



FIG. 72.—*XANTHOCHYMUS PICTORIUS*, BOTANIC GARDEN, CHELSEA. (SEE P. 336.)

skirting a small wood—he found it turned up and bearing a crop of Oats." Alas! it is to be regretted that a plant so lovely and so full of interest to every British botanist should now, under such trivial circumstances, become a thing of the past. Why steps were not long ago taken by the Government authorities at Kew to secure the, I may say valueless, so far as agricultural pursuits are concerned, piece of ground on which the plant grew, is a puzzle to more persons than myself, and could only emanate from that well-known lackadaisical

botanic matters to pass into oblivion, is a matter not only of shame but of lasting regret. *A. D. Webster, Landseai, Bangor.* [We share our correspondent's regret, but we confess to no feeling of bewilderment that the authorities at Kew have not secured the piece of ground for the purpose indicated. Surely they have enough to do without that, even if the Treasury would permit such a scheme. ED.]

Burdocks and Ferns.—Among the many varied and interesting objects of Mr. Smee's delightful

bright yellow; Charming Bride, mauve and white, very pretty; and Black Knight, a very dark, maroon, were selected as being the most deserving of recognition. Blooms of single and double-flowered Begonias were also shown by Messrs. Cannell.

Mr. H. Ballantine, gr. to Baron Schröder, exhibited a plant of *Vanda* *Dei*, a poor looking species, with white-yellow flowers (two); the lip is yellow.

G. F. Wilson, Esq., exhibited a well-bloomed plant of *Lilium auratum* platyptalum.

Mr. R. Dean, florist, Ealing, showed cut spikes of handsome kinds of Penstemons.

Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, showed a new Fern, *Davallia retusa*, a species from Sumatra, with fronds long and arching, frondlets set widely apart, as also the wedge-shaped pinnae—the colour of the plant is a light cheerful shade of green, the midrib being of a light pistachio-green, and the leaf light and open. *Phrynium juncundum*, a *Diefenbachia* like stove herb from Dutch Malaya, with long-stalked lanceolate leaves, foliage variously marked with white running longitudinally; *Selaginella gracilis* from the South Sea Islands, a species with bright green, unbracteous in habit, densely packed with minute green leaves, and the height of the plant observed about 1 foot. Some plants of *Nephrolepis rufescens triplinervis* were also shown in this collection.

Amongst smaller miscellaneous subjects may be mentioned the cut blooms of *Chrysanthemum G. Wernm*, from Mr. Mortimer, nurseryman, Farnham; *Cactus*, show and seedling *Dahlias*, from Mr. Humphries, Kingston Langley; a scarlet flake Carnation from Messrs. Ewing, Kelso; a very fine white Mignonette from Mr. Bannister, Cole; a plant of the plant of *Lilium auratum* from Mr. Maillard, 3, Artesian Road, Bayswater; Tea Roses came from Mr. Prince, Oxford; Messrs. Keynes, Williams & Co., Salisbury, showed *Cactus Dahlia* *Colonist*, a yellow suffused centre, named with scarlet; *Chrysanthemum*, plant and cut flowers, *Twickenham*, had a number of plants of *Lilium auratum* var. *virginale*, a white form with faint yellow bands on the inner middle part of each petal; the New Plant and Bulb Co., Colchester, showed a collection of Lilies, *Viridula aureum* and *lanceolatum rubrum*; Mr. John Wall, Thame, showed several varieties of quilled Asters, choice in form and colour.

From Messrs. Heath, Cheltenham, a single-spiked plant of *Dendrobium ciliatum*, and a plant of *Odontoglossum nigrum*.

Messrs. J. Sander & Co., St. Albans, came a large basket filled with young plants of *Galeandra Baueri*, several flowers on each being open, making as a whole a pleasant sight.

Messrs. Charles Lee & Son, Hammersmith, had placed a conspicuous group of coloured foliage, plants and shoots, at the entrance to the conservatory. We noticed amongst them *Acer Reitembachii*, a variety with very dark leaves; *A. colchicum rubrum*, with reddish-bronze leaves; *A. Schwedleri*, not so good as usual, owing probably to drought; *Bignonia syriacifolia aurea*, a yellow-leaved plant; a variegated form of *Althea frutex*; gold and silver variegated *Euonymus japonicus*, *Castanea vesca*, with normal-sized leaves, which is margined with white—a fine subject; *Cerasus mahaleb variegata*, *Juglans sinensis*, an edible nut-bearing species, with highly lacinated foliage, growing when mature to the height of six to ten feet; *Quercus serrata*, entire leaved, acutely toothed on the edge of the leaf; *Q. laurifolia*, a handsome species, with leaves entire, about 9 inches in length; *Q. robur* elegantissima, with white variegation on the leaf; a variety of *Cornus mas*, with a better form, irregularly with yellow; usually found on that species; *Pyrus sorbifolia vestita*, a bold leaf with a grey tomentum on the under side; *Sambucus laciniata variegata*, very pretty white and green leaves, especially the young terminal ones; *Salisburia adiantifolia aurea*, leaves striped, irregularly with yellow; and, lastly, *Acacia angustifolia elegans*, the handsomest of all the hardy *Acacias*.

Mr. T. S. Ware, Hale Farm, Tottenham, showed large numbers of cut blooms of Dahlias of all the sections, Lilies, Trifoliums, Nemeses, *Tigridis conchiflora* var. *Wald*, of a shade of yellow, several dwarf shrubby Veronicas, as *carneola*, *Chathamica*, *pinguifolia*, and *buxifolia*; *Phloxes*, *Poppies*, and many others, the whole being a dazzling display at the back of the conservatory.

Messrs. W. Paul & Son, Waltham Cross, showed many boxes of cut blooms of Roses, and a basket of flowers and fruit of *Rosa rugosa*, and *Rosa pomifera* in flower and fruit.

Messrs. Vilmoren, Andrieux et Cie. Paris, showed a number of cut blooms of Asters.

Messrs. Kelway contributed a large collection of cut *Chionodoxa* spikes, pink and white, *Gaillardias*, &c.

In an extra special class, a first prize was bestowed on Mrs. Sotheram, Lyndhurst, New Brighton, for four cases of flowers, dried of their natural colours. The flowers were arranged bouquet-wise, as medallions in a frame, and at a distance resembled a colored drawing of flowers and foliage rather than dried specimens.

FIRST-CLASS CERTIFICATES.

To Baron Schröder, for *Vanda Dearei*.

To Messrs. Cheal & Sons, for single *Dahlia* Mrs. Kennett.

To Messrs. Cannell & Sons, for Charming Bride.

To Messrs. Cannell & Sons, for Lady E. Wyke.

To Messrs. Cannell & Sons, for Black Knight.

To Messrs. J. Veitch & Sons, for *Phrynium juncundum* and *Davallia retusa*.

To Messrs. Keynes, Williams, & Co., for *Dahlia Colonist*.

To Messrs. Rawlings Brothers, for *Dahlia* Mrs. Theobald.

Fruit Committee.

Present: J. E. Lane, Esq., in the chair; and Messrs. J. Barnett, T. J. Saltmarsh, G. T. Miles, J. Roberts, W. Warren, W. Paul, G. Goldsmith, G. Norman, J. Willard, P. Crowley, R. D. Blackmore, and G. Bunyard.

SHOW OF HARDY FRUITS.

For the best collections of Grapes, Alicante, two bunches—1st, Mr. Taylor, gr. to J. Chaffin, Esq., Bath; one of the bunches shown was a very fine one—equal to 5 lb., the other being smaller; in colour, bloom, and size of berries generally nothing could be much better; a few unfertilised berries were, however, observed in them. 2d, Mr. Hollingsworth, gr. to J. F. Campbell, Esq., Upton—symmetrical bunches, good colour and bloom; 3d, Mr. Hoare, gr. to H. Taylor, Esq., Park Hill, Streatham Common, colour and bloom good, but with unevenness in the berries. Five lots were shown.

Two bunches of Alnwick Seedling—1st, Mr. Taylor, compact bunches, faultless in colour and bloom; 2d, Mr. Dridwater, gr. to C. Bell, Esq., Esq., Fairley Heath, Cheadle, the bunches having the usual divided appearance, as if of two shoulders, bloom capital, berries large and even; 3d, Mr. Goodacre, gr. to the Earl of Harrington, Elvaston Castle, with small bunches. Eight lots were shown.

Two bunches of Black Hamburg—1st, Mr. J. Roberts, gr. to Messrs. Rothschild, at Gunnersbury Park, rather smallish, compact, well-formed bunches, colour and bloom being fair; 2d, Mr. J. Hudson, gr. to H. Atkinson, Esq., Gunnersbury House, well coloured, smallish berries, bloom somewhat deficient; 3d, Mr. Spencer, gr. to H. C. Moffat, Esq., Goodrich Court, Ross, large sprawling bunches, but with berries having good points.

Two bunches of Black Prince—1st, Mr. Goldsmith, bunches regular in form, bloom not good; 2d, Mr. Band, gr. to C. A. Daw, Esq., Homefield, Ealing. No others were shown.

Two bunches of Buckland Sweetwater—1st, Mr. Lockie, gr. to Colonel Talbot, Ostley Court, Windsor, excellent in both respects; 2d, Mr. J. Roberts, compact, smaller bunches; 3d, Mr. Ward, gr. to Lord Castle, bloom and colour good, nice bunches, but with some seedless berries. Five lots were shown.

Two bunches of Duke of Buccleuch—1st, Mr. Allen, gr. to Lord Suffield, Gunton Park, large berries, but unfertilised, well matured; 2d, Mr. J. Wallis, gr. to the Rev. W. Sneyd, Keele Hall, the berries were of a great size, and were liberally thinned; 3d, Mr. Goodacre. Four lots were shown.

Two bunches of Foster's Seedling—1st, Mr. J. Roberts, with fine handsome bunches—colour a rich yellow; 2d, Mr. G. T. Miles, gr. to Lord Carrington, Wycombe Abbey, with bunches as large as the foregoing, but looser; 3d, Mr. Ward, gr. to Longford Castle.

Two bunches of Gros Colmar—1st, Mr. W. Elphinstone, gr. to Shipley Hall, Derby, with medium-sized bunches, large berries; 2d, Mr. G. T. Miles, with smaller bunches, exceeding the others in bloom and size of berries; 3d, Mr. Wright, gr. to C. Campbell, Esq., Gleaston Court, Ross. Only the above were shown.

Two bunches of Gros Guillaume—1st, Mr. Ward, gr. to Longford Castle—very large, symmetrically formed bunches, colour not good; 2d, Mr. Spencer—loose bunches, colour good, but had suffered in transit; 3d, Mr. G. T. Miles. Four lots were shown.

Two bunches of Lady Down—1st, Mr. W. Taylor, with one large bunch and one smaller—huge berries, colour and bloom good; 2d, Mr. Wallis—small compact bunches; 3d, Mr. Elphinstone—nice bunches of unequal size. Six lots were shown.

Two bunches of Lady Down—1st, Mr. Osman, gr. to J. J. G. Shaw Park, Chertsey—well formed bunches, too good in colour; 2d, Mr. Hollingsworth—bunches too much packed with berries, colour and bloom very good; 3d, Mr. Wallis. Nine lots were shown, but one of these was Mrs. Pince, shown in error.

Two bunches of Madresfield Court—1st, Mr. Taylor, symmetrical bunches, but too many unfertilised berries; colour and bloom were good; 2d, Mr. Bury, gr. to A. Richards, Esq., Forest Hill, symmetrical, smaller bunches, and good in all other points; 3d, Mr. Goodacre, with nice bunches, and all necessary good points. Seven lots were shown.

Two bunches of Mrs. Pearson—1st, Mr. Osman, with bunches of a large size, berries small and uneven, green in colour; 2d, Mr. J. Roberts, small bunches, quite ripe, colour good; 3d, Mr. Wallis. Four lots were shown.

Two bunches of Mrs. Pince—1st, Mr. Pratt, gr. to the Marquis of Bath, Longleat, very massive bunches, size of berries very large, the bloom capital; 2d, Mr. Horsman, gr. to Lord Hestburgh, Heytesbury Park, Wilts, with large bunches, large berries; 3d, Mr. A. Miller, gr. to W. H. Longley, Esq., M.P., Rood Ashton Court, Trowbridge. Five lots were shown.

Two bunches of Muscat Hamburg—1st, Mr. Goodacre, with massive bunches, well shouldered, medium-sized berries; 2d, Mr. Cooper, gr. to A. Vernon, Esq., Widmore, Bromley, Kent; 3d, Mr. Horsfield. Five lots were shown.

Two bunches of Muscat of Alexandria—1st, Mr. W. Pratt, with very fine examples, massive, well set up, berries large, and colour a rich yellow; 2d, Mr. R. Gray, gr. to the Earl of St. Albans, Cheltenham, seven or eight, solid bunches, of good colour, and fine berries; 3d, Mr. Roberts. Eight lots were shown.

Two bunches of White Tokay—1st, Mr. Hollingsworth, with very large bunches, compact, but with many small berries; 2d, Mr. Wallis, with specimens that were smaller, greener, and looser.

Two bunches of any other variety of Grapes—1st,

Mr. Spencer; 2d, Mr. Wells, gr. to B. Ravenshill, Fern Hill, Windsor Forest; 3d, Mr. Hollingsworth, with large and compact Trebbiano.

MESSRS. J. CARTER & CO.'S SPECIAL PRIZES.

Best dish of Dedham Favourite Tomatoes—1st, Mr. T. A. Beckett, Cole Hatch Farm, Amersham; 2d, Mr. W. F. Glenhurst, Esher; 3d, Mr. Harris, Bradenham, High Wycombe, with Carter's Perfection.

MESSRS. SUTTON & SON'S SPECIAL PRIZES.

For the best six specimens of Sutton's Early Gem Carrots—1st, Mr. Richards, gr. to Lord Normanton, Somerley, Hants, with roots that were great and thick, like Early Nantes, but larger than that kind ever grows; 2d, Mr. Mead, Beckett Garden, Shrivensham; 3d, Mr. R. Lye, gr. to W. H. Kingsmill, Esq., Symdymon Court, Newbury.

For the best twelve specimens either of Sutton's Perfection, Sutton's Abundance, or Sutton's Maincrop Tomatoes—1st, Mr. T. Lockie, with Maincrop; 2d, Mr. Waite, with Perfection; 3d, Mr. Beckett, with the same kind.

MISCELLANEOUS.

A collection of eighteen Melons, in variety, was shown by Mr. C. J. Goldsmith, they were medium-sized specimens of well known kinds.

Mr. Myles, Wycombe Abbey, showed a large punnet of President Strawberries in capital form.

Mr. Burnett, The Deepdene, Dorking, showed Beurre President d'Artois, an inferior but good looking fruit.

Mr. Bunnett showed Plums, Apples, &c. Messrs. Vilmoren, Andrieux & Co., sent a large collection of Butter Beans, very varied as to colour, which do not look like the Beans we are accustomed to, but they are, nevertheless, very good eating.

Messrs. J. Veitch & Sons, sent a collection of Carrots grown at their trial grounds at Chiswick, a very fine selection of Apples grown by them at Fulham.

Messrs. Lane & Son, Bernhamstead, showed excellent Vines in pots, profusely fruited, consisting of Foster's Seedling Alicante, and Black Hamburg.

Messrs. W. Paul & Son, Waltham Cross, showed a very numerous lot of dishes of Apples.

Mr. Roupell, Harvey Lodge, Roupell Park Road, S.W., showed a variety of Frontignan Grapes in pots; and cut bunches of many of this section which is so approved for richness and piquancy of flavour. Excellent bunches of Madresfield Court, and Black Hamburg, and Muscat of Alexandria were shown from Mr. Roupell's garden.

The Dahlia Exhibition.

A very pleasant exhibition of Dahlias took place on this occasion, though only three classes were provided, but the competition was decidedly good in all. There were seven competitors in the class for twenty-four distinct blooms, show and fancy varieties being allowed, though only a very few of the latter were shown, and the competition was very keen, and it was necessary on the part of the judges to scan the individual flowers with the closest attention. Eventually Mr. Charles Turner, Royal Nursery, Slough, was placed 1st with a very good lot, though not quite up to the quality of those seen at the Crystal Palace on the 3d inst. The Slough flowers consisted of Julia Wyatt, Imperial, Mrs. Gladstones, Harry Keith, Constance, Bendigo (new), Henry Walling, Hugh Austin, Royal Queen, Prince Bismarck, Mrs. W. Walker, Sunbeam, and a few more. Mr. Herbert Turner, Duchess of Albany, Mrs. Foster, Hon. Mrs. P. Wyndham, J. N. Keynes, Mrs. Langtry, Wm. Rawlings, John Standish, Clara, and a seedling. Equal 2d, Messrs. Keynes, Williams & Co., Castle Street, Salisbury; and by Mr. John Walker, nurseryman, Thame, two stands that came up close together, and when the individual blooms were compared one with the other. Messrs. Keynes & Co. had Imperial, Royal Queen, Henry Walling, Mrs. Langtry, Buttercup, Miss Cannell, Harry Keith, Mrs. Foreman, Wm. Rawlings, George Barnes, Gloire de Lyon, Mrs. Jefford, Thomas Hobbs, Hugh Austin, Mrs. Shirley Hibberd, Charles Wyatt, Harrison Weir, Ethel Britton, General Gordon, Ruby Gem, Mrs. George Rawlings, De-fiance (new), Mrs. Gladstone, and Mrs. Glascock. Mr. W. Walker had a fine lot, and nice fresh clean blooms of Royal Queen, Herbert Turner, Alex. Crumond, Mrs. Gladstone, Charles Wyatt, Acme of Perfection, John Henshaw, Mrs. S. Hibberd, Mrs. Langtry, Mrs. Rawlings, James Vick, Mr. Walker, Harrison Weir, Julia Wyatt, James Jackson, Seraph, John Standish, Countess of Ravensworth, Earl of Ravensworth, Mr. Foreman, Mrs. Langtry, J. N. Keynes, Flora Wyatt, and Hope; 3d, Messrs. Rawlings Bros., florists, Romford.

Pompon Dahlias, shown in bunches of not more than ten, some of twenty-four varieties, made a very fine display, and their value as decorative objects was seen to the best advantage. Again was Mr. C. Turner 1st, with a very fine lot, the blooms medium-sized and even, fresh and bright, the varieties being Louis Rodani, E. F. Junger, Fair Helen, Darkness, Hedwig Polys, Rosalie, White Aster, Comtesse Von Sternberg, Cupid, Ernest, Eccentric, Thomas Moore, Rosetta, Dora, The Khedive, Gem, Nymph, Golden Gem, Little Princess, Isabel, Favourite, Titania, Fanny Weimer, and Lady Blanche. Equal 2d, Messrs. Keynes & Co., Salisbury. Mr. W. Walker, nurseryman, Crawley, The former had a fine lot, but a few of the flowers were over large and a little stale. Their leading varieties were Rosalie, Sappho, Gem, Catherine, White Aster, E. F. Junger, Darkness, Little Duchess, Lady Blanche, Hebe, Isabel, Fair Helen, Karl Goldberg, Fashy Dora, Northern Light, and Rosetta. Messrs. J. Cheal & Sons had a nice fresh lot, including Little Dukes, Crawley Gem,

Comtesse von Sternberg, Little Bobby, Isabel, Dora, Capt. E. F. Juckley, Guiding Star, Favourite, Darknes, Fair Helen, Golden Gem, and Prince of Liliputians; 2d, Messrs. Paul & Son, Old Nursery, Cheshunt. Four stands completed.

There were also four stands of single Dahlias, and it is doubtful if ever before a better collection so admirably arranged was set up than that by Messrs. J. Cheal & Son on this occasion, which won the 1st prize; the varieties were Edith, Mrs. Walker, Paragon, Formosa, Juno, Miss Linaker, Primrose, Rosalind, Mrs. Kerswell, primrose, heavily flaked, and pencilled with bright maroon, the crimson, White Queen, Helena, Negress, Henry Irving, Miss Bowman, Alba perfecta, Charles Lais, Silver King, Hugo, Amos Perry, Dorothy Fell, Alfonso, Brutus, and Sunset. 2d, Mr. Charles Turner, with a remarkably good collection, shown in excellent bunches, the varieties being Negress, Alba, Lady of the Lake, Fashion, Huntsman, Evening Star, Ellen Terry, Lutea grandiflora, Zephyr, Foxhall, Miss Bowman, Cherry, Rupert, Rosalind, Duchess of Westminster, Harlequin, Paragon, Sunset, Miss Mary Anderson, Dorothy, Defiance, Queen of Singles, Acquisition, and Sunbeam. 3d, Messrs. Paul & Son, Cheshunt.

First-class Certificates of merit were awarded as follows:—

To Messrs. Keynes & Co., for Colonel, a very distinct show variety, but not shown in such good condition at the Crystal Palace on Friday.

To Messrs. Rawlings Bros., for Mr. Theobald, clear lilac pink.

To Messrs. J. Cheal & Sons, for single Dahlia Mrs. Kerswell, a charming striped flower.

Mr. R. Tranter had his new yellow seedling, Nellie Tranter, but it did not find the same amount of recognition here as when it was recently awarded a Certificate at the Crystal Palace. There is no doubt but that the storm of Saturday last materially affected the Dahlias, and prevented the seedlings being shown in such good form as if the dry weather had continued.

CRYSTAL PALACE GRAND NATIONAL DAHLIA SHOW.

ALL things considered, the Grand National Dahlia Show on September 3 and 4 was a remarkably good one. Dahlia cultivators are agreed that the season has proved a very trying one. Dahlias were late in making a kindly growth, but when they did so they progressed very fast, aided by the frequent rains of July and the early part of August. The hot weather during the closing days of July told severely on many of the blooms, still a good show resulted. As usual the Dahlia show was arranged under the western portion of the nave.

SHOW DAHLIAS: NURSERYMEN.

There were six competitors in the class for forty-eight blooms, distinct, and two stands—those of Mr. Charles Turner, Royal Nurseries, Slough, and Messrs. Keynes, Williams & Co., Castle Street Nursery, Salisbury, came so close together that the experienced judges were a considerable time in reaching a decision. Eventually they were placed equal 1st, the 1st and 2d prizes to be equally divided between them. Some thought the Slough flowers had a "pull" over those from Salisbury blooms, but we think the decision of the judges a just and proper one. Messrs. Keynes & Co. had splendid blooms of Imperial, Mrs. Langtry, Mr. Spofforth, Mrs. W. Slack, Harry Keith, Buttercup, Miss Cannell, James Cocker, Cardinal, and Clara Wyatt. Mr. Turner had Mrs. W. Slack and Seedling, Satesman, Harry Keith, John Wyatt, Sunbeam; 3d, Mr. William Boston, Manor Farm Nurseries, Catherham, Bedale; 4th, Messrs. Heath & Son, nurserymen, Cheltenham.

In the class for twenty-four show varieties for nurserymen, not showing in the previous class:—Seven collections were staged, and Mr. John Walker, nurseryman, Thame, was 1st with a very good stand indeed, consisting of Rebecca, J. N. Keynes, Mrs. Rawlings, Vice President, Mrs. F. Foreman, Mrs. Shirley Hibberd, George Rawlings, Annie Neville, Flora Wyatt; 2d, Messrs. Charles Kimberley & Son, Stoke Nursery, near Coventry, whose best flowers were Barnaby Rudge, Harrison Weir, Mrs. F. Foreman; 3d, Messrs. Harkness & Sons, nurserymen, Bedale, Yorks; 4th, Messrs. Saltmarsh & Sons, nurserymen, Chelmsford.

In the class for twelve blooms, open to those who had not competed in the two preceding ones, there were four competitors, and the prizes were awarded thus:—1st, Messrs. J. H. Humphries, Kingston, Langley, Chippenham; 2d, Messrs. Rawlings Bros., florists, Romford; 3d, Messrs. J. Burrell & Co., Howe House Nurseries, Cambridge; 4th, Messrs. J. Cheal & Son, Lowfield Nurseries, Crawley.

SHOW DAHLIAS: AMATEURS.

The class for twenty-four varieties brought four competitors, and Mr. R. Petfield, gr. to A. J. Thibault, Esq., Didlington, Huntingdon, was 1st, with a remarkably good lot; 2d, Henry Glascock, Esq., Rye Street, Bishop's Stortford; 3d, Mr. Thomas Hobbs, Lower Easton, Bristol.

In the class for twelve varieties, there were fourteen competitors, the 1st prize was awarded to

Mr. Charles Hockney, Greenfield House, Stokesley; 2d, Mr. J. R. Tranter, upper Assenden, Henley-on-Thames; 3rd, Mr. W. H. Aphorpe, Albion Brewery, Cambridge.

In the class for six varieties, there were ten collections, and here Mr. Jas. Perkins, London Road, Chippenham, was 1st with Mrs. Langtry, Mrs. Gladstone, James Stephen, Hope, Mrs. Harris, and Aurora; 2d, Mr. A. Tunbridge, gr. to the Rev. Wm. Trimmer, Broomfield, Chelmsford; 3d, Mr. H. Steer, New Eltham, Kent; 4th, Mr. T. W. Girdlestone, Sunningdale, Berks.

FANCY DAHLIAS: NURSERYMEN.

There were four collections of twenty-four varieties, and Messrs. Keynes, Williams & Co., were 1st with a superb collection, consisting of James O'Brien, Duchess of Albany, Pelican, General Grant, Gaiety Sport, Miss Letty Large, Fanny Sturt, Hercules, Adventure, Gaiety, Rev. J. B. McCann, Henry Eckford, Mrs. Frisleton, and Charles Wyatt; 2d, Mr. Charles Turner, with good blooms of the following:—Grand Sultan, Professor Fawcett, Chorister, and Hugh Austin; 3d, Mr. W. Boston; 4th, Mr. H. Clarke, Rodley, near Leeds.

In the class for twelve varieties there were nine competing collections, and Mr. John Walker was 1st with Clara Wyatt, John Silter, Fanny Sturt, Flora Wyatt, John Forbes, Professor Fawcett, Tippy Bob, Chorister, Peacock, Miss Browning, Florence Stark, and Prospero—a very good lot indeed; 2d, Mr. G. Humphries; 3d, Mr. M. Campbell, nurseryman, Auchinraith, N.B.; 4th, Messrs. Paul & Son, Old Nurseries, Cheshunt.

FANCY DAHLIAS: AMATEURS.

In the class for twelve varieties, Mr. C. Hockney was 1st with a good lot, consisting of George Barnes, Fanny Sturt, Gaiety, and Mrs. N. Halls; 2d, Mr. R. Petfield; 3d, Mr. H. Vincent, gr. Keymer. Five collections competed in this class.

In the class for six varieties, there were fifteen collections, and Mr. Arthur Whitton, Askew, was 1st with Mrs. N. Halls, Hugh Austin, Florence Stark, Topsy Veck, Mrs. Saunders, and Clara Wyatt; 2d, Mr. J. T. West, gr. to Mr. W. Keith, Esq., Cornwall, Brentwood; 3d, Mr. Jas. Perkins, Chippenham.

PREMIER FLOWERS.

The best show Dahlia selected from the entire exhibition was John Standish, shown by Mr. John Walker; and the best fancy variety, Henry Eckford, shown by Messrs. Keynes, Williams & Co.

POMPON DAHLIAS.

These were as usual finely shown in bunches of not more than ten varieties, and they made a very fine display, as four collections competed. Mr. C. Turner was 1st in the class for twenty-four varieties with a remarkably fine lot; 2d, Messrs. Keynes, Williams, & Co.; 3d, Messrs. J. Cheal & Sons, Crawley; 4th, Messrs. J. Gilbert & Sons, St. Margaret's Nursery, Ipswich.

In the class for twelve bunches, open to those not competing in the previous one, there were seven competitors.—Messrs. Paul & Son, Cheshunt, were placed 1st with a fine lot; 2d, Mr. J. Henshaw, Rothamsted Cottage, Harpenden; 3d, Messrs. J. Burrell & Co., Cambridge; 4th, Mr. W. H. Aphorpe.

In the class for six varieties there were five competitors, Mr. Henry Glascock, Bishop's Stortford was placed 1st, with varieties unnamed; 2d, Mr. J. G. West, Brentwood; 3d, Mr. A. Tunbridge, Broomfield; 4th, Mr. J. Bullard, 59, Vauxhall Street, Norwich.

SINGLE DAHLIAS.

These also were a very fine feature, the large bunches being well displayed; a little foliage proving of great assistance in setting off the bunches to the best advantage. Five collections competed, Mr. Charles Turner being placed 1st with very fine examples; 2d, Messrs. Keynes, Williams & Co.; 3d, Messrs. J. Cheal & Sons; 4th, Messrs. Paul & Son.

THE TURNER MEMORIAL PRIZE.

Three competitors entered the lists in competition for the ownership of the Memorial Cup, including the winner last year—Mr. H. Glascock. On this occasion the award of the judges was in favour of Mr. J. T. West, Cornwall, Brentwood, with the following eighteen flowers, viz., twelve show and six fancy Dahlias:—Wm. Rawlings, Mrs. Langtry, Charles Wyatt, Mrs. Gladstone, Prince Bismarck, T. J. Saltmarsh, Mrs. Shirley Hibberd, J. W. Lord, Miss Cannell, Goldfinder, Vice President, and Mrs. P. Wyndham. Fancies: Henry Eckford, Chorister, Mrs. N. Halls, Gaiety, Hugh Austin, and Pelican. Mr. Henry Glascock was 2d; and Mr. Thomas Hobbs 3d in order of merit.

The Fruit Show.

This division of the show must be considered, as a whole, to have been equal to any that have been held

at the Crystal Palace; indeed, in the class of fruiterer's exhibits and in the number of collections and excellence of the productions of which the same consisted. The arrangement of the fruits on short tables permitted the company easy access to all parts, although it somewhat mixed up the different classes.

Muscat Grapes were not so rich in colour as we have seen them, but there was no lack of size and good finish either in those or in any other class of Grapes. Peaches, Plums, and Nectarines which have ripened quickly during the late hot weather have gathered higher tones of colour from the bright light, presenting a remarkable contrast to the slow ripening Muscats.

Collections of not less than twenty kinds.—Mr. J. H. Goodacre, gr. to Lord Harrington, Elvaston, Derby, was awarded 1st prize. Of the various kinds observed the Pines, a Cayenne, and a Queen were nice fruits of medium size, Grapes Muscats of Alexandria, Foster's Seedling, Victoria Nectarines, and Hemsick Apricots were particularly fine. Mr. McIndoe, gr. to Sir J. W. Pease, Bart., M.P., Guisborough Park, Yorkshire, took the 2d prize; and Mr. J. Roberts, gr. to Messrs. Rothschild, Gunnersbury House, Acton, the 3d. A few very competent persons thought the last should have been placed 1st so good were the various fruits composing the collection.

Twelve dishes.—In this competition Mr. Roberts reversed his defeat in the big class by taking the 1st prize, his best things being Wm. Tillery Melon, La Grosse Sucrée Strawberry, of fine size and colour; and Peach Marquis of Downshire, an excellent lot to have got together after putting together the twenty dishes required for the 1st class. 2d, Mr. McIndoe, who had three bunches of Trebbiano, of a fine colour; Golden Eagle Peach, quite brilliant in hue; Humboldt Nectarine, and Bon Chretien Pears, and other of fine quality. 3d, Mr. Miller, gr. to W. H. Long Esq., M.P., Trowbridge.

Eight dishes.—Mr. Pratt, gr. to the Marquis of Bath, Longlat, was here placed 1st, his best fruits being Black Hamburgs, massive bunches, medium-sized berries, inclining to red; Muscats of Alexandria, fair bunches, but not ripe; Nectarines, Figs, Peaches, Melon, Plum, comprised the other fruits shown. 2d, Mr. S. Pullman, gr. to R. B. Sheridan, Esq., Frampton Court, Dorchester, whose Muscats were fine massive bunches, but unripe; Dymond Peaches, Pine-apple Nectarine, were good specimens of cultivation. 3d, Mr. Ocle, gr., Buckling Hall, Aylsham.

COLLECTION OF TEN KINDS OF GRAPES.

Mr. Goodacre brought a fine collection, consisting of Madresfield Court, Muscat of Alexandria, Duke of Buccleuch, Alnwick Seedling, Muscat Hamburg, Lady Downes, and others, these being the best specimens. 2d, Mr. H. W. Ward, gr. to the Earl of Radnor, Longford Castle, whose Muscats of Alexandria, Buckland Sweetheart, Black Alicante, and Foster's Seedling, were very good samples. Mr. W. Wildsmith, gr. to Viscount Eversley, Heckfield, Hants, took the 3d, showing Black Alicante, White Tokay, Golden Queen, Madresfield Court, Alnwick Seedling, and Gros Maroc.

Five kinds of Grapes.—1st, Mr. W. Taylor, gr. to J. Chaffin, Esq., Bath, well-berried Madresfield Court, with beautiful finish; Muscats, symmetrical in bunch, but small of berry. Black Alicante, good solid bunches, up to 3 lb. each, very large-berried; Gros Maroc, and solid bunches of Alnwick Seedling, not enough thinned; 2d, Mr. W. Pratt, whose Muscats were fine in berry and bunch; the Black Hamburgs were likewise large in bunch, but with small berries. Mr. Elphinstone, gr., Shipley Hall, Derby, was 3d.

Black Hamburg Grapes, three bunches.—1st, Mr. Pratt, with broad-shouldered bunches, berries large, fine in bloom; 2d, Mr. Moorhouse, gr. to J. W. Temple, Esq., Tunbridge Wells, with bunches that were large and loose, but of good colour; 3d, Mr. Howe, gr. to H. Tate, Esq., Streatham.

Muscat of Alexandria Grapes, three bunches.—In this contest Mr. Pratt again obtained the 1st prize with bunches, large and irregular as to outline, but with very fine large berries, fairly well coloured; 2d, Mr. J. Roberts, with large bunches, well coloured and ripe; 3d, Mr. Goldsmith, gr. to Mrs. C. Hoare, Kelsey Manor, Beckenham, small bunches, and the colour good.

Gros Maroc Grapes, three bunches.—Mr. Elphinstone took 1st prize with large bunches, finely finished. The 2d prize fell to Messrs. T. F. Rivers & Son, Sawbridge, who also showed well; 3d, Mr. McIndoe, of Hutton.

Madresfield Court Grapes, three bunches.—Mr. J. Bury, gr. to J. Richards, Esq., Forest Hill, took 1st, with bunches perfect in every point; 2d, Mr. H. Perkins, gr. to the Right Hon. W. H. Smith, M.P., Henley-on-Thames, whose Grapes possessed enormous berries for the variety; 3d, Mr. F. Jordan, gr. to R. Foster, Esq., The Hill, Witley, Surrey.

Alicante Grapes, three bunches.—Mr. W. Howe took 1st with fairly good bunches, in which the berries

were small; 2d, Mr. Pratt; 3d, Mr. Tidy, gr. to J. R. Holland, Great Stanmore.

Grapes of any other white kind, three bunches.—Mr. Wallis, gr. to the Rev. W. Sneyd, Keele Hall, Newcastle-under-Lyne, was awarded 1st prize for medium-sized bunches of Mrs. Pearson; Mr. Bury took the 2d, with Foster's Seeding; 3d, Mr. Perkins, with the same kind, the three bunches weighing 14½ lb. Mr. Ward, of Longford, who is noted for buckland Sweetwater, showed this variety in fine condition, but failed to win, although we fail to understand the reason for giving the prizes to smaller bunches of kinds that are not intrinsically better Grapes.

Grapes, any other than black, three bunches.—Mr. Ward, Longford, was awarded 1st prize for nice well coloured bunches of Alnwick Seeding; Mr. Hudson, gr. to J. H. Atkinson, Esq., M.P., Gunnersbury, took the 2d prize for the same variety; 3d, Mr. McIndoe, with Gross Colmar.

Pine-apple, Queen, two fruits.—1st, Mr. W. F. Smith, gr. to Mrs. Byass, Tunbridge Wells; 2d, Mr. McIndoe.

Pine-apples of any other variety, two fruits.—Mr. Ross, gr. Welford Park, Newbury, was awarded the 1st prize for fruits of Smooth Cayenne, respectively of 9 lb. 6 oz. and 9 lb. 2 oz.; 2d, Mr. W. F. Smith, with smaller examples of the same kind.

For four dishes of Peaches Mr. McIndoe was 1st, showing Stirling Castle, Golden Eagle, Violette Hative, and Prince of Wales, large, well-coloured specimens.

Mr. W. Elphinstone took 1st prize for four dishes of Nectarines, showing Violette Hative, Elruge, Pitaston Orange, and Pine-apple.

Smaller competitions with hardy fruits were well contested, but were of no particular interest.

Mr. Wingfield took the 1st prize for the trade collections of fruit, of which there were five; all very well supplied with native and foreign productions.

Messrs. Rivers & Son had erected a pretty fruit trophy in the central transept, composed of orchard-house trees in full bearing, that fell in for a large share of admiration, most of the trees being loaded with fruit, and affording an excellent example of what can be accomplished in small pots.

Messrs. Cheal & Son, Crawley, exhibited a collection of thirty-eight dishes of Apples, and twenty-four of Plums.

Mr. G. Bunyard showed fifty-four dishes of Apples, some shoots of Farleigh Damsion, to show its extraordinary productiveness, and some few dishes of Pears.

From their Sussex nurseries Messrs. W. Paul & Son showed 160 dishes of Apples.

Physalis edulis was shown by Mr. J. Neighbour, Bickley, Kent.

Mr. G. Holliday showed specimens of shoots of the common Bramble under cultivation; these were as full of berries in all stages of growth, and were as good as some American kinds about which so much has been said and written.

Messrs. W. Thompson, Clouvenford, N.B., showed a basket of Duke of Buccleuch Grape, fine in size, as it usually is seen, but in this case barely ripe.

A bunch of the Trebbiano Grape of 2½ lb. was exhibited by Mr. J. R. Hannah, gr. to Sir H. E. Maxwell, M.P., Whamp Hill, N.B.

CUT FLOWERS.

There was a capital display of Gladioli, Asters, early Chrysanthemums, stove and greenhouse flowers, single Dahlias, Roses, Hollyhocks, Begonias, Zinnias, Pinks, and Carnations.

Messrs. Burrell & Co., were the winners of the 1st prize for a very good collection of Gladioli.

Mr. Watkins, Thame, was placed 1st for Quilled Asters.

Mr. Jones, gr. to J. S. Pope, Esq., Cedar Lodge, Bath was 1st for French Chrys.

Messrs. Webb & Brand, Saffron Walden, were awarded 1st prize for Hollyhocks; and Mr. T. N. Penfold, gr. to the Rev. Canon Bridges, Beddington, secured the 1st prize for a collection of stove and greenhouse flowers.

Mr. N. Davies took the 1st prize for early flowered Chrysanthemums.

Messrs. W. Paul & Son, Waltham Cross, showed many fine boxes of cut flowers of Roses, and Dahlias of various sections came from Messrs. Cheal & Sons, and Messrs. Cannell & Son, Swanley.

BRIGHTON AND SUSSEX:

August 25 and 26.

On this occasion the show was held in the western grounds of the Royal Pavilion, the Dome and Corn Exchange adjoining. In these spacious buildings ample room was found for the productions brought together, and the well kept grounds afforded pleasant space for promenading. The present was a good show throughout, and its reputation for first-class productions was fully maintained.

PLANTS.

For six fine-foliage plants and six Ferns in a special

class Mr. Rann, gr. to J. Warren, Esq., Handcross Park, staged a number of fine specimens, and was awarded the 1st prize. *Crotona Warreni* and angustifolius were both finely coloured, *Pritchardia pacifica* and *Cycas revoluta* were the best examples of foliage plants, and *Davallia Mooreana* was an immense plant. *Dicksonia antarctica* and *Thyrsopteris elegans* were the best of the Ferns.

With eight stove and greenhouse plants in bloom Mr. Meachen, gr. to Mrs. Armstrong, Patcham, took the 1st prize, having *Fimelia mirabilis*, very fresh and bright; *Rondeletia speciosa* major, *Allamanda nobilis*, and *Erica Ewersiana*, all being well flowered plants. Mr. Hobden took the 2d place, and in whose lot were *Allamanda grandiflora* and *Erica Fairiana*, both fresh. With four plants the same exhibitor was 1st with *Erica cerinthoides coronata* and *E. Attoniana turgida*, both being good specimens. He had also a freely bloomed specimen of *Statice profusa* and another of *Allamanda*; Mr. Rann was 2d in this class with well grown *Erica* and other plants. In the 3d prize set of four from Mr. Jupp, gr. to G. Boulton, Esq., Eastbourne, was a very fine plant of *Eucharis amazonica*.

ZONAL PELARGONIUMS.

These made a brilliant display, Mr. Hobden taking 1st with doubles, staging a set of well-grown plants; Mr. Meachen and Mr. Townshend, gr. to Captain Thompson, Withdeve, being the most successful in this class provided for single varieties, each exhibitor showing neat well-flowered examples.

GROUPS.

Several classes were provided for groups arranged for effect, in which Begonias and Ferns each had a class to themselves, a very pretty effect being made with each, Mr. Spottiswood, gr. to G. Duddell, Esq., Queen's Park, being 1st in the former, and Mr. Townshend in the latter class. A few Lilies interspersed among the Ferns would have much enhanced the effect.

For a group of mixed flowering and foliage-plants Mr. Turner, gr. to Major Way, Wick Hall, was deservedly 1st, having a light and bright arrangement; Mr. Meachen coming 2d, but more closely packed together.

Messrs. Balchin & Sons and M. W. Miles, both nursermen of Brighton, each arranged a group of plants of large dimensions, which produced a fine effect, and added greatly to the general finish of the Corn Exchange; large Palms, Yuccas, Crotons, and Musas being very telling, and both not for competition.

CUT FLOWERS: DAHLIAS.

This section is always an important feature at this show, and again made a splendid array, Messrs. Keynes & Co., Salisbury, taking 1st both for forty-eight show and twenty-four fancy varieties; whilst for pompons and single kinds in the large classes Messrs. Cheal & Son, Crawley, staged well, and won in both cases.

In the smaller classes Mr. Vincent, gr. to Mr. J. Hart, Keymer, secured no less than six 1st prizes for show, fancy, and single varieties; being closely followed up by Mr. Simmonds, gr. to the Rev. R. C. Hales, Woodmanacre Rectory.

CUT ROSES

were, for the season, very good indeed, and some beautiful boxes were shown by trade growers and amateurs.

For twenty-four trebles, for twelve do., and for twelve Teas and Noisettes, Mr. Piper, Uckfield and Pildown Nurseries, secured the 1st prize in each instance, his boxes being strong in Teas, among which we noted Madame Berard, Niphetos, Marie van Houtte, Jean Ducher, Souvenir d'Elise Vardon, and Belle Lyonnaise, all in capital condition; in the first-named class Messrs. Balchin & Sons were 2d, with a bright lot of good blooms; Mr. Slaughter, of Stepping, taking the other two 2ds with good stands, as well as being the most successful exhibitor in the amateur classes.

STOVE AND GREENHOUSE CUT FLOWERS.

Mr. Archer, gr. to Mrs. Gibson, of Saffron Walden, secured the 1st prize, with a fine boxful of the best kinds in season, he being strong in *Dipladenias* and *Ericas*. The same exhibitor was lucky in taking the 1st for twenty-four quilled Asters, a more varied lot being 2d from Mr. Walker, of Thame; the order was, however, reversed for twenty-four tasselled varieties, which was a very strong class.

HARDY HERBACEOUS PLANTS (CUT BLOOMS).

Messrs. Balchin staged a beautiful selection, which made a fine display, and easily secured the 1st award; he was followed by Messrs. Cheal.

For Gladioli Messrs. Balchin were placed 1st, with a good selection.

FRUIT.

This is always an important feature in this show, a quantity of first-class produce being again shown.

COLLECTIONS.

For a collection of twelve dishes, Mr. Goldsmith, gr. to C. A. Hoare, Esq., Beckenham, was placed 1st, his best dishes being Black Hamburg and Muscat of Alexandria Grapes, Bellegarde and Noblesse Peaches, and Brown Turkey Figs. Mr. Waterman, gr. to H. A. Brassey, Esq., Maidstone, coming in 2d, with a good collection, including a well finished Pine-apple.

GRAPES.

Grapes were shown in quantity in six classes provided for them.

For Muscats (three bunches), Mr. Duncan, gr. to C. T. Lucas, Esq., Warnham Court, took 1st in both divisions.

For six bunches of the same kind Mr. Goldsmith was 1st, each exhibitor staging well finished examples.

With Black Hamburgs, Mr. Spottiswood was placed 1st also, taking the same award for six bunches of the same kind, as well as taking three 2ds for Muscats, staging well in each case.

For a collection of Grapes, six kinds, Mr. Gore, gr. to Captain Taylor, Glenleigh, Haslemere, was awarded 1st, Alnwick Seeding and Mrs. Pearson, being the best finished kinds in the collection.

Peaches were shown in first-rate order by Mr. Hopkins, gr. to R. Thornton, Esq., High Cross, Framfield, his fruit of Barrington being very fine.

VARIOUS FRUITS.

Nectarines were shown in best condition by Mr. Duncan, who won in each instance with highly coloured fruit of Pine-apple.

Pears were best represented by Mr. Goldsmith, with Williams' Bon Chrétien; Mr. Waterman taking 2d, with Jargonelle.

With Apples, single dish, the last-named exhibitor put up a fine lot of Peasgood's Nonsuch, and took 1st for culinary kinds; Mr. Cooke showing A-trachan, and taking the same position for dessert kinds.

For a collection of six kinds of Apples Mr. Booth, gr. to W. Yates, Esq., Uckfield, showed a good selection, and took the premier award.

Figs were not shown in such numbers as usual, but good dishes were put up by Mr. Butler, who was an easy winner with Brown Turkey.

Plums and Green Grapes were shown in considerable quantity, Mr. Inglis, of Cuckfield, and Mr. Vincent taking the 1st awards.

VEGETABLES.

Vegetables were provided for in seventeen classes, the competition, as usual in this section whenever shown at this season of the year, was keen, and the quality first-class. With eight as well as with six kinds, Mr. Waterman was a most creditable winner, with the best things in season.

Tomatoes were a strong class, a heavy lot of Trophy taking 1st for Mr. Goring; Mr. Goldsmith following with Stamfordford.

Messrs. Cheal staged (not in competition) several good dishes of fruit, chiefly Apples and Plums. *H.*

MOOR PARK COTTAGERS' HORTICULTURAL:

TURAL:

This Society held its twenty-second annual show in the old pleasure grounds of Moor Park, the domain of Lord Ebury, the President, on Wednesday, August 18. The grounds of the Park looked at their best, and the new pleasure grounds were all ablaze with colour. A grand old Park with deer, a noble collection, ornamental waters, and terraces, a magnificent expanse of country—and what spot could be better chosen for a flower show? The competition was entirely amongst the cottagers, who filled a large tent 100 x 50 feet with their produce, all of first-class quality. The centre of the tent was arranged with groups of flowering and foliage plants kindly sent by the neighbouring nobility and gentry. Lady Hume Campbell (gr. Mr. Brush) showed an excellent collection of herbaceous cut flowers, and also filled one small tent with tuberous-rooted Begonias in flower. Another large tent was filled with flowering and foliage plants from the Moor Park gardens, arranged in three groups in the centre, which had a most pleasing effect, and was much admired.

The fruit tent was filled with collections of almost everything in and out of season, from Pine-apples down to the commonest bush fruits, contributed by Messrs. Mandell, Myers, Fitt, Gough, Condie, and Bye, not for competition. In this tent, Miss Fitzgibbon arranged an elegant table decoration, which received a special commendation.

There were besides a honey tent, a tent filled with cut blooms from the Moor Park Gardens, and a design arranged and planted of a flower garden, by Mr. C. Fletcher, foreman gardener, Moor Park.

One great feature at the flower show was a tent devoted entirely to wild flowers, arranged in baskets by children. The baskets were found by the Society, and had a much better effect than when put up in

every conceivable variety of vessel or basket. The number of baskets averaged from sixty to 100, and a great many of the collection were named, for which there is a special prize offered, as well as for arrangement.

Such exhibitions as these encourage the cottagers, not only to produce good vegetables for exhibition, but also to take a pride in their gardens, for which there are liberal prizes offered for allotments of 20, 15, and 10 poles, situated at Rickmansworth and Mill End, some 2 miles apart.

Allotments are let to cottagers with families, at a mere nominal rent, by the President, Lord Ebury, a system that was adopted many years since, and which has proved a boon to a great many persons.

SCOTCH NOTES.

CONTINUOUS FLORAL DISPLAY IN THE INTERNATIONAL EXHIBITION, EDINBURGH.

In addition to the names mentioned in recent issues, as taking part in the floral display in the grand hall of the Exhibition, Mr. Campbell, of High Blantyre, Glasgow, has since put in an appearance with a superb lot of double Dahlias, a superior batch of fancy Fancies and Carnations and Picotees. The blooms of the latter were especially bright and clean, while they were also characterised by great substance and perfection of form. They had also a very creditable stand of the now rarely seen Hollyhock, which, if inferior to the blooms of the time prior to the appearance of the disease, were yet fairly good, and were welcomed by florists as a hopeful sign that the old flower may again be the source of pleasure in the future as it was in the past.

Messrs. Dickson & Co., Edinburgh, exhibited a box of blooms of their new Carnation, Scotia, a showy self, with some resemblance to Grenadier, but of a distinct shade of colour, being soft cerise-scarlet.

Messrs. Lumont & Son, Edinburgh, showed, in addition to their fine display of single Dahlias, a few blooms of a very remarkable form of *Lilium auratum*. The flowers are from 14 to 15 inches from tip to tip of the petals, and of correspondingly great breadth, but the most remarkable feature about the variety is the broad ray, averaging half an inch in width, of deep maroon-crimson, which extends from the base to near the tip of each petal. It is the richest and most distinct variety of this noble Lily that we have seen.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, SEPTEMBER 8, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRIC DEVIATIONS FROM GLAISHER'S TABLE 7th Edition.	WIND.	RAINFALL.
	Mean Reading from 5 a.m. to 5 p.m.	Bar. at 5 p.m.	Highest.	Lowest.	Range.	Mean for Day.	Drainage of Mean from 5 a.m. to 5 p.m.			
Sept. 2	29.93	+0.03	66.2	58.0	8.2	59.6	+0.3	55.1	85	N.W. 0.00
3	29.91	+0.04	68.2	59.6	8.6	63.0	+0.3	55.6	92	N.W. 0.06
4	29.86	-0.04	70.0	61.0	9.0	65.5	+0.4	57.9	100	N.W. 0.05
5	29.78	-0.13	71.5	61.0	10.5	66.2	+0.5	57.9	83	S. 0.00
6	29.88	-0.02	69.3	59.0	10.3	63.3	+0.9	53.0	69	S.W. 0.24
7	29.86	-0.05	68.5	55.5	13.0	61.2	+2.0	49.2	65	S.W. 0.03
8	29.78	-0.13	69.2	58.5	10.7	63.8	+0.2	58.2	82	S.W. 0.00
Mean	29.86	-0.04	70.1	57.0	13.1	62.4	+0.37	56.5	79	S.W. 0.19

- Sept. 2.—Fine but dull; wet after 3 P.M.
 3.—Fine day throughout.
 4.—Heavy shower at 8 A.M. and 11 A.M., but fine afterwards.
 5.—Fine, and warm day.
 6.—Fine, but generally dull; slight shower in night.
 7.—A very fine day.
 8.—Fine, but generally dull after 3 P.M.

LONDON: Atmospheric Pressure.—During the week ending September 4, the reading of the baro-

meter at the level of the sea increased from 30.05 inches at the beginning of the week, to 30.07 inches by the morning of the 29th, decreased to 30.01 inches on the same day, decreased to 30.10 inches by 9 A.M. on the 31st, decreased to 30.05 inches by 5 P.M. on September 2nd, increased to 30.15 inches by 1 P.M. on the 3rd, and was 30.03 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 30.07 inches, being 0.01 inch higher than last week, and 0.01 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 86°.5 on the 31st; the highest on the 2nd was 66°.2. The mean of the seven high day temperatures was 77°.7.

The lowest temperature in the week was 51°.0 on the 29th; the lowest on the 4th was 61°.0. The mean of the seven low night temperatures was 57°.4.

The greatest range of temperature in one day was 31°.5 on the 30th; the smallest was 80°.2 on the 2nd. The mean of the seven daily ranges was 20°.3.

The mean daily temperatures were, 63°.3 on the 29th; 72°.3 on the 30th; 72°.4 on the 31st; 71°.9 on Sept. 1st; 59°.6 on the 2nd; 63°.0 on the 3rd; and 67°.2 on the 4th. These were all above their averages by 3°.2, 12°.3, 12°.6, 12°.5, 12°.5, 0°.3, 3°.9, and 8°.4 respectively.

The mean temperature of the week was 67°.1, being 3°.0 higher than last week, and 7°.6 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 140° on the 31st. The mean of the seven readings was 117°.7.

Rain fell on two days to the amount of 0.16 inch.

ENGLAND: Temperature.—During the week ending September 4, the highest temperatures were 86°.7 at Cambridge, 86°.5 at Blackheath, 83°.0 at Leeds; the highest at Plymouth was 71°.2, at Truro 76°.0, and at Liverpool, 77°.1. The general mean was 79°.9.

The lowest temperatures were at Truro and Cambridge 47°.0, at Wolverhampton 47°.3; the lowest at Bradford, Leeds, and Newcastle, was 52°.0, and at Blackheath, Nottingham, Liverpool, and Hull, 51°. The general mean was 50°.

The greatest ranges were at Cambridge 39°.7, at Blackheath 35°.5, and at Wolverhampton 32°.3; the least ranges were at Plymouth 22°.7, at Liverpool 26°.1, and at Bradford 26°.6. The general mean was 29°.9.

The mean of the seven high day temperatures was highest at Blackheath 77°.7, at Cambridge 77°.5, and at Leeds 74°.5; and lowest at Plymouth 67°.6, at Liverpool 68°.9, and at Truro 69°.4. The general mean was 72°.

The mean of the seven low night temperatures was highest at Blackheath, 57°.4, at Preston and Newcastle, 56°.6; and was lowest at Wolverhampton, 51°.2, at Cambridge 53°.3, and at Hull 53°.6. The general mean was 55°.1.

The mean daily range was greatest at Cambridge 24°.2, at Blackheath 20°.3, and at Wolverhampton 19°.0; and was least at Plymouth 12°.1, at Liverpool 12°.8, and at Newcastle 14°.0. The general mean was 26°.9.

The mean temperature was highest at Blackheath 67°.1, at Cambridge 63°.9, and at Leeds 63°.8, and was lowest at Wolverhampton 59°.6, at Plymouth 60°.1, at Truro and Bristol 60°.7. The general mean was 62°.1.

Rain.—The largest falls were at Wolverhampton 1.66 inch, at Truro 0.99 inch, and at Bristol 0.44 inch. The smallest falls were 0.00 inch at Newcastle, 0.02 inch at Preston, and 0.06 inch at Hull and Leeds. The general mean fall was 0.34 inch.

SCOTLAND: Temperature.—During the week ending September 4th, the highest temperature was 74°.7 at Paisley; the highest at Greenock was 69°.2. The general mean was 72°.6.

The lowest temperature in the week was 36°.8 at Aberdeen; the lowest at Greenock and Leith was 46°. The general mean was 42°.

The mean temperature was highest at Edinburgh, 60°.9; and lowest at Perth, 57°.7. The general mean was 59°.1.

Rain.—The largest fall was 0.76 inch at Greenock, and the smallest was 0.00 inch at Dundee and Aberdeen. The general mean fall was 0.25 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, September 6, 1886, issued by the Meteorological Office, 116, Victoria Street, London, S.W. General remarks:—The weather was generally very fine and warm during the earlier part of the period, but subsequently became dull and unsettled, with a good deal of thunder and lightning. The darkness which accompanied the thunderstorm of Saturday morning in the south was remarkably dense.

The temperature has varied from 3° to 5° above the mean over central, southern, north-eastern, and eastern England, but in all other parts of Great Britain the excess has been very slight, while in "Ireland, S.," a deficit of 1° is shown. The highest of the maxima, which was registered on August 31, ranged from 69° to 72° in Ireland and Scotland, but over the greater part of England they were considerably higher, ranging from 80° in "England, N.E.," to 86° in "England, E.," and 87° in "England, S." The lowest of the minima, which were recorded on different days in the various districts, ranged from 34° in "Ireland, N.," and 37° in "Scotland, E.," and "England, N.W.," to 49° in "England, S.," and 52° in "England, E.," and the "Channel Islands." At the commencement of the period the minima in Scotland were very high; at Nairn and Leith the thermometer during the night of August 31—September 1 did not fall below 62°.

Rainfall has been more than the mean in "Scotland, W.," the "Midland Coys.," "England, S.," and "England, S.W.," and about equal to it in "England, N.W.;" but in all other districts it has been less than the mean value.

Bright Sunshine shows an increase in Ireland and Scotland, but a decrease over England; the percentages of the possible amount of duration varied from 15 to 30 in the "grazing districts," and from 26 to 47 in the "Wheat-producing districts."

Depressions Observed.—At the commencement of the period a depression was travelling north-eastwards outside our extreme north-western coasts, causing fresh southerly to south-westerly winds at all our western and northern stations. As this passed off, however, the anticyclone previously existing over the south-eastern parts of our area spread westwards, and by the 3d a new anticyclone had been formed over Ireland. Under these conditions the wind became light and variable, and the only depressions observed were some very shallow ones over the north of France and the south of England. Towards the end of the week pressure gave way decidedly in the west, and the disturbances in the south and south-west began partly to fill up, and the remainder to pass over our extreme western districts, while the wind returned to the southward and south-westward.

Answers to Correspondents.

* * BATH SHOW, &c.—Owing to the pressure on our space, we are obliged to defer the publishing of the report of the Bath Show, and other matters until our next issue.

BERBERIS AQUIFOLIA BERRIES: Enquirer. These berries are not poisonous, wine being sometimes made from them, which is good in flavour and of considerable strength. We have not seen preserves made from them, nor is it at all likely that it is unwholesome, if the parakeet be wholesome himself in body and judicious in mind.

BOOKS: W. R. Louden's *Trees and Shrubs*; Hemsley's *Handbook of Hardy Trees, Shrubs, and Herbaceous Plants* (Longmans & Co.).

DAMSONS: A. Henderson. They are fine fruits, and early, and if prolific your seedling has money in it.

FLOWERS IN SEASON: McLeaving. The flowers left at our office were all well-grown samples, being both strong and healthy. The Anthurium, to us, appeared like a pink variety of Scherzerianum, and was very pretty. The Cactleya is, we imagine, a white form of *Geschelliana*, and is a capital one too. The other Orchid was a very fine *Saccolabium Blumei* (perhaps majus). See figure in *Gardeners' Chronicle*, May 2, 1885, p. 573, vol. xxiii.

JUDGING AT THE CRYSTAL PALACE SHOW, SEPTEMBER 3 AND 4: A. E. The plants you name are often grown under glass, and by the wording of the schedule are not excluded from the list of plants that may be shown. Still, those collections which consisted of stove and greenhouse plants that are not used for outdoor decoration, should, we think, have had the preference; especially as you state, they were put up with great taste. The judges may have had reasons for their decision, of which others may be in ignorance.

LONDON AGENCY OF FRENCH FLORISTS: A. B. H. We know of none.

NAMES OF FRUITES: *J. Ellison*. Probably Prince of Wales or Sultan. Cannot be certain without shoots and foliage.

NAMES OF PLANTS: *T. W. R.* Probably *Cratogeomys Douglasii* from North-west America, but specimen too scrappy to be certain.—*J. Walker*. *Clitoria ternata*.—*F. O.* *Miltoia candida*, not *Ocimum*.—*R. A. W.* *Sedum Telephium*, truly wild. The fungus on *Damsons* is probably a *Puccinia*. Please send fresh specimens, packed properly, and we will endeavour to oblige you.—*A. B.* Is it a wild plant? if so, it is probably *Convolvulus soldanella*.—*Constant Reader*. 1, *Polygonum lapathifolium*; 2, *Apargia autumnalis*; 3, *Matricaria inodora*; 4, *Solanum dulcamara*; 5, *Lycinis coronaria*; 6, *Lunaria Cymbalaria*.

PLUMS: *W. L. B.* If the seedlings should prove to be prolific, they would make market sorts.

PRIMULAS AND GRUBS: *J. Eborhry*. The grubs belong to the destructive family of weevils. It is but little use to hunt for the grubs; you must catch the weevils themselves. They are wary insects, and will run into their hiding-places quickly when disturbed when feeding in the evening. By going into a house with a dark-lantern, and suddenly turning on the light, the pests are confused, and can be brushed off the plants on to a sheet, and in this way many can be collected and destroyed. Dashing boiling water under stones, and in crevices in the pits and houses, during the daytime will get rid of most; so that by following up the work of destruction from day to day you will get them under.

PROLIFEROUS ROSES: *Mrs. W. H.* Not uncommon. The end of the stem, which usually stops growing when the flower has formed, in this case has continued to grow.

ROSE: *J. S.* The flower was too withered to be recognised. It has the appearance of a cross between *Niphetos* and *Celine Forestière*.

INTELLIGENT READERS, DO PLEASE NOTE.—*Letters relating to Advertising, or to the supply of the Paper, should be addressed to the Publisher, and NOT to the Editor.*

CATALOGUES RECEIVED.

COMPAGNIE CONTINENTALE D'HORTICULTURE (J. LINDEN), Ghent, Belgium.—Catalogue of New Plants, &c.

WM. SAMSON & CO., AND W. & T. SAMSON, 8 and 10, Portland Street, Kilmarock—Roots and Plants.

WM. GORDON, 11, Cullum Street, London, E.C.—Orchids and Lilies.

DOBIE & MASON, 66, Deansgate, Manchester—Flower Roots.

CLARK, BROTHERS & CO., 65, Scotch Street, Carlisle—Charles Turner, Royal Nurseries, Slough—Bulbous Roots.

BARR & SON, 12, King Street, Covent Garden, London, W.C.—Bulbs and Plants.

SUTTON & SONS, Reading—Bulbous Flower Roots.

WEBB & SONS, Worsley, Stourbridge—Bulbs.

COMMUNICATIONS RECEIVED.—A. W. S.—G. Hansen.—U. D.—H. G. Reib. F.—J. B.—C. W.—M. Regnier.—J. E. L.—M. S.—E. J. I. L.—D. M.—G. B.—H. Corveon.—Geneva.—Robert Sydenham.—Keece.—Harris & Harris.—F. L. (next week).—X. C. L.—M. F.—A. Hemley.—A. D. W.—D. T. F.—De M.—T. W. B.—F. W. B.

DIED.—We regret to announce the death of Mrs. VIVIAN, of Singleton Park, Swansea, at the age of 85 years. She was an enthusiastic horticulturist, and during her long residence at Singleton, made the garden one of the best furnished and enjoyable in the kingdom.

Markets.

COVENT GARDEN, September 9.

TRADE for all classes of goods heavy. Prices unaltered. *James Webber*, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, ½ sieve .. 1 6 3 6	Peaches, per dozen .. 1 0 6 0
Figs, per dozen .. 0 6 0 9	Pears, per dozen .. 1 0 6 0
Grapes, per lb. .. 0 6 0 2	Pine-apples, Eng. lb. .. 2 0 4 0
Kent Cobs, per lb. .. 0 2 7 4	Plums, per cwt. .. 4 0 5 0
Lemons, per case .. 18 0 36 0	Plums, ½ sieve .. 0 2 6 0
Melons, each .. 1 0 2 0	

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, per doz. .. 4 0 0 0	Mint, green, bunch 0 4 0 0
Asparagus, each .. 0 3 0 0	Mushrooms, pint 1 6 0 0
Beans, Kidney, per doz. .. 1 0 0 0	Mustard and Cress, doz. 4 0 0 0
Beet, red, per dozen 1 2 0 0	Onions, per bushel .. 4 0 0 0
Brussels Sprouts, lb. 0 4 0 0	Parsley, dozen bunch 3 0 0 0
Carrots, per bunch .. 4 0 0 0	Potatoes, per cwt. .. 4 0 5 0
Cailliflowers, per doz. 3 0 0 0	Radishes, kidney, per cwt. 4 0 5 0
Celery, per bundle .. 1 6 0 0	Shallots, per pound .. 3 0 0 0
Cucumbers, each .. 0 2 0 0	Spinach, per bushel 5 0 0 0
Endive, per dozen .. 1 0 0 0	Turnips, per lb. .. 0 6 0 0
Herbs, per bunch .. 0 4 0 0	Turnips, bunch .. 0 6 0 0
Leeks, per bunch .. 0 2 0 0	Veget. Mar., each .. 0 3 0 0
Lettuce, per dozen .. 1 0 0 0	

POTATOS:—Kent Regents, 80s. to 90s.; Schoolmasters, 70s. Beauty of Hebron, 100s. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0 18 0	Foliage Plants, vari-
Balsams, per dozen 3 0 6 0	ous, each .. 1 2 0 0 0 0
Begonias, per dozen 6 0 12 0	Fuchsia, dozen .. 3 0 6 0
Bouvardias, doz. .. 12 0 18 0	Gladioli, 12 pots .. 6 0 0 0
Cockscombs, dozen 3 0 6 0	Hydrangeas, doz. .. 6 0 12 0
Cyperus, per dozen 4 0 12 0	Lilies, in var., doz. .. 12 0 30 0
Dracena terminalis, per dozen .. 30 0 6 0	Marguerite, Daisy, per dozen .. 6 0 12 0
—viridis, per doz. 12 0 24 0	Mignonette, per doz. 4 0 6 0
Eucalyptus, in var., per dozen .. 6 0 18 0	Myrtles, per dozen .. 6 0 12 0
Evergreens, in var., per dozen .. 6 0 24 0	Pelargoniums, doz. 6 0 12 0
Ficus elastica, each 1 6 0 0	—scarlet, per doz. 3 0 6 0
Ferns, in var., dozen 4 0 18 0	Petasas, dozen .. 1 0 6 0
	Rhodanteas, dozen .. 6 0 9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Arum Lilies, 12 blms. 4 0 6 0	Marguerites, per 12 bunches .. 3 0 6 0
Aspers, 12 bloms .. 0 2 0 4	Mignonette, 12 bun. 1 0 3 0
Bouvardias, 12 bun. 0 6 1 0	Pansies, 12 bunches 2 0 6 0
Carnations, 12 bun. 3 0 6 0	Pelargoniums, per 12 trusses .. 0 9 1 0
Corianders, 12 bun. 1 6 3 0	—scarlet, 12 bunches .. 0 9 1 0
Daisies, common, 12 bunches .. 2 0 4 0	Pyrethrums 12 bun. 2 0 4 0
Eucharis, per dozen 2 6 4 0	Rhodanteas, 12 bun. 6 0 9 0
Forget-me-Not, or Eustoma, 12 bloms 2 0 4 0	Roses, per doz. 0 9 2 0
Gardenias, 12 bloms 2 0 4 0	—red, per dozen .. 0 9 1 0
Gladioli, 12 sprays .. 1 0 2 0	—outdoor, 12 bun. 2 0 6 0
Heliopsis, 12 spr. 0 6 1 0	Stephanotis, 12 spr. 1 6 3 0
Jasmines, white, bun. 0 9 2 0	Sweet Peas, 12 bun. 1 5 3 0
Lagerania, 12 bl. 1 0 2 0	Sweet Sultan, 12 bun. 3 0 4 0
Lavender, 12 bun. 3 0 5 0	Tropaeolums, 12 bun. 1 0 2 0
Lilies, long-tubed, 12 bloms .. 4 0 6 0	Tuberose, 12 blms. 0 4 0 9

SEEDS.

LONDON: September 8.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report to-day's market steady. Trifolium and Winter Tares are in somewhat improved request at Monday's rates. There is also an inquiry for sowing Rye. Supplies of white Mustard are apparently almost exhausted. Rapeseed continues exceedingly cheap. Rather less money is taken for blue Peas; many parcels prove in bad condition. Hemp and Canoeed continue to firmly hold their own. White Millet is getting into narrow compass. In Cloverseeds no business is passing. Feeding Linseed tends downwards.

FRUITS AND VEGETABLES.

COLUMBIA (East London): Sept. 8.—This market has been well supplied with all kinds of fruit, vegetables, and Potatoes during the week, and buyers being numerous a fair trade has been done at prices as follows:—Apples, 21. 6d. to 35. 6d. per sieve; Pears, 11. 6d. to 45. 0d.; Plums, coloured, 11. 6d. to 25. 2s. per half-sieve; Green Gages, 11. 6d. to 21. 6d. per half-sieve (50 lb.); Scarlet Beans, 11. 6d. to 12. 6d. per sieve; French do., 11. 6d. to 21. 6d.; Cauliflowers, 11. 2s. to 2s. per dozen; Lettices, 9d. to 11. 6d. per score; Marrows, 2s. to 3. 6d. per tally; Cabbages, 21. 6d. to 45. 6d. do.; Turnips, 11. 6d. to 21. 6d. per dozen bunches; Carrots, 11. 6d. to 21. 6d.; Onions, 21. 6d. to 31. 6d.; Parsley, 11. 6d. to 21. 6d. do.

STRATFORD: Sept. 7.—The market has been well supplied with all kinds of produce during the past week, and with a good attendance of buyers a brisk trade was done at the following prices:—Cabbages, 21. 6d. to 31. 6d. per tally; Greens, loose, 3s. to 4s. do.; Cauliflowers, 11. 6d. to 11. 6d. per dozen; Turnips, 21. 6d. per dozen bunches; Carrots, household, 21. 6d. to 31. 6d.; Mangels, 20s. to 22s. per ton; Apples, English, 3s. to 4s. per bushel; do., American, 3s. to 6s. per barrel; Watercress, 6d. per dozen; Pears, hazel, 4s. to 45. 6d. per bushel; Plums, 21. 6d. per half bushel; Green Gages, 21. 6d. to 21. 6d. do.; Cucumbers, 6d. per dozen; Tomatoes, 11. 6d. to 11. 6d. per dozen lb.; Marrows, 6d. to 9d. per dozen; Scarlet Runners, 11. 6d. per bushel; Parsley, 11. 6d. per dozen bunches; herbs, 21. 6d. to 21. 6d. do.

POTATOS.

BOROUGH AND SPITALFIELDS: Sept. 7.—Supplies of the common and middling qualities were large and the trade dull; but prime samples were not so plentiful, and some descriptions of these were firmer. Quotations: Regents, 70s. to 95s.; Shaw, 60s. to 75s.; 11. 6d. to 11. 6d.; Magnum Bonum, 60s. to 80s.; Early Roses, 60s. to 80s.; and kidneys, 70s. to 95s. per ton.

STRAITFORD: Sept. 8.—Quotations:—Roses, 55s. to 60s.; Magnum, 60s. to 65s.; Beauty of Hebron, 50s. to 60s.; and Regents, 55s. to 60s. per ton.

COLUMBIA (East London): Sept. 8.—Quotations:—Magnum, 55s. to 70s.; Beauty of Hebron, 60s. to 70s.; and Regents, 65s. to 70s. per ton.

HAY.

WHITECHAPEL: Sept. 7.—Supplies were not quite so large as at the previous market, in consequence of the wet work, and rather a better trade at steady prices. Quotations:—Clover, prime, 90s. to 108s.; inferior, 70s. to 85s.; hay, prime, 70s. to 92s.; inferior, 30s. to 65s.; and straw, 27s. to 38s. per load.

Sept. 9.—A fair supply on sale. The trade was quiet at previous prices.

STRAITFORD: Sept. 7.—Quotations:—Hay, 80s. to 100s.; Clover, 80s. to 100s.; and straw, 30s. to 35s. per load.

CARTERS' EARLY BULBS

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To produce Beautiful White and Coloured Flowers for Christmas Decoration.

CARTERS' Earliest White Roman HYACINTHS.
The Largest Bulbs of the Year.
We do not keep a Second Size.
Per 100, 15s.; per dozen, 1s. 3d.

CARTERS' Double Roman NARCISSUS.
Per 100, 10s. 6d.; per dozen, 11. 6d.

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Per 100, 10s. 6d.; per dozen, 11. 6d.

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Per 100, 4s. 6d.; per dozen, 5d.

CARTERS' Extra Large SNOWDROPS.
Per 100, 3s. 6d.; per dozen, 6d.

ALL PARCELS CARRIAGE FREE.

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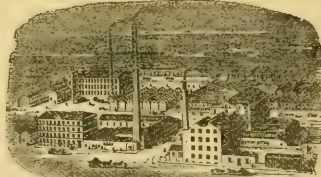
Ladies are at liberty to change any goods for others preferred within seven days, and should not fail to see our large box of Autumn and Winter patterns, post free.

As worn by H. R. H. the Princess of Wales, invite Ladies in any part of the world to send DIRECT to Trust for Patterns, post free, of their new makes for the Autumn and Winter Season, which embraces every variety of material a lady can possibly desire, and of which the *Daily News* says:—

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The fineness of the wool of which they are composed—English Wool, be it understood—imparts the admirable quality of draping in those soft folds now so essential from the point of view of fashion.

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"Having examined The 'RECORD OF WAGES' paid by you, we hereby certify that the number of workpeople employed in the PRODUCTION of YOUR MANUFACTURES was on August 13, 1886,

ONE THOUSAND AND TWENTY-SIX.
—MONKHOUSE, GODDARD & Co., Chartered Accountants, Middlesbrough and London, August 16, 1886."

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The *Daily Telegraph*, of August 20, 1886, in a Leading Article, states:—"Tomato growers in the Channel Islands seem in a fair way of making fortunes. There is no doubt the time is near when the market will be as well supplied with Tomatoes all the year round as Cucumbers."

THE GUERNSEY AND JERSEY FRUIT AND PRODUCE COMPANY, LIMITED.

Registered under the Joint Stock Companies' Acts, 1862 to 1883, whereby the liability of the Shareholders is limited to the amount of their Shares.

CAPITAL £20,000, IN 4,000 SHARES OF £5 EACH.

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MANAGER—HENRY DE JERSEY.

SECRETARY—EDWARD OXENFORD PRESTON.

THE GUERNSEY AND JERSEY FRUIT AND PRODUCE COMPANY (LIMITED) has been established for the purpose of Growing Fruit and the Produce generally of the Channel Islands, and also for Receiving such Produce from Growers and Supplying the same direct to Consumers and Retail Establishments. The Trade has hitherto been almost entirely in the hands of private growers, except two local companies which have paid their shareholders from 12 to 30 per cent. dividends, and is well known to be of a most profitable character.

The Directors with confidence recommend the operations of this Company, for which there is a fine opening, as an unusually safe and remunerative investment—safe, because nearly the whole of the Company's capital is being invested in first-class land in Guernsey, and Glasshouses for the Cultivation of Grapes, Melons, Tomatoes, Beans, and other Choice Fruits, which are supplied from the Channel Islands into England.

The property of the Company will increase in value with the growth of the Vines.

As showing the Profits derived from dealing in Fruit and Garden Produce of the Channel Islands, the Directors are informed one of the two Companies in Guernsey has paid its Shareholders dividends at the following rates:—

1880, 10 per cent.	} Extensive building operations took place during these years.
1881, 11 " "	
1882, 9½ " "	
1883, 15 " "	
1884, 20 " "	

The only other Vinery Company which commenced operations recently has paid its Shareholders 12 per cent.

Applications for Shares, stating number required, can be made to the Secretary of the Guernsey and Jersey Fruit and Produce Company, 4, Tokenhouse Buildings, Bank of England, London, E.C.; or to the Company's Bankers. Prospectuses and any information desired will be supplied on application.

Upon a fair estimate, the Directors anticipate a dividend of at least 10 to 12 per cent. on the year's sales.

The Sales of Tomatoes from one house only, for the week ending August 7, amounted to a quarter of a ton. The Directors have erected on the Company's Estate, to secure the coming winter crops, which prove very remunerative, the following:—

One 200 feet House.	Six 200 feet House.	One 180 feet House.
Two ditto.	Seven ditto.	Two ditto.
Three ditto.	Eight ditto.	Three ditto.
Four ditto.	Nine ditto.	Four ditto.
Five ditto.	Ten ditto.	Large Vinery, 45 feet wide.

Total, fourteen long Span Glasshouses and large Vinery, making a total of about 50,000 square feet of Glass.

The *Horticultural Times*, June 30 refers to the Company as follows:—

"The development of Market Gardening in the Channel Islands has often been dealt with by us, and we are glad to learn that efforts are being made to still further prove what, under high culture, the land will produce. The Guernsey and Jersey Fruit and Produce Company is a striking example of this. Incorporated only last February—when its estate did not contain a single glasshouse—it has now 50,000 square feet of glass erected! Having as local manager one of the most successful growers in Guernsey, with economical management, half the capital only called up, and nearly the whole of the capital invested in freehold land and houses, and of progressing value, this venture will, we predict, succeed. It has started in the right spot, under the right management, and is raising the right sort of produce. As we write, we have specimens of the Company's first Tomato consignment before us—grown without heat—and we can vouch for their excellent quality. Colour and size are almost perfect."

H. B. MAY is now offering the above, which is one of the greatest novelties of the season. The Plant is dwarf and compact in habit; the fronds beautifully branched and crested, and the variegation very distinct. It is one of the most lovely FERNS ever offered. Has been awarded First class Certificates by the Royal Horticultural and Royal Botanic Societies.

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COARSE SILVER SAND, 12. 9d. per bushel; 15s. per half
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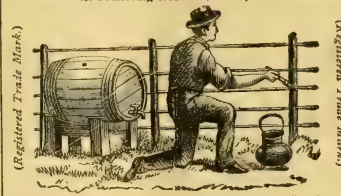
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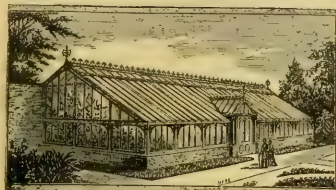
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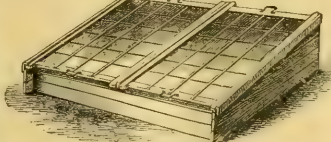
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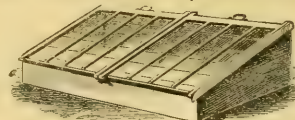
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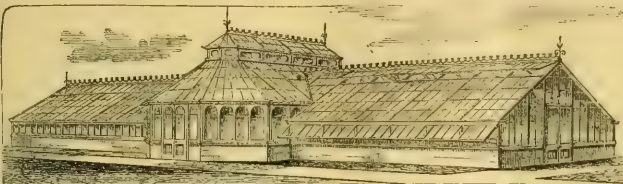
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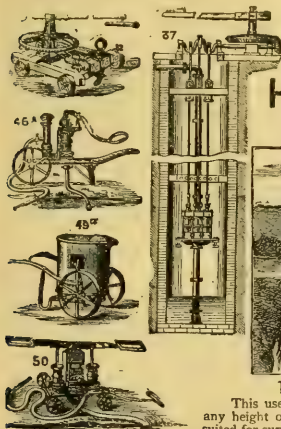
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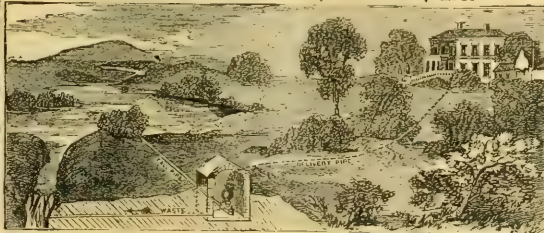
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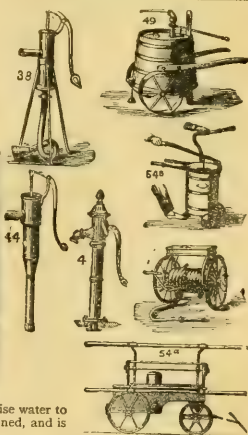
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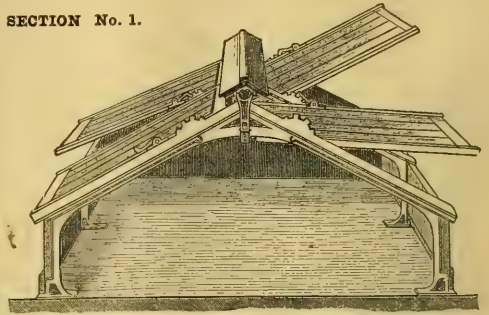
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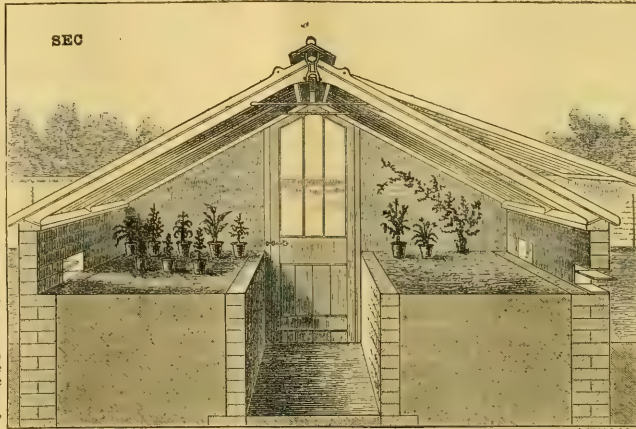
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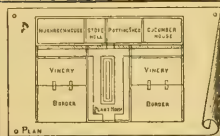
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From Mr. WILLIAM FOX, Gar-
dener to His Grace the
Duke of Devonshire, Holker
Gardens, Carke-in-Cartmel,
Carnforth, June 28, 1884.

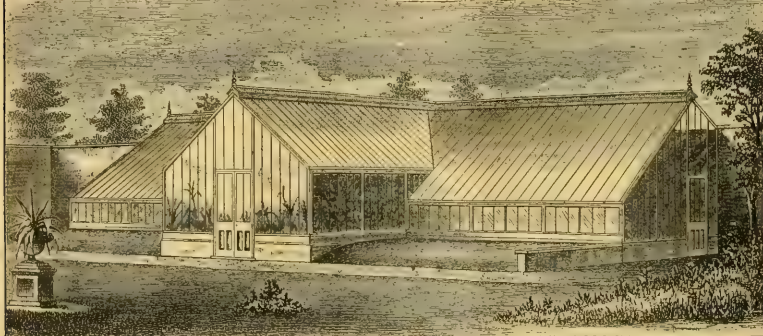
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and having taken a little time to
test them, I am pleased to say
they are very satisfactory. En-
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the Duke's agent, Mr. Drewry.
I am, yours truly,
"WILLIAM FOX."

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sent me.
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Established 1841.

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Volume XXV., JANUARY to JUNE, 1886.

W. RICHARDS, 41, Wellington Street, Strand, W.C.

THE GARDENERS' CHRONICLE

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MR. THOS. NEALE is again instructed by Messrs. J. & W. Neale, of Stapleford, to **SELL**, by AUCTION, on land which they have sold to be cleared at Christmas, also plants on other portions of their grounds being surplus stock, on **THURSDAY**, September 23, at 10 o'clock, a most valuable and extensive COLLECTION of ORNAMENTAL TREES, SHRUBS, CONIFERS and FRUIT TREES, consisting of 400 Golden Queens, Silver Queens, and Mitocora Hollies, from 2 to 8 feet, including many remarkably fine specimens, and some fine plants of Water, 300 Golden Yews from 1 to 4 feet high, 400 Golden Yews, also Portugal and other Laurels, English Yews, Thujaopsis, Aucuba, Cryptomeria, Cupressus, Thuja, fine specimen Cedar Deodoras, Retinospora, Cedrus, and Pyramidalis, Pyramidalis, and a great variety of miscellaneuous Shrubs, &c. The whole in splendid condition for removal, having been frequently transplanted. The place of Sale is situated within ten minutes' walk from the Sandiaca and Stapleford Station, on the Erewash Valley Railway.

Descriptive Catalogues may be had on application by post or otherwise to the Auctioneers, Wheeler Gate, Nottingham; and of Messrs. FRETTEINGHAM AND SON, Bromley House, Nottingham; and the Stand Arcade, Derby; and at the Nurseries, Stapleford.

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CLIMBING PLANTS in great profusion and variety and a select collection of Herbaceous and Alpine plants.

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In lots suitable to all classes of buyers.

The Stock in the above Sale among the finest in the trade. Catalogues will be ready ten days prior to the Sale, and may be had at the place of Sale or of the Auctioneer, Wirksworth.

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GREAT DUTCH BULB SALES.

MESSRS. PROTHEROE AND MORRIS will **SELL**, by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every **MONDAY, THURSDAY, and SATURDAY**, at half-past 10 o'clock precisely each day, extensive consignments of **HYACINTHS, TULIPS, CRUCIFERUS, NARCISSUS, and other BULBS** from Holland, in excellent quality, and fitted to suit the Trade and Private Buyers. On view from morning till evening, and on application had.

The Celebrated Fernfield (Bride of Allan) COLLECTION of ESTABLISHED ORCHIDS, formed during the past thirty years, the whole of which are in the best possible condition.

For Sale, by order of Mr. Paterson, entirely without reserve.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Dr. Paterson, to **SELL**, by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **TUESDAY and WEDNESDAY**, September 27 and 28, at half-past 10 o'clock, his entire COLLECTION of ESTABLISHED ORCHIDS. The plants are in the most luxuriant health, and amongst them may be found the following:—

Lycaste Skinnerii alba
Corydalis Gardeniarum, very fine plant
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" *purpurata* alba
" *superbissima*
" *Ferrarii* alba
" *Cypripedium* Dominionum
" *villosum*
" *Dayanum*
" *Angulosa* Glovettii, grand plant
" *argentea* chrysanthemum, virens
" *Saccolabium* gemmatum
" *Aedon* suavis
" *Reichenbachii*
" *Cattleya* Trianae, magnificent variety
" *Miltonia* Morelanae alba-robusta
" *Cattleya* Trianae Symii
" *alba*
" *crinitata*, autumn flowering
" *Dendrobium* thyrsoideum
" *kerianum*
" *Ainsworthii*
" *Griffithianum*
" *nobile* carlesculense
" *Vanda* Cathartii
" *Sanderiana*
" *suavis*, Dr. Paterson's
" *tricolor*, variety
" *Cymbidium* Lowianum
" *giganteum*
" *Odontoglossum* Alexandræ
" *large* plants and fine varieties
" *Carolinianum*
" *Karwinskii*
" *Uro-Kinierii*

On view morning of Sale, and Catalogues had.

N.B.—Messrs. P. & M. beg to announce that this valuable collection is being sold in its entirety, no plants having been disposed of privately.

Friday Next.

ODONTOGLOSSUM RAMOSISSIMUM.
ODONTOGLOSSUM PARVUM.
MAXILLARIA GRANDIFLORA.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to **SELL**, by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY**, September 25, at half-past 10 o'clock precisely, a fine importation of the rare and beautiful **ODONTOGLOSSUM RAMOSISSIMUM**. The variety now offered is the largest meeting one seen, and is profusely covered with white and deep violet-spotted flowers, and has most choice varieties which will be found amongst them. Also the scarce **ODONTOGLOSSUM PARVUM**. This is the first time for many years that this lovely Odontoglossum has been offered to the public. Together with a grand lot of the fine variety **MAXILLARIA GRANDIFLORA** (the largest-flowered variety, sepals and petals pure white, and rounded lobes with a very dark crimson), a fine lot of **DENDROBIUM DEAREI**, **CRIPEDIDUM CILIOLORE**, and many other valuable ORCHIDS.

On view morning of Sale, and Catalogues had.

Saturday Next.—Walthamstow.

SALE OF WELL-GROWN WINTER-BLOOMING HEATHS AND OTHER PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Preston to **SELL**, by AUCTION, on the Premises, The Nursery, Elm Road, Whippa Cross, Walthamstow (five minutes' walk from Wood Street Station), on **SATURDAY** NEXT, September 25, at 12 o'clock precisely, 2000 Winter-blooming **HEATHS**, 2000 **EPACRIS**, of the choicest kinds; 2000 **GEMISTA FRAGRANS**, a fine specimen **CAMELLIAS**, 500 **AZALEA INDICA**, 500 **SOLANUMS**, full of berries; large **ROSES**, and many other **PLANTS** of fine quality.

May be viewed two days prior to Sale. Catalogues may be had on the Premises; and of the Auctioneers, 67 and 68, Cheapside, E.C., and Leyton.

Flowering Orchids.—Special Sale.

MESSRS. PROTHEROE AND MORRIS beg to announce that their NEXT SPECIAL SALE of the above, will take place on **TUESDAY**, September 28, for which they will be glad to RECEIVE NOTICE of **ENTRIES** as soon as possible.

Hereford

In Liquidation. The Cranston Nursery and Seed Company, Limited.

NINE DAYS' SALE.

GREAT UNRESERVED CLEARANCE SALE of the whole of the well-grown **NURSERY STOCK**, now in splendid condition, and extending over 20 acres of ground, being one of the largest Auctions held for many years. Important to the Trade and others largely engaged in

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Liquidator to **SELL**, by AUCTION, on the Premises, The King's Arms, near Hereford, on **MONDAY**, October 4, and eight following days, at 12 o'clock precisely each day, the whole of the unusually well-grown **NURSERY STOCK**, which has been carefully prepared for removal, and is now in excellent and thriving condition. For an idea of its magnitude, the following items may be mentioned:—

Enormous quantities of Conifers, including splendid specimens from 6 to 20 feet in height, and thousands of younger plants.

11,000 standard Ornamental Trees, consisting of:
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100,000 2-yr. seedling Ash and Oak

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7,000 Aucubas of sorts

4,000 English Yews, various sizes

2,500 Hollies of sorts

16,000 Laurels (common, Camassian, colchica, and rotundifolia varieties)

11,500 Evergreen and Ornamental Shrubs

10,000 Deciduous and Flowering Shrubs

Standard and Dwarf Roses, and other Stocks

May be viewed any day (Sunday excepted) prior to the Sale. Catalogues may be had on the Premises, or of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C., and Leyton.

N.B.—Purchasers can arrange with the Manager, at the Nurseries, to have their lots lifted and conveyed to the Hereford, where goods may be despatched to any part of the country without charge of truck.

Forthcoming Sales

NURSERY STOCK.

Important to Gentlemen and the Trade intending to Plant during the coming Season.

MESSRS. PROTHEROE AND MORRIS beg to announce that they have fixed the following

Sales in addition to those advertised above:—

OCTOBER 5, at the UPPER TOOTING PARK NURSERIES, Upper Tooting Park, S.W., by order of Mr. C. Young.

OCTOBER 13 and 14, at the ELVASTON NURSERIES, Borrowash, Derby, by order of Messrs. Barron & Son.

OCTOBER 15, at the WOOD LAKE NURSERY, Isleworth, by order of Messrs. C. Lee & Son.

OCTOBER 19, at the NURSERIES, Kilburn, by order of Mr. J. B. Goubert.

OCTOBER 20, 21, 22, at the AINGER NURSERIES, Cambridge, by order of Mrs. Tredgett.

OCTOBER 20 and 21, at the NURSERIES, Brixton, by order of Messrs. Ponsford & Son.

OCTOBER 26, 27, and 28, at the HORSELL NURSERIES, Woking, by order of Messrs. H. and C. Cobbett.

OCTOBER 27 and 28, Two Days' Sale at the AMERICAN NURSERIES, Leytonstone.

NOVEMBER 2 and 3, at the NURSERIES, Groombridge, by order of Mr. Hollabury.

NOVEMBER 2, at the HALE FARM NURSERIES, Tottenham, by order of Mr. T. Ware.

NOVEMBER 4, at the BOWER and LINC NURSERIES, Maidstone, by order of Messrs. Frost & Sons.

NOVEMBER 5, at the HOUNSLOW HEATH NURSERY, Feltham, by order of Messrs. Chas. Lee & Son.

NOVEMBER 9 and 10, at the ROYAL NURSERIES, Ascot, by order of Messrs. Stanish & Co.

Other Sales are in course of being fixed, and will be duly announced.

Catalogues free by post of Messrs. Protheroe & Morris, Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Catalogues.—Important Notice.

MESSRS. PROTHEROE AND MORRIS have compiled permanent Lists of those to whom their Catalogues are forwarded regularly, which enables them to bring before the notice of probable Buyers all classes of Sales.

Gentlemen wishing to have their names entered on these Lists are requested to send them, with a note of their particular requirements, when Catalogues will be posted free of charge.

Central Auction Rooms and Estate Offices, 67 and 68, Cheapside, E.C.

Bulbs—Bulbs—Bulbs.

MR. J. C. STEVENS will **SELL**, by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every **MONDAY, WEDNESDAY, and SATURDAY**, first-class Bulbs from Holland, fitted to suit all Buyers.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 725.)

300 fine plants of **AZALEA INDICA**, and 700 **A. MOELLIS** well set with buds, from Ghent; 50 **GARDENIAS**, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY** NEXT, September 22.

On view morning of Sale and Catalogues had.

TO BE DISPOSED OF AT ONCE a **FLORIST'S and FRUITERS' BUSINESS**, Good chance for an energetic man. Near Railway Station. Good Cemetery.

FLORIST, 60, Gibbon Road, Nunhead, S.E.

TO BE DISPOSED OF, with immediate possession, a **SEED and FLORIST BUSINESS**, situated in a populous Market Town within 30 miles of London, consisting of a well-fitted Shop, a Greenhouse, a Stabling, Houses, Warehouse, Sheds, &c., and a moderate quantity of Land. Lease twenty-one years. Well stocked, and in thorough going order. To be sold by private contract.

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FOR SALE, on easy terms, a Small Freehold DWELLING HOUSE, 10 Rooms, a Stabling, Granary, and other Out-buildings; Four Glass Houses, large Garden, Orchard, and Paddock. Now a Florist's; in all about 20 acres, 12 miles from London. Apply to the owner, **T. DEAN**, 2, York Villas, Twickenham.

TO BE DISPOSED OF THE LEASE, GOODWILL, GREENHOUSE, TENANT'S FIXTURES, and STOCK in TRADE of an Old-established NURSERY, Seedsmen's, Florist's, and Jobbing Business. Main road, S.W. In same family over fifty years. Part of purchase-money may remain.

M. R., Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

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TO BE SOLD, solely on account of ill-health, the old-established business of **NURSERY and SEEDSMAN**, as carried on by Mr. W. Wright for the past thirty years. The Shop situated in the Market Square, Reftord, really good Agricultural and Garden Seed Trade, and is worked at a very small expense. The Land (17½ Acres), about five minutes' walk from the Shop, is worked part for Nursery, and part for Market Gardening. The Nursery Stock is General, such as Roses, Laurels, Yews, Holly, Box, &c. A considerable portion of the land is sown and worked with Cereals, for which it is very suitable, and my Celery, both Seed and Plants, command a ready sale. The above will be sold together, or separately if necessary.

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The CORPORATION are prepared to receive TENDERS for PLANTING with TREES and SHRUBS a portion of the New Park on the Holderness Road, Hull.

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Town Hall, Hull, September 28, 1886.

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larly the Tulips, Hyacinths, and Narcissi,
have been greatly admired, and I have had
a display of beautiful flowers from before
Christmas until now (February 23). At the
same time I wish to thank you for the careful
choice of the beautiful bulbs sent in your col-
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THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 18, 1886.

MISTAKES IN GARDENING.

AT the Bath Floral Fête, September 1, Mr.
Shirley Hibberd, at the request of the
Managing Committee, gave a brief address on
"Mistakes in Gardening."

He said, in the few observations the title of
his discourse suggested, he should not include
a single word on any matter of taste. He
would speak of what are commonly understood
as practical matters, for although on the subject
of taste he might know where to begin, he felt
fully satisfied he should never know where to
leave off. So, coming to practical matters, he
would say, that as in tailoring a man must cut
his coat according to his cloth, so in gardening
the best work was to be accomplished by
making the best use of the materials at com-
mand. It was not to be questioned that the
worst use was often made of the materials, and
then gardening came to be described as a tire-
some and costly process of obtaining a dis-
appointment. Between what one would like
and what is possible there was often a great
gulf fixed, and one of the very first steps to
success in gardening consisted in recognising
the capacities of a place, and taking the fullest
advantage of them. To enter into conflict with
Nature is a serious business, and therefore it is
a folly to speculate largely in the cultivation of
subjects that are not adapted to the conditions
at our command. It should be understood
that it is not possible to grow to perfection on
the same soil a great number of diverse
genera of plants; a calcareous soil will not
suit American plants; a hot, sandy soil
will not suit show Roses; a heavy clay is
a dreadful thing for alpine, and to get Aspa-
ragus from it is not an easy matter. To a
certain extent gardening is a conflict with
Nature from first to last, and the fact may be
adduced as an argument in favour of softening
the outlines of the conflict by every possible
opportunity. To alter the character of the
staple soil was in many cases impossible; in
others it was a slow, laborious, and costly
business; therefore it was always best to begin
by humouring Nature; selecting for the garden
plants likely to thrive without any special aids
or contrivances. A familiar example of the
difficulty of modifying the original conditions
was seen in plantations of Rhododendrons in
places where soil and climate were alike unsuit-
able, the result being a rapid deterioration of
the trees from the beauty they had when
planted fresh from their beds of peat in a
country nursery, to miserable scarecrows not
good enough for the dressing of a Jack-in-the-
Green on the First of May. If the making of a
soil for a special purpose can ever be justified
at all, the Rhododendron can offer as good a
justification as any ornamental plants known to
our gardens. But in truth, many such justifica-
tions may be found, and the man who can
afford to gratify his whims may accomplish
wonderful things verging on the impossible.
But we see people who cannot afford to engage

in great conflicts making grievous and costly mistakes in doing certain things badly, when other things quite as well worth doing are as clearly at command as the present moment and the ground we stand upon. Many amateurs who love gardening attempt too much, and spread their energies over too large a surface; the result being imperfect work and superficial enjoyment. Substantial enjoyment and perfect satisfaction can only be hoped for as the result of doing things well, and with a view always, to use Greeley's words, to "beat the best record." It is a key to sure success to measure first the range of capabilities, and, this being accomplished, it will be more creditable, and therefore more enjoyable, to make the best of these than to engage in conflicts and dally with difficulties. The resources of nature are so vast and various that wherever gardening is possible abundant entertainment and a reasonable range of profit may be secured by simply planting things that are the most likely to thrive, and leaving untouched, for a time at least, all doubtful subjects. There are sandy and loamy soils of such a kindly character that almost anything we plant will thrive upon them; but, generally speaking, every place has some peculiarities, and if unsuited for some things we should like may be admirably suited for some other things equally interesting and useful.

A common source of mistakes in gardening is the failure to forecast results. It is in picturing clearly the far-off effect of present work that the genius of the true landscape gardener is made evident. He sees the sapling tree as it comes to his hand for planting, and he at the same time sees it as it will be in twenty, thirty, or fifty years, and he sees his groups and combinations fully developed even at the moment of designing them, and thus it is that when he is dead and gone his work remains a living and a glorious monument. Now, many amateurs who love their gardens, and possess an immensity of knowledge of horticulture, fail in this necessary forecasting, and the beautiful pictures they make by means of costly planting develop into incongruities and absurdities, and the mistakes are declared when it is too late to remedy them. I will take you to a garden here and a garden there—for there are thousands of such as I have now in my mind's eye—and I will ask you if downright folly ever wore more beautiful features, or more plainly declared that the way the thing was done was the very way not to do it. Here we see Pines, Firs, Cedars, Spruces, and deciduous trees of many kinds, that when originally planted presented a most delightful stippling of many colours and sweet combinations of form, now jumbled in a confusion that confounds the planter, and compels one to groan aloud in a spoiled paradise, where sounds of joy only should be heard. How painful it is to see a lofty Picea or Pinus that has grown with vigour, and would have been a marvel of beauty under better circumstances, now eaten into by a forward Spruce, or threatened with extinction by an overtopping Sequoia that is itself hemmed in by a suffocating surrounding of Deodars, Yews, and Cypresses! This sort of mistake is repeated in every variety of form throughout the country, and is attributable in the first instance to deficient judgment of future effect; and in the next place to lack of courage in sacrificing many trees of secondary value in order to save the noblest, the rarest, and the most interesting.

And the mention of coniferous trees reminds me of the frequency of mistakes in planting them where they are not only unlikely to thrive, but certain to perish. We may see spacious approaches, that might have been noble if planted with deciduous trees, made hideous with Conifers that in their dinginess and distress seem lost in the cold calculation of the length of years allotted them. An impartial

looker-on might unhesitatingly condemn such as bad firewood, or take the tops for cheap Christmas trees, but the owners of such things appear always to be of a hopeful disposition, and expect the branches to return that Nature has removed for ever, not knowing that coniferous trees are of very limited elasticity, and do not renew their youth when decrepitude has come upon them, as often happens with deciduous trees. The Deodar, or the Yew, or the giant Holly that seals up all the windows of a house and makes pestilence in the family by excluding sunshine and air, we will not talk about, for it is not a mistake in gardening, it is an absurdity of a more dreadful nature, and belongs to the agencies—and there are many such—that blight the world and destroy life. These stifiers, however, illustrate in the most forcible manner the necessity of considering when we plant a tree what sort of thing it is likely to become in the course of a few years.

The needless conflict with Nature in which men often delight when they take to gardening is seen in the mismanagement of things. They plant fruit trees, perhaps, and if they would but leave them alone Nature would be kind and give them fruit. But they must do something, and so they pinch the trees several times in the summer, and prune them severely in the winter, and perhaps root prune occasionally when the trees have none too many roots, and the end of it is that get no fruit at all, or so little that its value will scarcely pay for the sharpening of the instruments of torture. The chopping, and shaving, and bleeding, and distorting of fruit trees to make them fruitful may be said to have had its day. Certainly I have seen some good result from my preachings on the subject ten years ago, and I expect to see much more yet, for the loudest advocates of the repressive system are beginning to believe in Nature a little, and they see that it is more profitable to allow the trees to produce fruit in their own way, than to ensure a crop by purchasing the fruit and tying it on. What is true of fruit trees is true of Roses, and many more good things that people insist on doing too much for, as though Nature had nothing to do with the production of flowers and fruits. One reason why standard Roses die in gardens is that they are too severely pruned, and the powerful Brier stock of which their stems consist must either be allowed to grow with vigour, or must give up an existence when it has become a mere oppression. If all the pruning knives and all the cutting and clipping machines that are used in gardens were completely abolished, Nature would assert herself in the free and bounteous growth of vegetation, and an abundant harvest of benefits for the sustenance and comfort and spiritual help of man; for as compared with any one tree that is pruned in a reasonable manner ten thousand are mangled into ugly barrenness, and their owners cry out that gardening is unprofitable. When Naaman was told to wash seven times he became an emblem of man in conflict with Nature. The simple course prescribed for his cure was too simple, for it meant that cleanliness is our best protection against disease. He "thought," he said, the prophet would engage in an elaborate performance to effect a cure, but the washing was a despicable proceeding—it was a too direct appeal to the renewing powers of Nature.

An illustration, both of the failure to forecast results and the tendency to attempt impossibilities, is seen in many gardens where the fruit trees overtop the walls. The essence of the case is that the walls are not tall enough for the trees, and the knife is freely used to effect a balance between them. For a time the balance is very poorly maintained by the cruel employment of coercion, the best growth the trees make being systematically shortened back to effect the accommodation. But this is for a

time only. If the trees thrive they will endeavour to assert themselves; in place of clean rods, rising direct towards the sky, they will throw up a thicket of spray along the top line of the wall, and look over to see if there is any help at hand. While this goes on, the growth on the top line being periodically harried by the gardener's knife, the trees will be found to bear less and less fruit, and to cast off occasionally the best-placed of their lower branches. There are many miles of respectable garden walls, or walls that might be respectable, in this plight, the consequence simply of injudicious planting, as though by the word of command a tall grenadier could roll himself up within a lady's reticule. It comes to nothing to say that walls cost money, because to make bad use of them for the butchery of trees that would be useful if reasonably treated is simply to waste the money expended, or at least to waste the opportunity for employing them usefully. Walls that are too short for Plums and Pears may be tall enough for Nectarines and Morello Cherries. Walls that are too short for these last may still be tall enough for Gooseberries, and Currants, and Tomatoes. And walls that are too short for these last may pay their rent by sheltering early Potatoes. Let us have proportion in gardening, and avoid complaining loudly of failures we have invited. The last man who should complain of having lost his head is he who willingly placed it in the lion's mouth.

The pivot on which we seem to turn in this kind of blundering is the notion that the knife is a remedial agent. Generally speaking it is an exasperating agent, making bad worse, thwarting rather than suppressing Nature, and effectual only in whittling away the foundations of our prosperity in gardening. Wall trees are of necessity systematically pruned, and more or less severely trained; and because of this all the natural growth that can be allowed consistently with the proper working out of the system should be not only allowed but encouraged. In a great garden, where the walls suffice for the needs of the trees, we see them, generally speaking, grandly developed, in the best of health, and wondrously fruitful. It is in the garden where false economy requires a short wall to do the work of one thrice the height that we find trees that grow too much at top and too little at bottom; and that not only produce little fruit, but are vexatiously prolific in the production of vermin.

Having mentioned vermin, I am reminded of the plagues of Egypt, all of them consequent on Pharaoh's hardness of heart. It often appears to me that Pharaoh has been fished out of the Red Sea, and galvanised into an amateur gardener, for this interesting gentleman governs the Land of Goshen much as Pharaoh did, with great ability and spirit; and yet he so often tempts Providence that the plagues follow and endeavour to consume him. He plants Roses and Hollyhocks amidst overshadowing trees, and in places so sheltered and snug that no unkind breath can reach them. The result is, that a garden intended for flowers becomes a sort of hotbed for mildew, and the sulphur merchant is applied to in aid of plants that are simply perishing for want of air. I am satisfied, by years of critical observation, that the plagues of our gardens are in a great measure the proper consequences of our practices; and we are convicted of inconsistency and inhospitality that we are so mean as to curse the guests whom we have taken pains to invite. Many of the casualties with which we have to reckon are beyond our control, and are true calamities, no doubt; but air and water are needed in vastly greater proportions by plants than our customary economy acknowledges, and sure I am that Roses and Hollyhocks have been and are very badly treated in respect of these primary necessities. The moulds and mildews and the insect enemies, in great measure, are

favoured by processes of starving and suffocating within doors and without, and if you will make a few comparisons between gardens that are clean and gardens that are dirty you will find that the differences chiefly consist in the proportions of air and water. You will say we cannot take our close town gardens into the breezy country, and to that I must respond in the affirmative. But I may add that the more unfavourable the circumstances the greater the need for forethought and for the observance of proportion. We see in gardens of smallish dimensions all kinds of things doing badly on the boundary borders that would thrive joyously if planted in the very centre of the ground, to obtain a maximum of air and sunshine and a fair share of every falling shower. "We want the centre for our games," you say. Yes, but that does not necessitate crowding the borders with plants that can never prosper except in the fullest light and with all the heavenly breezes playing about them.

Mistakes in gardening will occur so long as the art is known to man, and the ablest gardeners will make mistakes, and will often learn from them more than they learn from their successes. But, for all that, successes are much to be desired, and if they do not bring material advantage they gratify the mind and confirm the wisdom of the adage, that what is worth doing is worth doing well.

AMATEUR BULB DEALERS.

IN our number for August 28, p. 279, a correspondent called attention to a method of doing business adopted by a dealer in a Midland town, and whose name was not given, and alluded to the practice of offering a discount of 10 per cent. to gardeners. This communication brought us a very courteous letter from a firm of lawyers at Birmingham, who, at the request of their client, Mr. Robert Sydenham, enclosed the subjoined communication from him.

We learn also from that Mr. Sydenham is a gentleman of high repute, that anything he avers may be relied on, and that his firm is in a large way of business as wholesale jewellers and merchants, and occupies extensive premises built by themselves for the purpose of these businesses. This is Mr. Sydenham's letter:—

"AMATEUR BULB DEALERS.

"My attention has been called to an article in your issue of the 28th ultimo, headed as above and initialed 'D,' and which evidently refers to me, and is being freely commented upon by the local traders in bulbs, and is likely to do me and my firm serious injury unless the innuendos therein contained are publicly contradicted and withdrawn. If the writer wants to know anything respecting me or the capacity and extent of my business premises, he can make inquiry, and he will find that I have more than ample premises to carry on two, three, or more businesses if I think fit to embark in them, and which I have a perfect right to do, notwithstanding any objection by others to the contrary. If you had read my circular, which I contend you ought to have done before you permitted the article in question to be inserted, you would have found, that I am not dealing in bulbs merely for 'private gain.'

"The allowance of 10 per cent. discount to 'Gardeners and large buyers' is no new feature in my dealings in bulbs. I deny that my prices are 20 per cent. in excess of other retail dealers in Dutch Bulbs. I have several lists of other houses before me, and on comparison find that my quoted prices are much lower than any of the retail traders, therefore, it is a gross libel upon me to say, that any gardener dealing with me 'must cause his employer to pay 20 per cent higher prices than he would be called upon to pay recognised dealers.'

"I must therefore call upon you, in your next issue, to retract and withdraw the objectionable and unwarrantable remarks you have made reflecting upon me and my character, and to apologise for having so made them, and to publish this letter.

"I am, Yours truly,

"BIRMINGHAM, September 8, 1886. ROBERT SYDENHAM.

"P.S. I send you a copy of my circular of 1885, and also of this year. You will see I undertake, under certain circumstances to replace bulbs, which do not flower satisfactorily. This in itself would entitle me to charge a higher price if I thought fit, and having been in business here for fifteen years, my guarantee and undertaking is good enough for the public."

To this we add, though Mr. Sydenham does not ask us to do so, a copy of his printed circular for 1886, and a copy of a written document which was for-

warded to us by the correspondent to whose remarks Mr. Sydenham objects. For any possible error of fact in our correspondent "D's" statement we must express our regret, but we may state our opinion that the practice of offering discount to gardeners is open to objection, and we may say that from trade-lists before us we find that some Dutch firms offer single bulbs of many varieties at considerably less price than Mr. Sydenham does for single bulbs of the same varieties.

"Tenby Street, Birmingham.

"Dear Sir,—In sending out this list of bulbs, I would have any unknown correspondents understand I am not a regular nurseryman, being a wholesale jeweller by trade, that I send out these bulbs more as a change from my ordinary business and to encourage amateurs to grow good bulbs, by supplying them with the best quality at prices which, by comparison, will be found considerably less than what is charged by the large nurserymen in this country or abroad.

"I have made bulbs my special study and hobby; this Spring I spent a long time in Holland expressly to select those varieties which threw the best spikes of bloom, and have selected only those varieties which were universally the best bloomers. I found most yellow Hyacinths uncertain, the same with purple; those named in the list are the most reliable. I was surprised how very few good double Hyacinths I saw in Holland, and could only recommend the three named in list to those who will have double ones.

"Of the varieties mentioned in the enclosed list I have made special arrangements for very large numbers of each, and obtained specially low figures as a large cash buyer. I can so far guarantee the quality of my best-named bulbs, that I will undertake to replace next year at half-price any which, with fair treatment, do not flower satisfactorily.

"For those who want cheaper bulbs I have purchased a second quality; they are what usually go to auction sales. With these, however, I can give no guarantee.

"I shall be pleased to obtain any varieties not mentioned in enclosed list at about a week's notice if ordered in any quantity.

"My friends will notice a large reduction in the prices of hundreds or other large quantities. These are sold in the original packages as they come from Holland, the smaller lots have to be carefully picked out, re-packed, labelled, hence extra cost for bags, labels, clerk's time, &c. I wish it, therefore, to be distinctly understood, I cannot sell less than the quantities named at the prices given, nor do I solicit any orders under 2s. 6d.

"I have made up three collections for those who like collections, particulars of which are on the last page, purchasers may direct their collections in any way to suit their own taste, provided the value is kept the same.

"The bulbs may be personally inspected and selected any afternoon, Saturday excepted, after 2 P.M. I cannot undertake to attend personally to my bulb customers in the mornings, having other business to attend to, but all orders received by post, I will select and execute with the same care as I would for my own planting.

"I advise all intending purchasers to order early, orders given late often prove unsatisfactory as the first buyers pick out the best.

"Having had a great deal of trouble to collect some money for bulbs sent in good faith to unknown customers last season, I must ask that the money be sent with the orders; I will give references when required, or return money if the bulbs are not perfectly satisfactory when received.

"Orders over £1 carriage paid in England; orders over £2 carriage paid to Scotland or Ireland.

"ROBERT SYDENHAM."

"For cultural instructions, &c., I refer my friends to the short pamphlet sent with this list."

The following is a copy of a written document addressed to a well-known gardener and forwarded to us:—

"Sydenham Brothers,

"Merchants and Manufacturing Jewellers,

"Tenby Street, Birmingham.

"Sir,—Ten tons in weight of bulbs, as per enclosed list, will be here about the middle of the month (August). Ten per cent., or 2s. in the pound, allowed to gardeners, and a special discount for large quantities.

"To Mr. —, Head Gardener."

— POTATOS. — According to the experiments made at Rothamsted, a summary of which is contained in the Memorandum Sheet for 1886, the yield of Potatoes (Champions) in 1885, grown on unmanured land since 1876, amounted to 1 ton 1 cwt. per acre, the average of five seasons being 1 ton 19½ cwt. The heaviest crop (4 tons 9½ cwt.) was derived from the plot to which a rich manure, comprising ammonia, superphosphate, sulphate of potash, soda, and magnesia, was applied. The average of five seasons on the same plot is 7 tons 13½ cwt.; so that there was a great deficiency. The plot to which nitrate of soda is added instead of ammonia, but otherwise the same, produced in 1885, and also on the average of five years, only a little less than the ammonia plot. The percentage of nitrogen in the tubers is also greatest in these highly manured plots.

THE HISTORY OF PLANTS.

(Continued from p. 358.)

IN taking a further step into the past, and tracing the remains of existing species of plants preserved in the strata of the earth's crust, we must necessarily leave behind all certain chronology. Without an intelligent observer and recorder there can be no definite determination of time. We can only speculate as to the period required for effecting the changes represented by the various deposits.

The peat bogs are composed entirely of plant remains belonging to the floras existing in the regions where they occur. They are mainly surface accumulations still being formed and going back to an unknown antiquity. They are subsequent to the last changes in the surface of the country, and represent the physical conditions still prevailing.

The period of great cold during which arctic ice extended far into temperate regions was not favourable to vegetable life. But in some localities we have stratified clays with plant remains later than the Glacial Epoch, yet indicating that the great cold had not then entirely disappeared. In the lacustrine beds at Holderness is found a small Birch (*Betula nana*), now limited in Great Britain to some of the mountains of Scotland, but found in the arctic regions of the Old and New World and on alpine districts in Europe, and with it *Prunus padus*, *Quercus Robur*, *Corylus Avellana*, *Alnus glutinosa*, and *Pinus sylvestris*. In the white clay beds at Bovey Tracey of the same age there occur the leaves of *Arctostaphylos Uva-Ursi*, three species of *Willow*—*viz.*, *Salix cinerea*, *S. myrtilloides*, and *S. polaris*; and in addition to our native *Betula nana*, the more familiar *B. alba*. In beds of the same age in Sweden, Nathorst has found the leaves of *Dryas octopetala* and *Salix herbacea*, this being associated with *S. polaris*. Two of these plants have been lost to our flora from the change of climate that has taken place—*viz.*, *Salix myrtilloides* and *S. polaris*; and *Betula nana* has retreated to the mountains of Scotland. Three others (*Dryas octopetala*, *Arctostaphylos Uva-Ursi*, and *Salix herbacea*) have withdrawn to the mountains of northern England, Wales, and Scotland, while the remainder are still found scattered over the country. Notwithstanding the diverse physical conditions to which these plants have been subjected, the remains preserved in these beds present no characters by which they can be distinguished from the living representatives of the species.

We meet with no further materials for careful comparison with existing species until we get beyond the great period of intense cold which immediately preceded the present order of things. The Glacial Epoch includes four periods during which the cold was intense, separated by intervals of somewhat higher temperature which are represented by the intervening sedimentary deposits. During these alternations of temperature extensive changes in the configuration of the land were taking place. The first great upheaval occurred in the early glacial period, and was followed by a considerable subsidence. A second upheaval took place late in the glacial epoch. Various estimates have been formed of the time required for this succession of climatic conditions and earth-movements. The moderate computation of Ramsay and Lyell gives to the boulder clay of the first glacial period an age of 250,000 years, estimating the time of the first upheaval as 200,000 years ago, while the subsidence took place 50,000 years later, and the second upheaval 92,000 years ago.

The sedimentary deposits later than the Pliocene strata, but older than the glacial drift, indicate an increasing severity in the climate, which reached its height in the first glacial period.

At Cromer, on the Norfolk coast, the newest of these deposits has supplied the remains of *Salix polaris*, *S. cinerea*, and *Hypnum turgescens*. This small group of plants is of great interest in connection with the history of existing species; their remains are preserved in such a manner as to permit the closest comparison with living plants. Such an examination shows that they differ from each other in no particular. In the post-glacial deposits in Sweden *Salix herbacea* is associated with *S. polaris*, as I have already stated. These two Willows are very closely related, having, indeed, been treated as the same species until Wahlenberg pointed out the characters which separated them when he established *Salix polaris* as a distinct species in 1812. One of the most obvious of the specific distinctions is the form and venation of

the leaf—a character which is, however, easily overlooked, but when once detected is found to be so constant that it enables one to distinguish without hesitation the one species from the other. The leaves of the two Willows in the Swedish bed present all the peculiarities which they possess at the present day, and the venation and form of the leaves of *S. polaris* from the pre-glacial beds of Cromer present no approach towards the peculiarities of its ally, *S. herbacea*, but exhibit them exactly as they appear in the living plant. This is the more noteworthy as the vegetative organs supply, as a rule, the least stable of the characters employed in the diagnosis of species. The single moss (*Hypnum turgesces*) is no longer included in the British flora, but is still found as an arctic and alpine species in Europe, and the pre-glacial specimens of this cellular plant differ in no respect from their living representatives.

The older beds containing the remains of existing species, which are found also at Cromer, have recently been explored with unwearied diligence and great success by Mr. Clement Reid, an officer of the Geological Survey of England. To him I am indebted for the opportunity of examining the specimens which he has found, and I have been able to assist him in some of his determinations, and to accept all of them. His collections contain sixty-one species of plants (enumerated by the lecturer) belonging to forty-six different genera, and of these forty-seven species have been identified. Slabs of clay-ironstone from the beach at Happisburgh contain leaves of Beech, Elm, Oak, and Willow. The materials, however, which have enabled Mr. Reid to record so large a number of species are the fruits or seeds which occur chiefly in mud or clay, or in the peat of the forest bed itself. The species consist mainly of water or marsh plants, and represent a somewhat colder temperature than we have in our own day, belonging, as they do, to the arctic facies of our existing flora. Only one species (*Trapa natans*) has disappeared from our islands; its fruits, which Mr. Reid found abundantly in one locality, agree with those of the plants found until recently in the lakes of Sweden.

The various physical conditions which necessarily affected these species in their frequent diffusion over large areas of the earth's surface in the course of say, 250,000 years, should have led to the production of many varieties, but the uniform testimony of the remains of this considerable pre-glacial flora, as far as the materials admit of a comparison, is that no appreciable change has taken place.

It is not my purpose to point out the bearing of these facts on any theoretical views entertained at the present day: I wish merely to place them before the members of this section as data which must be taken into account in constructing such theories, and as confirming the long established axiom that by us, at least, as workers, species must be dealt with as fix quantities. From Mr. Carruthers's presidential address to the Biological Section, British Association.

New Garden Plants.

ARISTOLOCHIA RIDICULA, *N. E. Brown*, n. sp.

THE genus *Aristolochia* is well known for the curious and fantastic forms assumed by the flowers of the different species, but none that I have seen present (to my fancy at least) so remarkable an appearance as the flowers of this novelty recently received from Mr. W. Ball of Chelsea; they are positively droll, the two lobes on the sides of the mouth of the flower forcibly reminding one of donkey's ears (see fig. 73).

This species is closely allied to *A. eriantha*, Mart., a species not yet in cultivation; the stems and leaves are almost identical, and the flowers are of the same type, but larger, and differ strikingly in the shape and position of the lobes at the mouth of the flower. In *A. eriantha* these are figured as somewhat spatulate at their tips, though they scarcely appear so in dried specimens, and spread out horizontally from the upper edge of the mouth of the flower, that is, the edge which is turned towards the stalk of the flower, the lower edge being truncate. In *A. ridicula* the lobes are not at all spatulate at the tips, and are directed upwards and backwards from the sides of the mouth of the flower, being placed near the lower edge of

the mouth, that is, near that edge of the mouth which is turned away from the stalk of the flower, and which is not truncate; the lobes are also longer, and covered with clavate hairs two-thirds of the way down, whilst in *A. eriantha* these hairs are quite confined to the tips; lastly the flowers and pedicels of *A. eriantha* are far more hairy and of a different colour.

The following is a description of the new species:—Stem climbing, terete, clothed with long horizontally spreading hairs; petioles $1\frac{1}{2}$ to 2½ inches long, terete, clothed with spreading hairs like the stem; blade of the leaf 3–4 inches long, 4–5 inches broad, orbicular or orbicular-reniform, cordate at the base, very obtusely rounded at the apex, margin entire, bright (yellowish. Ed.) green above, paler beneath, covered with short rather stiff hairs on both surfaces, and having a rather disagreeable odour. Pedicels 2½–3 inches long, and, as well as the outside of the flower, clothed with long spreading hairs, but not at all densely. The tube of the flower is from 3½–4½ inches in length, and is abruptly bent upon itself below the middle; the basal portion is much inflated, and ellipsoidal in form; the upper portion is curved inwards, a little compressed, and gradually widens towards the mouth; the colour of the tube outside is dirty-whitish, with reddish or purplish-brown veins, the basal inflated part being rather paler than the rest; inside it is whitish with the purple-brown veins showing through, and is covered throughout with white hairs. The limb is shortly revolute and entire on the upper half of the mouth, but on the sides of the lower half, that is, the part turned away from the pedicel of the flower, and which by the curvature of the tube in the position in which the flower hangs becomes the upper half, the limb is prolonged into two ascending and backwardly directed, linear-oblong obtuse lobes, with strongly revolute margins, diverging from each other at an obtuse angle. The entire limb is of a tawny colour, closely covered with dendritic dark brown-purple markings; on a cream-coloured ground; the lobes for about three-fourths of their length are sparsely covered with clavate dark purple-brown hairs. The gynostegium slightly clavate, and has six stigmas.

Introduced from Brazil by M. W. Ball. *N. E. Brown*, *Herbarium, Kew*.

CATTLEYA (LABIATA) CROCATA, *Rehb. f.*

THIS curious plant appears to be very near the *Eldorado* group, though the fine white flowers are larger, and the lip is most distinctly four-lobed. A deep orange line runs from the base of the lip to its anterior disk, where it expands into a pentagonal blotch, with teeth in front. The column, white, with some green at the base, is nearly that of *C. Eldorado*. It might be compared to a small *Cattleya Wageri*.

This plant has come under my notice three times. First I had it from the late Wallis, who said it was one of the rarest Orchids he knew of. Then Mr. F. Sander sent me a dried flower, which he, alas! wanted me to send him back. Finally, I was exceedingly pleased to receive it from the collection of Mr. Edwin G. Wrigley, once my very diligent correspondent, from Howick House, Preston, Lancashire, in the very finest condition, and far better developed than the dried flowers I had seen before. It is, indeed, very like *Cattleya E. Wallisii*, but this has sulphur-yellow arranged in another manner. I was once surprised by Mr. E. Wrigley with an inflorescence of *Phaiopsis Esmeralda*, boasting such a glorious colour as I had never seen before. *H. G. Rehb.* (It is necessary to say that this note was sent to Mr. Wrigley in April, 1883, but it has not been previously published. Ed.)

RHOPALA (SPEC.).—Mr. Thistleton Dyer, the Director of the Botanic Gardens at Kew, remarks upon this tree as follows:—"The *Rhopala* is a small contorted tree, growing to about 20 feet in height. It is remarkable for being absolutely indestructible by fire in large districts where the dry pastures and bush are burnt twice a year. Its resistance to fire enables it to exist to the exclusion of all other trees and bushes as a perfect natural plantation. The periodical burning destroys everything except this tree. The resemblance to a plantation is moreover enhanced by the circumstance that the trees never form thickets, and they are thickly and almost systematically dispersed over the land. The tree delights in the most sterile soils, but always of a stony or shingly character. Sometimes it grows in places so barren that even grass cannot exist. This suggests the idea that it may be turned to account in sterile districts within the tropics."

Orchid Notes and Gleanings.

MILTONIA PEETERSIANA CONCOLOR, *nov. var.*

MR. W. BULL has been so very kind as to send me the whole inflorescence of the plant I alluded to in my report about that novelty (p. 326). It is remarkably distinct from the original inasmuch as the sepals and petals are not quite so dark. The lip, beautiful as it is, has not those dark eye blotches bordered with white margins. *H. G. Rehb.*

ODONTOGLOSSUM ASPERSUM.

A supposed hybrid between *O. maculatum* and *O. Rossi*. It is very free flowering, with lanceolate sepals, creamy-white blotched with brown, white petals, lip also white with a yellow callus, column purplish-rose. The plant does well near the glass in a cool house. *Orchid Album*, t. 245.

CATTLEYA MOSSIE.

In the *Orchid Album*, t. 246, is figured what is taken for the typical *C. Mossie*, some of the magnificent varieties will, we are promised, be figured later on. The most important points in their culture, says Mr. Williams, are to give the plants a good season of growth after their flowering is over, and when their growth is completed to give them rest until they begin to show flowers, then they require a little help with moisture at the roots. They should not be allowed to get too dry during the resting period; the bulbs and leaves must be always kept plump and in vigorous health.

REICHENBACHIA.

The plants figured in the last part of this sumptuous periodical published by Messrs. Sander, of St. Albans, are—

Cattleya Dowiana, var. *aurea*, t. 5.—*C. Dowiana*, the type, was discovered in 1850 by Warszewicz in Costa Rica, the variety *aurea* was found by Wallis in Antioquia, Columbia, a thousand miles to the south. Nevertheless the two are obviously forms of one species. *C. Dowiana* has a shorter and darker bulb than *C. Dowiana aurea* in which latter the flower segments are entirely yellow not splashed with crimson. Both forms should be grown in baskets half filled with drainage material. The soil should consist of fibrous peat and sphagnum mixed with charcoal and potsherds. They should be shaded from strong direct sunlight, and great care bestowed in watering, little being given in the resting period, August to February. They then begin to form new growths and require a few more degrees of heat and a moister atmosphere. From February to April the night temperature should range from 60° to 65° Fahrenheit. After April the growths will be maturing, and during the three following months thin shading will be necessary on bright days. Water should then be gradually withheld. The best time to pot or basket is January.

Calcegne cristata maxima, t. 6.—The largest flowered variety of this lovely species, originally described by Lindley, and exhibited in 1841 for the first time at the rooms of the Horticultural Society in Regent Street. Other varieties mentioned are, viz. 1.—*Lemoniana*, alias *clitina*, in which the lip is pale-yellow; bolecolea, pure white; maxima, the form here figured; the Chatsworth variety and the Tretham variety differing from the type principally in size. The species is a native of Nepal and Sikkim, growing in a cool climate but fully exposed to the sun. Mr. Sander recommends that it should be grown in a cool-house except when in flower, when a higher temperature is desirable. Pots or pans (not baskets) are recommended for its culture, in order to secure sufficient moisture. When the bulbs become too crowded they should be thinned out. Potting should be done after the flowering season. Flowering season, December to March.

Odontoglossum Insleyi splendens t. 7.—The variety is a native of the mountains of Western Mexico, the essential conditions for its culture being abundance of light and sunbeats, and a distinct resting period. It should be kept quite dry from the time it flowers in autumn, until May, and at a temperature ranging from 50° Fahr. to a maximum of 65° Fahr. In May the plant will begin to grow, when it should have abundant supplies of water and all the sunlight that

can be given, so much so, that during summer no shading is required. It may be grown either in pots or baskets.

Lælia Euphatha, t. 8. — In growth the plant resembles *L. purpurata*, but the form of the flower is more like that of *L. elegans*, while in colour it differs from both. It should be grown, says Mr. Sander, under the same conditions as *L. purpurata*. Pot culture suits it best, and the plant must be potted high, the pot being nearly filled with crocks and charcoal. It should never be allowed to become dry, but requires most water in the growing period; abun-

placed the pots containing the plants near the glass in a low span-roofed house; the temperature is rather lower than the Cattleya-house, but higher than is usually given to cool Orchids. The plants are rooting well over the rims of the pots, and are throwing up strong flower-spikes. There are now so many Mexican Orchids requiring similar treatment to these *Barkerias* that it would be easy to fill a good-sized house with interesting and showy species and varieties, such as *Lælia anceps*, *L. autumnalis*, *L. majalis*, *L. purpurata*, &c. They scarcely require any shade, but demand plenty of light and heat by day, with a quite cool night temperature. The lovely *Barkeria*

tinct species. Mr. Sander told me that the habitat of *L. elegans* has been well searched, and nearly all the large specimens have been sent over. Certainly never were such large specimens seen in England as there are now in various nurseries and private gardens. J. D.

CULTURAL BOTANY.

[THE following observations by Professor Bessey were addressed to agriculturists, but they apply even more forcibly to gardening. ED.] :—

Permit me now to discuss directly the question, "What are the demands made by agriculture upon the science of botany?"

NOMENCLATURE AND CLASSIFICATION.

It demands of it a nomenclature and a classification of the plants of the farm, including not only the cultivated plants, but all those which, in one way or another, are of interest to the cultivator. I say it demands such a nomenclature and classification, but how far is this demand honoured? How much does ordinary botany do in furnishing nomenclature and classification for Wheat, Oats, and Indian Corn; for Apples, Pears, Peaches, and Cherries; for our Roses, Geraniums, and Verbenas,—in fact, for all the plants which have run into many varieties? What the student learns as to a specimen of Wheat, for example, is that its name is *Triticum vulgare*, and that it is a member of the order Gramineæ. In the proper botany of the schools there is absolutely nothing further furnished as to nomenclature, and little more as to classification. It is the same with Indian Corn. The student may have in hand Pop-corn, Sweet-corn, Flint-corn, Dent-corn, and even Husk-corn, and yet the science of botany gives him but one name—each one is ticketed "*Zea* mays, of the order Gramineæ. So it is with every other cultivated plant.

Now, I ask, is this an adequate nomenclature? Is it, in fact, worth our while to study botany if this is all it can do for agriculture? I put my query in this form because some people still hold that the supplying of a nomenclature and classification is the great purpose of botanical study in so far as it is related to agriculture.

I hold that it is the duty of the botanists to furnish a classification and a nomenclature to agriculture, and I look with great interest upon the efforts which have been made by botanists here and there to classify and name the varieties of some of the cultivated plants. The attempt by Professor Beal to classify the Apples by taking into account the floral characters, and the later attempt by Dr. Sturtevant to work out a classification of Indian Corn, are efforts in the right direction. It is said by some that the consideration of cultivated plants lies outside of the domain of botany. But, if botany is the science of plants, how can a plant ever, by any amount of variation, pass beyond its domain? Who shall say that science must stop at this or that line? Can the mere accident of modification through cultivation take a plant out of the botanist's jurisdiction, when modification through what we term natural agencies does not? All plants, in all states and under all conditions, should legitimately be included within the domain of botany.

VEGETABLE PHYSIOLOGY.

Agriculture demands of botany a knowledge of the physiology of the plants of the farm. It demands, first of all, that science shall throw light upon the processes of growth and nutrition. Every question concerned with the taking of food by the plant, the method of using it, its effect upon the stem, leaf, and fruit, must be answered by botany, if it is to command the respect of the practical men of the agricultural world. A great part of the success of the agriculturist is dependent upon the perfect growth and nutrition of the plants he cultivates. And his success is greater the more closely he is enabled to bring about and maintain those conditions which are most favourable to such growth and nutrition. But how can he intelligently work for these conditions if he does not know them? And how can he know them if the very science which professes to include the study of all plants can give him no aid?

Any presentation of botany which leaves out a full discussion of the growth and nutrition of plants, in so far as it fails of being useful to the agriculturist.

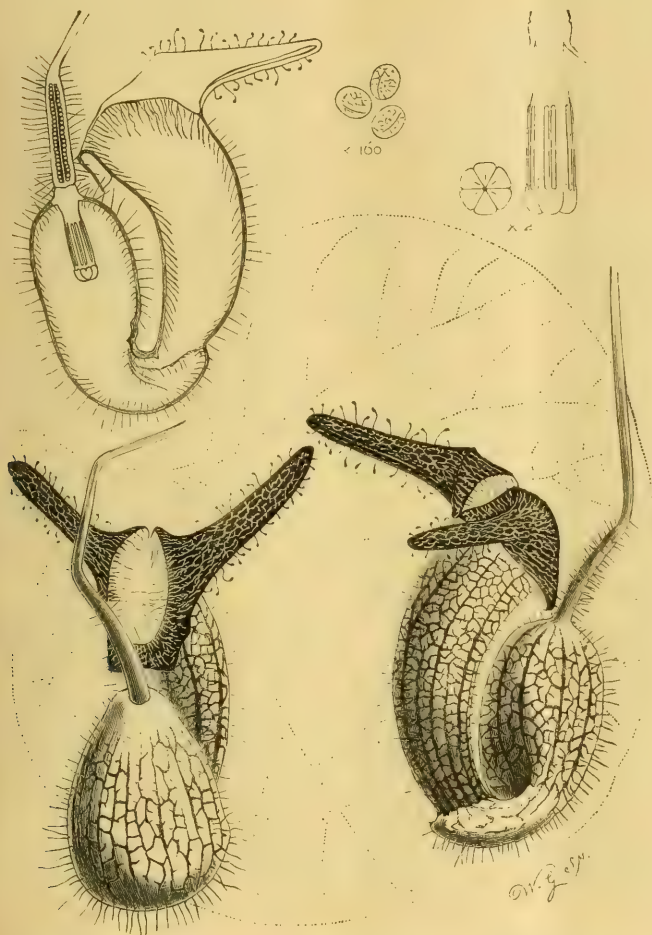


FIG. 73.—*ARISTOLOCHIA RIDICULA*. FLOWERS CREAM-COLOURED, WITH DULL PURPLISH-BROWN RETICULATION. (SEE P. 360.)

dance of light and a temperature which should not fall below 60° Fahr.

The plates in this number are of even superior artistic merit to those in the former part, the botanical details, including the woodcut analyses of the flower, are by Prof. Reichenbach, while the cultural directions emanate from Mr. Sander. This statement is alone sufficient to guarantee the value of this superb publication.

BARKERIA ELEGANS.

In the garden of Walter Cobb, Esq., Silverdale Lodge, Sydenham, this handsome species is making most vigorous development, and promises a fine display about Christmas. Mr. Catt seems to have hit upon the right treatment for them; he has

spectabilis is seldom seen in such great beauty as it used to be some thirty years ago. We now know the treatment these plants require, and when they receive it we do not find any difficulty in keeping them up to the flowering point.

The true *Lælia elegans alba* is also flowering freely in Mr. Cobb's garden; it is a lovely variety of the species which should be grown in every collection. The recent large importations of *Lælia elegans* have produced some very fine varieties, and amongst them a good sprinkling of the variety *alba*. The sepals and petals are of the purest white, lip rich crimson-purple. The true *L. elegans* Wolstenholme and the variety *Turneri* are scarce. I am not aware that either of these have been recently imported. Mr. Williams, in his *Orchid Grower's Manual*, describes six forms besides the normal species, but makes *Turneri* a dis-

Then there is the whole subject of reproduction, which is of great importance and value to the agriculturist in these days when our agricultural literature is filled with discussions upon fertilisation, cross-breeding, heredity, &c. Botany must present these topics with as much of clearness as possible. Every full course of study in botany should include a particular discussion of the mechanism of fertilisation in its widest sense. Modern agriculture demands satisfactory answers to the questions,—How are the cultivated plants naturally fertilised? How can their fertilisation be controlled? How can cross-fertilisation be effected? What are the laws of hybridisation? In how many instances can the teacher of botany give a reply to these queries? I fear that the agriculturist in quest of knowledge upon these botanical points will have to turn sadly away from most of the lecture-rooms and botanical laboratories of our colleges.

So, too, the discussion of everything pertaining to the germination of seeds falls properly within the domain of botany. There are few things more important than that of germination; but, excepting a short and summary discussion—and withal a very general one—but little attention is given to the subject in ordinary courses of study in colleges.

Last under this head I would call attention to the need of a study and discussion of the physiology of the cultivation and improvement of plants. What is it that takes place in the structure of a plant when we bring it under cultivation? What are the differences between a wild plant and the same plant under domestication? How do the changes due to cultivation arise? What laws control these changes? Is there a limit to these changes? These are a few of the questions which agriculture is asking of botany, but which, alas! are not as yet satisfactorily answered.

VEGETABLE PATHOLOGY.

In the third place, agriculture demands of botany a knowledge of the pathology of vegetation. It is not enough that the normal action of all parts of the plant should be understood; the abnormal and diseased actions must also be considered. Unfortunately the world is full of accidents, of noisome gases, of poisonous liquids, of freezing or scorching temperatures, of harmful insects, and of destructive fungi. The plant which is more or less affected by one or all of these is not the normal plant of the vegetable physiologist. The vegetable pathologist must build his science upon that of his fellow-worker in vegetable physiology, and the results of the labour of both must be laid before modern agriculture for its use. That botany which hopes to satisfy the demands of the advanced agriculturist of to-day must include a knowledge of pathology. *Charles E. Bessey*, in the "Proceedings of the Society for the Promotion of Agricultural Science."

COLONIAL NOTES.

AN AUSTRALIAN BEAUTY SPOT.

LIKE MR. G. A. Sala and other visitors to the metropolis of New South Wales, Dr. Taylor, Editor of *Science Gossip*, seems to have become quite enamoured of the Sydney Botanical Gardens, so long under the direction of Mr. Charles Moore, the brother of the late Dr. Moore, of Glasnevin. He says—"There are many trees of special note growing in the grounds, the principal of which, perhaps is a magnificent Norfolk Island Pine (*Araucaria excelsa*)—a tree very abundant in the larger gardens and shrubberies of nearly all Australian towns. There are also fine specimens of the well-known Australian Proteaceous plant, *Grevillea robusta*—perhaps the largest and most attractive of this singular order. *Meryta*, with their broad and showy foliage, the Maidenhair-leaved *Salisburia* from Japan (a coniferous tree, which has been in existence ever since the carboniferous period), the singular *Mauritania* Palm, the Bloodwood of Norfolk Island (*Balgolia lucida*), the Osage-Orange of America (*Maclura aurantiaca*), the Moreton Bay Chestnut (*Castanopsis saligna*), the tree, with its deep green foliage and bright scarlet flowers, the Tulip-woods of Eastern Australia (*Harpallia pendula*), the *Randia macrophylla* from Lord Howe Island, besides Bananas, Bamboos, multitudes of species of Palms, New Zealand, Cabbage-trees, *Dombeyas*, *Pterocarpus*, *Nepheles* from China, *Elaeocarpus* from India, *Brexiaria* from Madagascar, *Lactarias* from the Queensland bush, sacred and other Fig-trees from India, *Sciadophyllum* from New Guinea, *Elaeodendron* from Norfolk Island, *Cycads* and *Zamia*, *Strelitzias* from the Cape, a vast number of species of Pines, *Erythrina*s, from the West Indies (just bursting into their singular

scarlet blossom), and many others too numerous but not too unimportant to mention unless in a botanical inventory—make up the diversified and wonderfully combined arboreal foliage with which the diversified surface of these beautiful gardens is clothed. Floral parterres and patches are gay with flowers, whose manifold colours offer a rich feast to the eye. The rocks and rocky places are covered with the grotesque forms of *Cactuses* and *Aloes*. Climbing plants from all parts of the world have been trained to clamber up and festoon trees and shrubs of a less conspicuous character. All that botanical and horticultural art and skill can do, combined with perhaps the most picturesque situation in the world and a most delightful climate, have made the Sydney gardens a place worth coming to the antipodes to see."

HEDGES, USEFUL AND ORNAMENTAL.

MANY species of plants have from time to time been recommended for the purpose of forming hedges, and some species have been mentioned which will hardly be found to be suitable for the object in view, such as the Hazel, the Willow, and even the common Elder—all rapidly growing plants it is true, but not adapted to the purpose. Really suitable plants for this purpose, although not numerous, are yet sufficiently so to furnish a choice of material. Hedges may be divided into two sections, viz., the really useful hedge or fence, which will act as a protection to fields or enclosures against the inroads of stock of all kinds, and also the least likely to be injured by ground game, while ornamental hedges or screens may be formed of various species, chiefly evergreen, which may not possess the strength required in a field hedge.

THE QUICK.

For a really useful fence the Whitethorn must be admitted to be the most widely distributed and universally adopted plant for this purpose, and is far from being destitute of beauty; taken altogether, there is possibly only one species which can be recommended in preference to it, and that is the common Holly. But as regards the Whitethorn (*Crataegus oxyacantha*) it very speedily forms an effective fence, and is a plant which readily submits to harsh treatment; indeed, the usual method of planting the Whitethorn in the form of a hedge is certainly open to considerable objections, viz., the chopping off the tops of the plants and the planting of the roots upon the side of a dry sloping bank, formed by the throwing out of a ditch or dike, in front of the hedge about to be planted.

The throwing up of the excavated soil, however, is an advantage rather than otherwise, as tending to give increased depth of soil; and the formation of a ditch acts to some extent as a protection to the young plants, on one side at least. But instead of planting the denuded roots of the "Quicks," as they are termed, on the sloping face of the bank they should, in their entirety be planted on the levelled surface of the soil, deferring the heaving down of the plants until the spring of the second season. Where this plan is followed an efficient fence will generally be secured in a much shorter time than will be the case when the operation of planting than first described is practised. But whatever method of planting is followed protection against game and stock should be given for the first two or three years, after that the plants will usually not require it.

THE HOLLY.

The plant next in importance as a hedge plant is the common Holly, and it may hardly be justifiable to place this plant as second to the Whitethorn, which possesses only one advantage over the Holly, viz., that of being cheaper. But in many respects the Holly surpasses the Whitethorn as a hedge plant. It has the advantage of being evergreen. And if healthy plants of fair dimension are used for the purpose, say, not less than 3 feet high, the Holly will form a fence quite as soon as the Whitethorn, and will be equally effective and enduring. It also affords an admirable shelter to stock in winter, or at a time when the Whitethorn fails to do so, and were Holly hedges to some extent substituted for those of the Whitethorn, the aspect of the landscape would without doubt be improved, more particularly during winter, and at all seasons a well-formed Holly hedge is an object of great beauty.

Hedges, whether composed of the Holly or the Whitethorn, or other species of plant, are often in-

jured by forest trees being planted in them, and which, as soon as they attain to considerable dimensions, render a portion of the hedge on each side of them weak and ineffective, while the shade thrown by the crown, as well as the action of their roots, tend to injure the crops in their vicinity, so that it is quite possible that the practice of planting large growing trees in hedgerows might with advantage be discontinued, at least on arable land. The advocates of this practice argue that such trees, in the course of time become valuable as timber, and grow into money; on the other hand, it may be questioned if this value is not more than covered by the injury they have inflicted during many years upon corn and other crops. A writer in a contemporary recommended the planting of Pear trees in hedgerows, but the value of fruit in this country is not now such as to warrant the employment of the Pear as a hedgerow tree, and for various obvious reasons this recommendation is unlikely to be extensively followed.

It has been said that hedgerow trees tend to give beauty and effect to the landscape; but it may be doubted, if trees, however ornamental they may be, when necessarily planted in stiff and straight lines, add greatly to the beauty of the landscape; while this desideratum, as well as the desired shelter to stock, might be better secured by the planting of a few suitable trees in clumps in the corners, or at the junction of three or four fields, as well as in the case of large enclosures in groups or clumps in suitable situations, so as to secure shelter, as well as with the view of producing desired effects—effects in the landscape.

SCOTCH PINE AND SPRUCE.

In some parts of the Eastern Counties of England, where the soil is of an exceedingly light character, it is found that the Whitethorn can hardly be induced to form a fence, and in many instances the common Scotch Fir (*Pinus sylvestris*) has been largely used for this purpose, and is found to answer the purpose tolerably well for a time, when it mostly loses its lower branches, and becomes unserviceable as a fence; while the common Spruce, where it has been tried, is found to succeed very much better than the Scotch Fir; it submits better to the operation of clipping or trimming; in fact, this operation appears to assist the plants in retaining their lower branches and foliage, and forms a by no means despicable evergreen fence.

BEECH.

The common Beech (*Fagus sylvatica*) forms also an excellent fence; the plants when grown in this form have the valuable property of retaining their withered leaves throughout the winter and early spring, or until they are displaced by the new, so that a high Beech hedge—and this may be grown to any desired height—is of very great value as a shelter during winter to comparatively tender plants, as well as to live stock in the fields, but is not taken advantage of for the latter purpose so frequently as might be the case. The young wood of the Beech is liable during the summer to the attacks of a species of aphid peculiar to it, and this is a very great drawback to its merits as a hedge plant. It is said, however, that the purple-leaved variety, viz., *Fagus sylvatica atropurpurea*, is found to be exempt from this pest, and if so, this renders the purple variety still more valuable as an ornamental plant for hedges, or as a standard tree.

THE FUZZ.

The common Fuzz, although indigenous to Great Britain, is nevertheless far from being hardy, and is not infrequently killed to the surface of the earth in severe winters. In some parts of the South of England, particularly when near to the sea, this rarely takes place, and the Whin forms an excellent and enduring evergreen fence which can be cut with impunity into any desired form.

As has already been said, the Holly proves an inestimable plant in the formation of hedges intended to resist farming stock of all kinds, as well as to afford shelter to the same during inclement weather. It also forms a most ornamental hedge, or screen, to separate or to conceal certain portions of pleasure grounds, &c., from others where this may be desirable. It also submits without injury to clipping, and may be trained into any desired form, and be kept as a dwarf hedge, or can be made to grow, in a comparatively short time, to any desired height; but in cutting or trimming a Holly hedge it is better to use

the knife than the hedge-shears, as the latter implement mutilates the leaves, and for a time disfigures the hedge.

THE YEW.

The common Yew is the plant most generally used for the purpose of forming ornamental hedges in gardens and pleasure grounds, and no more suitable plant for this purpose can possibly be found; it may be cut into any desired form, and seldom loses its lower branches, or becomes thin at the bottom, as is the case with some species of plants when forming hedges. Its development cannot be said to be very rapid, but when a Yew hedge is established it may almost be said to be everlasting, and its rich dark shade of green distinguishes it from all other species of plants, and renders it exceedingly suitable for the purpose it is so generally used. Among seedlings of this plant considerable diversity will frequently be found in their habit of growth. Some plants will be found to be of spreading habit, while others will be found more or less fastigiated, or approaching the habit of the Irish variety, *Taxus fastigiata*; hence in selecting plants for the formation of a hedge it is desirable that they should to some extent be uniform in their growth or habit, so that spreading as well as fastigiated plants should be rejected. The Yew in all its varieties being a deadly poison to stock it should never be planted where such are likely to gain access to it.

ARBOR VITÆ.

Many varieties of the Arbor-vitæ are found to form exceedingly beautiful hedges or screens, hardly inferior to the Yew, although of a lighter shade of colour, which may in some instances be desirable rather than otherwise, while such plants have generally the advantage of more rapid development. Among this family of plants possibly none are better adapted to the purpose than *Thuia Lobbiæ* and *T. plicata Warreana* var., which soon form exceedingly beautiful hedges, which can be cut or clipped into any form with impunity. *Thuia occidentalis* and *Thuiopsis borealis* need not be despised as hedge plants.

LAURELS.

The common Laurel (*Cerasus Lauro Cerasus*) is a native of the Levant, and somewhat tender, and although frequently used for the purpose of forming hedges, can hardly be recommended, as it seldom escapes serious injury during severe winters. The Portugal Laurel is more hardy, and altogether better suited to the purpose of forming ornamental hedges.

BOX, SWEET BRIER, &c.

The Tree Box (*Buxus arborescens*), as is well known, forms very pretty hedges, as does also several distinct species or varieties of the Box, such as *B. rotundifolia*, &c. The Sweet Brier (*Rosa rubiginosa*) forms a very pretty dwarf hedge, which, on account of its perfume, is generally appreciated; and there are also many of our hybrid perpetual and other Roses which form very attractive hedges. The common Privet (*Ligustrum vulgare*) and *L. ovalifolium* very quickly form neat and pretty hedges, more particularly the latter, on account of its finer foliage; while as a hedge plant in close proximity to the sea, which is unfavourable to the development of most species, the *Tamarix gallica* and *T. germanica* are well suited for this purpose; both species are exceedingly beautiful. For the purpose of producing an immediate effect, or to conceal an unsightly object, plants of the Lombardy Poplar (*Populus fastigiata*) arranged in the form of a hedge will speedily effect the desired object, until the same can be accomplished by an evergreen or other more permanent fence, but which requires a longer time to attain to the necessary dimensions.

Hedges may, of course, be trained into various forms, but possibly the best form for a Whitethorn hedge is that of the hog's mane, that is, wide at the bottom, tapering towards the top. Hedges in gardens and pleasure grounds will generally present the most ornamental aspect when formed in what may be called the perpendicular style, or in the form of a wall, but in no instance should hedges be allowed to become wider at the top than at the bottom, as this invariably tends to weaken the lower portion of the hedge, which it is so desirable to maintain in a robust and healthy condition. Early autumn is without doubt the best season in which to clip or trim hedges; if this cannot then be accomplished, it should be deferred until spring, but on no account should an evergreen hedge be cut during winter.

Nothing has as yet been said respecting soil, but as regards all the plants which have been named as suitable for the formation of hedges, it may be said that they will succeed in any tolerably good soil, and as a rule it may even be said the better the soil the more satisfactory will be the progress of the plants. But where the natural soil is decidedly poor, it will

in all cases be advisable to enrich it by the addition of suitable compost, or even well decomposed manure. P. G.

FRUIT NOTES.

AMERICAN PEACHES.

My experience of Alexander from the inspection of a goodly number of gardens, agrees with Mr. Douglas's, namely, that it is perfectly amenable to early forcing. Exquisite Mr. Douglas cites as a variety needing artificial fertilisation; this also corresponds with my experience; for, together with Raymacker's and Prince of Wales, the blossoms need careful going over with a fine brush, or else the yield will be very scanty. The current year seems to be a very good one for Peaches out-of-doors. The following are perhaps the hardiest varieties:—Waterloo, Hale's Early, Early Ascot, Marquis of Downshire, Dymond, Stirling Castle, Birrington, Sea Eagle, Téton de Venus, Frogmore Golden, Desse Tardive, Walburton Admirable. *Vagabond*.

PEACH CONDOR.

I find this a most useful variety to follow up Hale's Early in the early Peach-house, as it fills up a blank between that variety and the Royal George. I have grown it several years, and therefore can speak highly of its good qualities for forcing and as a free setter. The fruit is of large size, bright crimson, and of a piquant and rich flavour. *Edward Ward, Hensall Gardens, Bromsgrove.*

PEACHES ALEXANDER AND AMSDEN JUNE.

Mr. Douglas's experience with these varieties tempts me to ask if he will kindly state the difference between them. I have young trees planted on a wall that have fruited for the past two seasons, and I fail to see much difference. That other American novelty, the Waterloo, ripens a few days earlier, is larger, and equal in colour and flavour. Alexander and Amsden I have no experience with indoors, but a young tree of Waterloo planted in our second early house twelve months ago last November has this season borne a crop of eighty-seven handsome fruits much larger than I expected. The tree has made exceptionally good wood, so that I have every reason to expect an excellent crop next year. *H. Markham, Mereworth Castle.*

HINTS ON ORCHID CULTURE.

AN interesting paper on this subject was read lately by Mr. Wm. Swan, of Howick, Preston, at a meeting held under the auspices of the Preston and Fulwood Horticultural Society.

Mr. Swan, in introducing the subject, alluded to Orchids being a class of plants that invariably give pleasure to all who had the privilege of gazing upon them when gay with rich and showy blossom; after which he said that it was no wonder there was a desire for fuller and more extended acquaintance with such a lovely race of plants. The strange forms, the singular method of growth, the gorgeous and attractive flowers, the sweet and fragrant odour of so many of the species, all combined to make the study of Orchidaceous plants a charming and fascinating pursuit. Proceeding, he dwelt upon their culture being formerly confined to a few wealthy patrons, whilst to-day, through the enterprise of leading nurserymen, those with limited means were able to purchase and cultivate them; named the high prices that had been given for some varieties, and spoke of the foreign lands in which they had been found, and whence they had been imported.

ORCHID HOUSES.

In noticing the class of houses in which the plants should be grown he admitted that fine specimens had been grown for years in lean-to houses or half-spans, and that good plants had come from Pine pits; but for all practical purposes, whether East Indian plants, Dendrobiums, Cattleyas, or Odontoglossums, there was nothing in his judgment to compare with low span-roofed houses. Perhaps in some situations a north house might be preferred for the Odontoglossums; but in that district the amount of sunlight a house so situated received during November, December, January, and February, when the plants were making growth, was so small that the benefit derived was lost owing to the reduced sunshine and lowered temperature during summer. The dimensions of the house would necessarily be

regulated by the number of plants intended to be grown. As a commencement, a house 50 feet long by 18 feet wide, 10 feet high in the centre, with a middle stage 6 feet wide, side tables 3 feet wide surrounding it, with walks, with a glass division in the centre, would be found convenient for such things as Vandas, Aerides, Phalenopsis, Dendrobiums, &c., in one portion, and Cattleyas, Laelias, Cologneys, Epidendrums, many of the Oncidiums, and others requiring a lower temperature, in the other. A span-roof house 30 feet long, 10 feet wide, 7 feet high to the ridge, with side tables 3 feet 6 inches wide, and a path up the middle, would be very serviceable for such cool species as Odontoglossum Alexandræ, O. Pescatorei, O. triumphans Hallii, Oncidium seriatum, O. macranthum, O. Aëmulum, most of the Masdevallias and Restrepas, as well as the beautiful Dendrobium Jamesianum and Disa grandiflora. The stages should not be open lattice work, for plants standing upon such stages were directly over the hot-water pipes, and so when fireheat was necessary the air about the plants was of a dry and ungenial nature, injurious to the plants so far as growth was concerned. These conditions were also most congenial to the development of insect life. He advocated that stages be covered with plain roofing slates, with an edging along the front and back about 2 inches high, upon which should be spread about 1½ inch of cinder, sifted or washed, so that all the fine dust was separated, or ordinary furnace coke broken small. The latter was excellent, as it held considerable moisture when watered, and took a long time to become covered with green mossy conifers that was so unpleasant to see in their heated structures. It also formed a better under-surface to the plants than the dazzling white spar so often used. He considered the spar very objectionable in stoves; it retained little water, and plants always presented a more sickly hue when on a white ground than one of a darker colour. Again, no white soil was ever met with, hence it was against natural conditions and the well-being of the plants. In fixing the side stages a space of 2 inches should be allowed between the back and the inside of the wall, so as to leave room for the free circulation of the air, and to permit the heat from the pipes to be distributed more equally over all the house. There should always be sufficient hot water pipes in the houses to keep the divisions at the desired temperatures without severely driving the fires, and they should be 6 inches at least from the floor. The heat would ascend more rapidly because of a free circulation of air about the pipes, and the moisture under the stages would not dry up so quickly as when the pipes were very low. It was wise to have roller-blinds fixed on the top ridge if the ventilators would permit, or if not then just below the opening lights. This tiffany or a light open material should be used, the object in shading being not to exclude sunlight, but reduce the intensity of its rays. They must occasionally shade their plants or they would have to mourn over scalded leaves, which disfigured the plants for months, and in some instances a longer period. By fastening strips of wood 3 or 4 inches wide, at about every third light for the blinds to run on, the shading was just above the glass. This allowed a current of air to be always moving between the blind and roof, which tended to keep the houses cool, and prevented the air getting so dry as it otherwise would do. He deprecated the constant use of blinds, it being surprising how much sunshine would benefit the majority of plants.

The quantity of water they should give and the degree of humidity they should strive to attain, were details to be left very much to the judgment and discretion of the operator, who should be guided by the class of house with which he had to deal. It should be remembered that when the plants were in active growth a good share of water was needed for each. Where the house was devoted to Orchids alone, good dampings down were necessary twice, and in very hot weather thrice during the day. The plants when growing needed water often, but the surroundings should be kept damp and moistened rather than that the soil should be wet and soddened.

POTTING.

Potting required care and forethought. The pots and crocks should be clean. In crocking, the pieces should be placed as upright as possible, leaving open spaces for the quicker passing of the water, as well as for the entrance of fresh air to the roots. Some well-burnt charcoal might be safely used among the crocks, and

some pieces might be used in the peat and moss. The grower who had charge of the plants ought to crouch, or superintend the crouching, so that he could be guided as to the amount of water plants required. The best time for potting the majority of epiphyllal Orchids was doubtless early spring—February, March, and April; but many plants might be potted much later. A good guide in this respect was the condition of the plant; if the resting period were passed, and new roots were just beginning to push away, and it was necessary that a shift should be given, then was the time to do it. As many commenced growing early in the season, and others much later, it was wise to take each in turn according to the condition and state of the individual. For the greater number of the species good fibrous peat and clean sphagnum moss were the best ingredients to use; the *Cattleyas*, *Lælias*, &c., should be treated to a larger quantity of peat than some others; whilst the East India plants succeeded best when potted in sphagnum only. For some of the strong-growing sorts—*Calanthe*, *Sorbalis*, *Peristeria*, *Thunia*, and *Phaius*—good fibrous loam mixed in moss, sand, and charcoal formed a compost helpful in bringing about the most satisfactory results. This genera so treated should be placed just below the rim of the pot. Those potted in peat and moss should be fixed an inch or two above the rim, according to the dimension of the specimens; but the rhizome and base of the bulbs must always be above the potting material.

CATTELYAS, &c.

Perhaps the most showy group of Orchids and those that could be grown with success were the *Lælias* and *Cattleyas*. Each in their own department were rich in colour, and distinct in the form and marking of the flowers, presenting great distinctness in their appearance and growth. The course of treatment adopted with one would not command success with another. They would not err if they were used for the tall growing kinds, and pans or baskets for the dwarfier varieties. The latter were best when hung near the glass. Stout bulbous species might be grown in baskets in perfect safety. *Dowiana*, *gigas*, &c., revelled in more heat than the majority of *Cattleyas*; they enjoyed a stronger sunlight with an atmosphere much drier than was experienced by those on the tables or stages. *Cattleya Mossiae*, *Trianae*, *Warneri*, *Gaskelliana*, *Mendellii*, *Lælia purpurata*, *Elegans*, &c., should always have abundance of light. In winter they should have a night temperature of 55°, rising to 60° in the day, with a rise of 5° more by sun-heat; in the growing season, and throughout summer, 65° to 70° by night, with a rise by sun-heat to 85° or 90°, or even a higher reading. Plenty of air should be given, and every endeavour made in summer to induce a quick and sturdy growth, so that the bulbs might be thoroughly plump and matured ere winter sets in. Those that have not quite finished up their bulbs should be carefully tended as regards water. It was wise to hang newly imported pieces in a rather shady position, without any soil or material attached. They should be syringed frequently. By this treatment the plants plumped up their bulbs and gradually assumed a greener colour, roots pushed out along the rhizome and at the base of the previous season's bulb, and they might confidently expect new growths. When the breaks had appeared, and before the roots attained a length that endangered their safety in handling, the plants should be potted well up in the centre of the pot, and placed by themselves so as to be under the eye of the grower, that he may see every advance and stage of progress. It was preferable, for many reasons, to purchase large masses.

DENDROBES.

Another section—*Dendrobiums*—differ from the foregoing because they mostly flower along the bulbs, and brought the blooms in clusters or pendulous racemes. Having noticed the extreme growths of these Mr. Swan said if colour and display were sought after this genus, which was easily managed, might be so grown that many species in one year would produce most brilliant effects. The colours and forms were as various as it was possible to conceive, with markings as clear and distinct as the most fastidious could desire. To secure success with this group a decided period of growth and of rest must be attended to, the former for the perfect development of growths and leaves, the latter for the maturing of the bulbs and the formation of the blossoms. In potting, let the pots be only just

sufficient to hold the plants, with no excess of material, for a continued damp soil had a tendency to cause the roots to decay, especially if the plants were over-watered during the rest season. When the plants commenced to grow in early spring the heat of an ordinary stove should be given—60° to 65° at night, rising to 75° and 80°, with a rise of 5° more by sun-heat. Such temperature might be given with safety during summer with a good share of water at the roots and a syringing overhead on bright days, morning and afternoon. When the growth was finished in the autumn lessen the quantity of water, cease the syringing, and by the lowering of temperature, encourage rest and the ripening of the bulbs.

During the resting period a night temperature of 45° to 50° was quite sufficient for the majority, rising to 55° in the daytime. Those forms having small bulbs and of a light substance should not be kept too dry, as many were liable to shrivel and die away before any apparent change had taken place in them. With regard to East Indian plants some of the smaller sorts should be grown in baskets and hung up near the glass. The *Phalænopsis* are best so grown. They should be all hung near together in a shadier part of the house. The taller kinds, *Vandas* and *Acridies*, were best when grown in perforated pots, for that being their most natural condition, the roots were not so liable to decay as when they were in ordinary pots. With the exception of a few species, the whole of the *Saccolabiums*, *Vandas*, *Acridies*, &c., required the temperature of the East India house—a night temperature in winter of 55° and 60° to 65° in the daytime, and in summer, 70° at night, rising to 85° and 90° in the day. Whilst the plants were growing, abundance of water must be used in the house, not so much to keep the contents of the pots saturated with moisture, as that the surroundings might be kept damp and the atmosphere charged with humidity.

ODONTOGLOSSUMS.

Perhaps the most popular Orchid of the day, and one that could be obtained at a cheap rate, was the chaste and lovely *Odontoglossum Alexandræ*. It required little heat in winter, and none whatever during summer and autumn, in a light house with cool dark surfaces for the plants to stand upon; a temperature of 40° to 45° at night, rising 5° during the day in December, January, and February, 50° to 55° at night with a corresponding rise in the daytime by sun-heat in March and April, and in summer, when strong sun-heat was certain to raise the temperature, every effort must be made to keep the house as cool and moist as possible. Very little rest was required for the *Odontoglossums*. They needed more shade than any other class of Orchids, and plenty of air should always be admitted. In conclusion, Mr. Swan impressed upon all, that in plant growing they must bear in mind they were dealing with subjects possessing life in a high state of development; that the growth, the continual advance and progression, the display of gay and showy blossoms, and the perfection and beauty depended entirely upon the surroundings, the environment of the plants; and thus it became them to make themselves acquainted with the conditions most certain to ensure success, then by a judicious application of the best methods, willingly and patiently wait whilst they eagerly anticipate a joyful realisation of their most sanguine expectations.

RUBUS PHENICOLASIS.

FOR the specimen whence our illustration (fig. 74) was taken we are indebted to the Rev. Canon Ellacombe. It is a strikingly handsome hardy or half-hardy bramble, with the lower surface of the leaves glaucous, as in a Raspberry, and the stems plentifully beset with long slender gland-tipped reddish-brown hairs. To this latter characteristic it owes its name (*phoenix*, dark red; *lasios*, wool). The flowers are pink, and of little beauty, the petals being so much smaller than the sepals. These latter, as mentioned by Sir Joseph Hooker, *Botanical Magazine*, t. 6479, "close over the ripening fruit, but spread out again horizontally when the latter is ripe"—a peculiarity we noticed in a former number without then being aware that it had been placed on record. The fruits are reddish, slightly acid. The plant is a native of Japan, and was originally described by Dr. Maximowicz. Sir Joseph Hooker notes that it suffered severely in the winter at Kew, and was in consequence transferred to the temperate-house.

MARKET PLANTS.

BOUVARDIAS.—Among flowering plants that are grown for market purposes few are more valuable than the *Bouvardias*, especially for giving a supply of cut bloom throughout the autumn and winter months. As pot plants, too, some of the varieties are very useful; but for the latter purpose there is not a great demand, and it is only when the plants are grown to perfection that they realise anything like a fair price, or find a ready sale. Plants profusely flowered will sometimes realise 18s. per dozen, while plants that some people would consider fairly well grown would not be worth more than 4s. to 9s. per dozen, and at those prices it would be difficult to dispose of them. The price of cut bloom varies very much—from 6s. to 9s. per dozen bunches may be considered a fair average price, but sometimes it will fetch as much as 18s. per dozen during the winter months; on the other hand, it is often difficult to dispose of them at any price, and it is on this account that amateurs who send occasional consignments to Covent Garden Market experience some disappointment at the prices returned; for while the regular growers can always sell a certain quantity at a fair price, if the supply is plentiful, which (unfortunately for the growers) is too often the case, it is more than probable that any one who has no regular customers for his plants will be unable to sell out at any price. Although *Bouvardias* may be had in flower throughout the year, it is hardly worth while to flower them through the summer months when so many other good flowers, which do not flag so quickly as the *Bouvardia* does during the hot weather, may be had.

CULTURE.

To grow *Bouvardias* successfully it is essential to secure good stock plants, so that good strong cuttings may be obtained early in the year. The best plants to select the stock from will be those that have been flowering through the autumn; these can be ripened off early, and it should be remembered that to ripen the plants off properly they should not be crowded up together after they have done flowering, but stood out thinly in an exposed position, and gradually dried off. They should be ready for starting early in January; it is best to cut them back and allow them to remain in a cool house for a fortnight or so before starting them. When they are first placed in heat they may be lightly syringed frequently, but no water should be given at the root until they begin to start into growth, and then only very sparingly, as, if once allowed to get a little too wet at this stage, they get into a sickly condition, and never thrive or give good cuttings afterwards.

PROPAGATING.

The first batch of cuttings should be ready early in February. As soon as the young growths are about an inch long they may be taken off close to the old wood; if the plants are healthy, they will break out again freely, and soon give another batch. Cuttings strike freely in an ordinary stove propagating pit, but unless care is taken, the early batches are rather liable to damp off. To prevent this, fresh clean plunging material should be used, and no woody or other substance that is likely to contain fungus, should be used in the compost. Peat mould and sand in equal parts, is the best compost to use. A little air should be given to the pit every morning, but it must be closed again before the cuttings get withered; if allowed to get withered, they are not only much longer in striking root, but they never start away so freely afterwards. By the time the cuttings are well-rooted, they will require stopping; we like to stop them once before potting-off, and pot them as soon as they begin to make a fresh start. To grow good plants in one season they must not be allowed to receive a check at any time. It is important that they should be potted on as they require it, and have careful attention in watering; they should also be kept regularly stopped. If intended for pot plants, they must be stopped over evenly until they have formed sufficiently bushy plants to secure a good head of bloom, if for cut bloom it will depend more on the time the flower is required. Another matter of importance is to keep the plants free from insects. They are subject to a great variety of insect pests, Red-spider and Greenfly being their greatest enemies; there is also a small bluish aphid which is very troublesome during the summer; constant use of the syringe is the only remedy for the former, and fumigation on its first appearance for the latter.

The compost for potting should consist of light fibrous loam, with a liberal addition of well-rotted manure, and a good sprinkle of sharp sand, leaf-mould may also be used freely, or if the latter is not to be had and the loam is inclined to be heavy, a little peat may be used. The plants should not be potted too firmly. As soon as the plants begin to show flower, a little liquid, or artificial manure may be used frequently.

is also a very good variety, with bright coral-like flowers.

The following are the most useful single varieties:—*B. jasminiflora*, though one of the oldest, is still among the most popular. The flowers are pure white, sweet-scented, and above the average size. It is rather more delicate than most sorts, but under good treatment it is very prolific, and may be had in flower throughout the year. *B. longiflora* and *B.*

B. Veelandii is another good white variety, but when grown in an exposed position the flowers are slightly tinted with pink. *B. alba elegantissima*, *B. Davidsoni*, and *B. The Bride*, are all identical with it. *B. Reine des Roses*.—Flowers large, rosy pink; a good variety for pot-work.

B. rosea oculata.—A very pretty variety, of slender growth, with pale rose-coloured flowers.

B. Priory Beauty.—A good free-flowering variety, with flesh-pink flowers; a great improvement on the older variety, "Maiden's Blush": one of the best for pots.

B. Bridal Wreath.—Somewhat after *Reine des Roses* in habit, flowers large, upper-side of petals white, under-side and tube shaded with pink. Makes a beautiful pot-plant.

B. flavescens.—Pale yellow; very pretty when the flowers first open, but it fades too quickly to be of much value for market work.

B. Hogarth.—Of the scarlet varieties this is the oldest, being one of the first garden varieties of Bouvardias raised, and it is still a favourite with many growers, though in some cases it has been superseded by *B. elegans*, which has larger flowers, and is perhaps a little brighter in colour, but not quite so free and compact in habit.

B. Dazzler.—A good scarlet, very free-flowering, and of good habit; very useful as a pot-plant, or for cutting from.

B. Vulcan.—A slender-growing variety, with small, deep vermillion-scarlet flowers, good for cutting from.

B. longiflora flammula.—A good variety for early spring flowering; the flowers are very bright scarlet when they first open, but they quickly fade, especially if the damp settles on them. *A. Hensley*.



FIG. 74.—RUBUS PHENICOLASIUS. (SEE P. 364.)

VARIETIES.

The varieties of Bouvardias are not so numerous as in most classes of florists' flowers, and no great advance has been made of late years, except in the double varieties, and these do not seem likely to become so popular as was anticipated when Alfred Neuner was first sent out. Several of the market growers went in for it largely, but they soon found that it would not become a favourite with the buyers of cut bloom, and it therefore had to be discarded; though it must be admitted to be very pretty, as are also some of the new scarlet doubles, the best of which is *Sang Lorraine* (deep vermillion scarlet). *Victor Lemoine*

jasminiflora longipetala are similar, if not identical with the above.

B. Humboldtii corymbiflora is one of the most useful for cutting purposes, the flowers being large, highly fragrant, and pure white, make it a general favourite. It is of vigorous habit, and flowers freely throughout the summer and autumn, but does not flower so freely through the winter months as many of the varieties.

B. candidissima.—As a pot plant this is one of the best. It is dwarf and compact in habit, very free, and the flowers are pure white, with a delicate perfume. It is a good variety for early spring work.

Notices of Books.

Mushrooms for the Million. By J. Wright. (171, Fleet Street).

EDITION after edition, or re-issue after re-issue attest the success of Mr. Wright's labours in making known the best methods of Mushroom culture, and now a fourth edition with a supplement has appeared in which the author has embodied his latest experience and that of his numerous correspondents. Mr. Wright is careful not to give exaggerated estimates of the profit to be derived from Mushroom culture, and does not advocate it as a panacea for agricultural distress, but that it may and does put money in the pockets of the grower and satisfies the taste of the consumer is obvious enough. Just as the ordinary gardener is in advance of the ordinary agriculturist, so the market growers who are of course specialists are in advance of the private gardeners, at least in their own speciality. It would hardly be requisite to call attention to this very patent fact, were it not for the circumstance that so few of our gardeners take the trouble to watch and see what their brethren of the market garden are about. For as many years as we can remember the market gardeners of Putney and Fulham, and probably elsewhere, have grown Mushrooms in the open air, but we do not remember to have seen the plan adopted in private gardens, though it is undoubtedly the best for producing the toothsome fungi in largest quantities. Mr. Dunn, of the Gardens, Farlington, near Leeds, gives some interesting figures, cited by Mr. Wright, as to the profits of this system of culture. By following Mr. Wright's directions 164 yards of beds were formed, of which 42 yards failed. The total cost was £52 17s. 7d., while the net profit is returned at £64 2s. 10d.

We believe that the outdoor system is the most certain method, though, as we have just seen, it is not absolutely safe, for your Mushroom is apt to be capricious; and though any or all of the twelve methods recommended by Mr. Wright are generally satisfactory, yet one and all are liable to occasional failure—at least, we know that some are so. The finest Mushrooms we ever saw on the whole were grown in an old Cucumber-frame on the plan indicated by Mr. Wright in his ninth method; but we remember being told by others who had practised it that the plan was not always successful. Mr. Wright attributes one cause of failure to commencing operations at the wrong time, and that this is so we can testify, as in one case after two years' waiting a fine crop was obtained where all hope had been abandoned. A very interesting feature in Mushroom culture is the well-established fact of the advantage of common salt

as a manure. This is a point that requires explanation. Does the salt directly benefit the Mushroom, or does it do so indirectly by slaying its enemies? The point is well worth investigating, for neither chlorine nor sodium (the two ingredients of which salt is made up) is considered of any special value in ordinary plants. Fungi, however, have ways of their own quite different from other plants, so that it need occasion no surprise to learn that what is suitable for them is not so for other plants. Sodium chloride has, amongst other properties, that of dissolving calcic phosphate.

A good suggestion is that of growing Mushrooms and Vines in the same house, where, under proper management, the Mushrooms grown on the beds in the house in winter will prove as profitable as the Grapes in summer. The beds are made immediately the Grapes are cut in November, and extended as manure is collected, so that a regular daily supply of Mushrooms is eventually secured.

Mr. Wright may be congratulated on his success, and deserves the gratitude of every one who in these times of depression is enabled, by following out his instructions, to secure a balance on the right side. The consumer also is under no slight obligation to Mr. Wright, who seems to befriend us all round, with the possible exception of the greengrocer; but we cannot say we have much more sympathy with that individual than has Mr. Wright.

THE LETTUCE.

At the New York Agricultural Experiment Station in 1885, eighty-three distinct varieties of Lettuce were grown under nearly 200 different names. These Lettuces present to the on-looker three distinct forms—*the lanceolate-leaved, the Cos, and the Cabbage*. It is a pertinent inquiry as to whether these form-species are of distinct origin, or have been produced by cultivation within recent times, and hence we offer a succinct account of our historical investigations.

The lanceolate-leaved form is represented with us by one variety only,—the *Deer's-tongue*, introduced as a seedsmen's novelty in 1883. The type of this form is perhaps referred to by Pliny, lib. xix., c. 38, "*præterea longi, et angusti, intubi similis*," as this plant of ours has a Chicory-like appearance in some stages of its growth.

It is certainly mentioned by Bauhin (*Pinax*, ed. of 1621) in 1621, and credited in his synonymy to Castor, 1585; and is figured by Bauhin (*Prodromus*, ed. of 1671) in 1671. Vilmorin (*Les Plantes Potagères*), 1883, refers to this type of Lettuce under the name *Romaine asperge*, *Lactuca angustana*, Hort., and a variety *L. cracoviensis*, Hort. *L. angustana* Allionii, 1785, seems to be of this form-species, and is recorded as found wild in Switzerland, and Martyn's *Millers Dictionary* deems the *Chicorium Constantinopolitanum* of Parkinson, 1640, to have some affinity to it.

The Cos Lettuces are distinguished by the upright growth of the root leaves, and the elongated and spatulate form of the leaf; they are also subject to a flattening of the stalk through fasciation. They were certainly known to the ancient Romans, as witness Pliny's statement (*Nat. Hist.*, lib. xix., c. 38):—"Diligentiores plura genera faciunt: purpureas crispas, Cappadocias, Græcos, longiores his foliis caulesque lati: præterea longi et angusti, intubi similis." Palladius's (*De Re Rustica*, lib. ii., c. 14) mention of the process of blanching can also be quoted:—"Candidæ fieri patantur, si fluminis arena vel litoris frequentur spargatur in medias, et collectis ipse foliis alligantur." The Cos Lettuce is the *Lactuca Romana* dulcor, nigriore & scariolæ hortensis folio, semine nigro of Pena & Lobel (*Stirpium Adversaria nova*, Londini, 1570, p. 90). Bauhin, in his *Pinax*, considers this form to be the *L. foliis obscuris virentibus*, nigra Pinio of Dodonæus (*Pemptades*, 1621, p. 644), the *L. nigra* of Cæsalpinus, 1583, and the *L. Romana* of Castor Durantes, 1585. In the sixteenth century the Cos form seems to have been less grown in northern Europe than in the south, for Pena & Lobel (*Pemptades*, 1621, p. 644) say it is rarely cultivated in France and Germany,—more frequently in Italy, especially at Rome.

The class of Cabbage Lettuces are distinguished by the rounded and spatulate leaf which grows less upright than the Cos, although the commentators of the sixteenth and seventeenth centuries deem this class to

have been known to the ancient Greeks and Romans, and identical with the *Laconicum* of Pliny and the *Tartesian*, or *Bætica*, of Columella, yet I am unable to find any certain evidence. The only word I find in Pliny which could suggest this class is "*crispa*," which may be translated "winkled," and as a class the Cabbage Lettuces are more wrinkled or blistered than are the Cos, Columella (*De Re Rustica*, x., l. 183; xi., c. 3; x., l. 185) was a native of Gades, but resided principally at Rome. He speaks of two kinds which may belong to this class,—one the *Cappadocian* "*Tertia, quæ spisso, sed puro vertice pallet*," and "*quæ pallido & pexo densiore folio viret*;" the other the *Tartesian*, or *Bætica*, which he says is from his country:—

"Et mea, quam generant Tartesi litore Gades
Candida vibrato discrimine, candida thyrsos est,"

and "*quæ deinde candida est & crispissimi folii, ut in provincia Bætica & finibus Gaditani municipii*." The words "*vibrato discrimine*" and "*crispissimi folii*" would imply a curled cutting Lettuce. The heading Lettuces of this class were, however, well known to the writers of the sixteenth and seventeenth centuries. In the *Hist. Plant.*, 1561, is figured one which closely resembles the Stone Tennis-ball variety of our gardens, and Bauhin in his synonymy identifies with varieties described by Tragus, 1553, *Tabernæmontanus*, 1588, *Matthioli*, 1586, *Gerarde*, 1597, &c.

Whether the types of the Cos and the Cabbage form-species occur in nature I have not the material for study to determine. De Candolle (*Origin of Cultivated Plants*, 1855, p. 95) says "botanists are agreed in considering the cultivated Lettuce as a modification of the wild species called *Lactuca scariola*. The latter grows in temperate and southern Europe, in the Canary Isles, Madeira, Algeria, Abyssinia, and in the temperate regions of Eastern Asia. Boissier speaks of specimens from Arabia Petrea to Mesopotamia and the Caucasus. He mentions a variety with crinkled leaves, similar therefore to some of our garden Lettuces, which the traveller Hausknecht brought with him from the mountains of Kurdistan. I have a specimen from Siberia, found near the river Irtysh, and it is now known with certainty that the species grows in the north of India, in Kashmir, and in Nepal." From this reference we might infer that the Kurdistan form belongs to the Cabbage type, as possessing distinctly wrinkled or Savoy-like leaves, while the description of the ordinary *L. scariola* of Europe implies the Cos type.

I have not opportunity of access to herbariums whereby I can hope to satisfy myself of the conditions of the wild forms from various countries, but such evidence as I have here outlined strongly supports the hypothesis that our three form-species of Lettuce have originated from wild forms which have been brought into culture in different regions, and hence that our three form-species have different origin. The history of Lettuce, as published, affords no clue towards settling this point. Lettuces are supposed to have been grown by the Persians some 500 years before Christ, and to have been introduced into China between the years 600 and 900 of era; they were mentioned by Chaucer in England in the fourteenth century, and reached America with Columbus. *E. L. Sturtevant*.

THE AMERICAN APPLE CROP.

SPRINGFIELD, Mass., August 18.—With the aid of some 1500 special correspondents, the *New England Homestead* will this week be enabled to present a very complete forecast as to the larger fruits whose harvest has now commenced. It is the "even" or bearing year for Apples in New England, but though there is a large yield of fall fruit, the reports indicate that the crop of winter Apples will be about 70 per cent of the usual "even" year yield in the six States.

In the best Apple counties of Vermont, along Lake Champlain, not two-thirds a full even year crop will be secured, while Maine reports a decrease of 20 per cent., but both these States and New Hampshire will have a large surplus. Connecticut has but a half a crop, and Massachusetts 80 per cent. But the falling off in New England will be partly made up by the great crop in the Apple sections of Nova Scotia, Annapolis and King counties. Nova Scotia last year exported

only 40,000 barrels, but this season will have a surplus of 100,000 barrels.

Perhaps the most significant fact revealed in this important report is that, the great Apple counties of Western New York promise "the lightest crop in twenty years, and the worse feature is that the quality promises to be comparatively poor. The great Apple counties of Orleans, Monroe, Niagara, Wayne, and Wyoming agree closely in reporting scarcely 50 per cent. of an average yield.

Many towns in that section which usually ship great quantities of Apples will have practically none for export this year, and farmers have very fine ideas as to prices. In Eastern New York there is a better prospect, but the average for the whole State (400 reports) is only 52 per cent.

Pennsylvania has 85 per cent. of a full Apple crop, and there is a good crop in Ohio. Out farther west the reports are discouraging, and the North-west and South-west have such a small supply as to offer a remunerative market for the surplus of the Middle States, much of which was last year available for export.

Cable reports from various points in England and on the Continent confirm the earlier predictions of a rather short Apple crop there, especially of good fruit in England, but the Orange crop of southern Europe will be large, and will affect the English demand for American Apples somewhat. Consequently there will be a good demand in England for our fruit. We exported these nearly 900,000 barrels last year, the "odd" year, and the supply was so large that prices were barely remunerative.

The *Homestead* expresses the opinion that the exports will hardly be as large this year, and while prices may be a little better, the business of exporting Apples is now too closely managed to permit of any great advances over the profits to be had by selling in domestic markets. The wisdom of holding winter fruit for higher prices is therefore problematical, and must largely depend upon later developments. American Orange Pippins sold in Liverpool at 3.60 dols. per barrel on Monday, the first sale of the season, which is equivalent to about 2.25 dols. net on this side—a slight advance on current values.

Pears will be considerably below the usual yield; Peaches for the third time are practically a failure north of the forty-first parallel; Plums are a fair crop, and will be cheap; while Grapes in New Jersey are light, and the good crop in southern New England should bring fair prices. *Boston Paper*.

FORESTRY.

FORESTRY WORK.

WEEDING and cleaning will still occupy a good deal of the workman's time in this department. Rarely, indeed, has there been such a favourable season for the growth of weeds, the damp, warm weather furthering their increase in a very decided manner. Hand-weeding is preferable to hoeing during wet weather, but should the latter method be resorted to, it must be accompanied by immediate raking up of the weeds cut over. At any cost prevent the seeding of Groundsel, or such like troublesome weeds, by having them taken up, and placed in the *deho* for such previous to their season of flowering. Vacant borders may, as time permits, be dug deeply, or trenched over, and their wants supplied, whether by the addition of lime, nursery compost, leaf-mould from an adjoining woodland, or maiden loam from a neighbouring field.

Collect seeds of the Birch—the weeping form is best—care being taken to get the supply from such districts as are famous for producing the finest trees, notably the Brecon Highlands, and have them spread out in a dry airy loft so as to preserve unimpaired their germinative properties. This, the thorough drying and careful storing of forest tree seeds, is a matter of the greatest importance; indeed, I know of nothing that is more disheartening to the forester than when, after every care in preparing and sowing a seed-bed, he is rewarded with but an indifferent crop, or, maybe, no crop at all.

The storing of seeds in bags is to be condemned, unless under circumstances with which the ordinary nursery workman is unacquainted, the best method

* The word in the original French edition, p. 76, is "*crispée*," which should rather be translated "wrinkled" or "blatted."

being to spread these out evenly on shallow trays made of any light wood for a day or two after being gathered, and finally to store away such as are not required for immediate sowing in a loft or room that is free from damp, and through which a current of fresh air is daily passing. As the month wears on forest stuff intended for planting out this season may be lifted carefully and "laid in" thinly in some semi-shady corner of the nursery grounds until wanted for use.

Great care is necessary to avoid overcrowding in the trench, for this is accompanied with anything but good results, the plants becoming not only dust dry at the roots, but frequently fermentation sets in, more particularly in the case of evergreens, where the branches are packed closely together. Tying newly lifted plants in bundles cannot be too strongly denounced, unless in such cases where they are to be removed to a distance and planted soon after their arrival. Should some time elapse previous to planting, by all means untie the bundles and spread the plants thinly out in a trench prepared for the purpose.

PRUNING.

Pruning young nursery stock may still be engaged in—a work that is best performed before they leave the grounds. As soon as the crops are removed from the fields all pruning and thinning out of hedge-row trees should be set about. Overhanging branches frequently cause great loss to the farmers, and as they are of but little importance in hedge-rows and field trees they should, where practicable, be cut well back. Of course by saying this it must not be inferred that branches, under any circumstances, are to be removed from such trees, even although they may occasion very considerable damage to the farmer's crops, for beauty and symmetry of branch-spread should in all cases receive the first attention.

Dead branches on lawn and park trees must likewise receive attention, as well as withered and broken ones in the shrubberies; and encroaching shoots alongside woodland walks, drives, and roads generally. In removing dead and dying trees from conspicuous portions of the mansion grounds grubbing should always be resorted to, a much neater job being thus performed than by simply cutting over the stem at ground level.

First of all, remove the turf from around the tree to be taken out, roll it up and place aside for recovering the soil; then with a pick or grubbing axe loosen the earth in and amongst the roots, and with a rope, previously attached to the tree, pull it over in the most suitable position, and where least damage will be occasioned. After removing the trunk, limbs, and root, fill in the previously removed soil, level it over, and lay down the turf in a neat and workmanlike manner. For appearance sake, it may be well to daub over with paint, tar, or other prepared substances the wounds caused by amputating large limbs and branches that are within sight of the mansion buildings, or visible from drives, roads, and bye-paths. Previous to applying either of these substances the wounds should be neatly dressed with a sharp pruning knife or adze, so that rain water may not lodge in the crevices and cause decay.

GENERAL WORK.

Other duties in connection with forest management that must receive attention are the cleaning and scouring of woodland ditches, renovating of culverts and gratings, clearing and repairing of roads and walks, making and storing of faggots for use during winter, preventing the depredations of insect life on young Pine trees, staking and tying of badly-rooted specimen trees, and erection and reparation of tree guards and rabbit proof nettings and fences. Hedge cutting should go on briskly and be got well in hand during the month; "rubbing in" and "cutting over" being deferred till time allows of its being done later on. Hand-weed or hoe and rake the ground along the line of fence, being careful at the same time to clear out all rubbish from the interior of the hedge, and to cut back all overhanging branches of neighbouring trees. Burn the rubbish so collected and spread the ashes over the adjoining ground. In all cases it is wise policy to burn the clippings of hedges, those from the Yew, Laurel, and Rhododendron being especially hurtful to farm stock, their deleterious qualities being considerably enhanced when in a half-decayed state. Look well to fences alongside pasture grounds, and prevent cattle and sheep from entering

the woods. Fill up rabbit-burrows on woodland drives, which are dangerous to hunters. Cart stones for road repairing during the autumn and winter months.

Make alterations where necessary on the lawn and grounds, such as leveling, turf-laying, &c.; and substitute specimen trees for such as have died out or become unhealthy. Woodland vegetation, owing to the damp, dripping season, is unusually vigorous, and special care has had to be taken to prevent young trees and shrubs from being entirely lost sight of and damaged by the too dense shade afforded by such tall-growing weeds as the Nettles, Thistles, Burdocks, and Brambles. *A. D. Webster, Penrhyn Castle, North Wales.*

THE VINERY.

RENOVATING VINES.

If the Vines from which the crop has been taken have not yielded satisfactory results, the present is a good time to examine the roots, with a view to ascertaining and correcting the cause of their unsatisfactory condition; but before proceeding with this operation a sufficient quantity of suitable soil for carrying out the work should be got in readiness, so that the process of lifting and relaying the roots in congenial soil may be completed as quickly as possible. The compost should be in the proportion of five cartloads of calcareous loam, one load of wood ashes, one load of lime rubble, one load of horse-droppings, 1 cwt. of Thompson's Vine and plant manure, and about 4 bushels of fresh dry soot. This being ready, the lifting of the Vines roots should be carefully proceeded with by removing the soil with the assistance of four-pronged forks and shovels, taking care to injure the roots as little as possible in doing so. The roots, as much to facilitate the work of lifting and re-planting as to prevent them from being injured, should be tied separately together—that is, the roots of the individual Vines—in a damp mat, to keep them fresh while the exhausted and, perhaps sour, soil is being removed from the drainage. The latter, if found defective, should be re-arranged, and covered with a layer of turf, grassy side down.

The process of re-planting the Vines may then be proceeded with, and as the soil will subside some 6 or 7 inches within as many weeks from the time of planting, allowance to that extent should be made in forming the border. Then untie the roots, and spread them out regularly over the surface of the border, which should have a fall of a couple of inches from the bases of the Vines to the opposite side, at the same time cutting off any portion of the roots that may have been damaged in being lifted, and shorten back the points of all the roots more or less according to their length and strength. Incisions should also be made with a sharp knife about the base of the individual Vines, and longitudinally on the strongest and somewhat bare roots, to encourage the emission of young fibrous roots; these places should be covered with sand, then with 6 inches thick of the same soil as that forming the border. This done, give the whole sufficient tepid water to settle the soil about the roots, and then a surface-dressing of 3 inches thick of rotten dung, and over this, if the border be an outside one, 18 to 20 inches thick of Oak or Chestnut leaves as soon as they can be obtained. The leaves, in order to prevent them from being blown away, should be covered with long staple dung.

From the time the lifting of the roots is proceeded with until they have been re-planted and the roots have pushed well into the new soil the Vines should be shaded (heavily at first) from bright sunshine, with a view to retaining the leaves on the Vines until they have performed their ordinary functions, and in furtherance of this object the Vines should be syringed two or three times a day during the interval from lifting the roots until the fall of the leaf. Vines thus treated should be allowed to come on in their own time next year, that is, to start into growth naturally about the end of March or early in April, and, if managed with ordinary skill during the various stages of their growth, from the disbudbing to the thinning of the bunches, &c., they will be capable of ripening a better crop of Grapes next autumn than they did this. But the Vines should be cropped lightly notwithstanding. *H. W. Ward, Longford Castle.*

The Flower Garden.

ROSE CUTTINGS.

CUTTINGS of hybrid perpetual Roses may now be put in; from now till the middle of October is the most suitable time for striking. Any good garden soil will suit them, and if a little sharp sand be added, it will hasten the rooting process. Secure the strongest shoots which spring from the bottom of the plants, twist them off with a heel in preference to cutting them off with a knife. Trim the heels with a sharp knife, but do not cut more than is necessary. Shorten the cuttings to the lengths of from 9 to 12 inches; cut off a notch with a spade as for the reception of Box edging; place the cuttings about 8 inches apart, replace the soil, and tread down firmly. Some slight protection should be given them during severe weather, and by the middle of summer they will be able to take care of themselves. Teas, Bourbons, and Chinas, may be similarly dealt with, only they must have the protection of glass, but no artificial heat is necessary, as it is rather injurious at this season of the year.

FLOWER BEDS.

Much attention will now be necessary to keep the flower beds clear of decaying flowers and leaves. Where such subjects as Pelargoniums are becoming crowded, the removal of a few leaves from the plants will admit light and air, and keep them from damping off.

LAWNS, &c.

Sweeping of lawns, to clear them of leaves and worm casts will now require constant attention. Brush and roll walks when rains occur to keep them firm and smooth. *Wm. M. Bailie, Luton Hoe Garden.*

PLANTS AND THEIR CULTURE.

GREENHOUSE PLANTS.

THE housing of these should now be completed as soon as possible, the unsettled state of the weather rendering it absolutely necessary; if delayed perhaps only for a few days choice hard-wooded plants may receive irreparable injury. Presuming the houses have had a thorough good cleaning, glass washed inside and out, and painting having been done where necessary, commence arranging by placing the choicest and best plants in a prominent position near the glass, avoiding overcrowding. It is better to stand specimens out first, and arrange a small or half specimen between them; this allows the light and air to pass about them more equally. It will be found that the plants will require more water at the roots after staging than when outside or standing on ashes under temporary shelter. A dry heat in the houses is to be guarded against; a few dampings down and the ventilators fully open will regulate this. For a few weeks keep a sharp look-out for mildew; if left for a few days it makes rapid headway. Azaleas will do very well in early Peach or Plum houses for a time, if a house is not devoted to them. Pay strict attention to watering; if neglected at this stage the lower foliage will soon show the effects, and become unsightly objects; on the other hand, if too much water is given, it is likely to excite them into growth, often sacrificing the blooming buds.

Tea Roses which have been stood out-of-doors, potted or top-dressed, as advised in former Calendars, will by this time have got nicely hold of the new soil, and be making a good break of free growths. If wanted for use at the end of October or early in November, the plants should be looked over now, and the best and freest plants selected for the first batch. The growths must be thinned out if at all crowded, or if any weak, exhausted shoots not capable of carrying blooms are to be seen they should be removed. I never cut back our Teas, but merely thin out, so as to let the foliage have room to fully develop itself. Any training which is required should be seen to now. We grow ours on ballions and pyramids for convenience of shifting. Pick off all old foliage and surface, and clean the pots and tubs before taking them indoors. I generally fill half the house at first; the other part suits the early varieties of Azaleas, Arums, Liliums, &c. If mildew shows itself, dust the plants affected at once with sulphur, with a little fine sifted lime mixed with it. *A. Evans, Lythe Hill, Haslemere.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Sept. 27	Sale of Dutch Bulbs, in lots, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Royal Horticultural Society's Meetings of the Fruit and Floral Committees, at 11 A.M.
TUESDAY, Sept. 28	Sale of the Fernhill Collection of Orchids, at Protheroe & Morris' Rooms (two days). Sale of Dutch Bulbs, also of Indian Azaleas, &c., at Stevens' Rooms.
WEDNESDAY, Sept. 29	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
THURSDAY, Sept. 29	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
FRIDAY, Sept. 29	Sale of Dutch Bulbs at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
SATURDAY, Sept. 29	Sale of Greenhouse Plants, at the Prestons Nursery, Walthamstow.

UNTIL recent years the PRICES which the various kinds of GARDEN PRODUCE realised were such as to leave little doubt that market gardening in this country was a fairly remunerative occupation, notwithstanding that the market growers, in common with all who are engaged in the cultivation of the soil, labour under uncertainties that do not exist in less variable climates. Moreover, the return in the case of most things with which the grower has to deal is necessarily slower than in the case of a good many of the commodities that go to supply the wants of the community. By far the greater number of crops represent the work of a year, or, at all events of the growing season, which amounts to much the same thing. But matters have changed, and for some years prices, as regards fruit, flowers, and most kinds of culinary vegetables, have fallen lower until they have now reached a figure that cannot be misunderstood. Vegetables, especially the commoner kinds, like all things that partake of the character of necessities generally sell better in proportion than other things, as the demand for them is steadier. It is hardly necessary to say that the prices which the consumer pays are not by any means to be always taken as a guide to those which the growers have to be content with. But when the retail price comes down to that which it has now reached for many things, it is evident that the growers' share cannot even have covered the cost of production, leaving anything in the shape of profit out of the question.

Take Grapes for instance; in some of the shops in the West End of London, good Muscats, quite ripe, and much better coloured than they are usually met with in August were selling lately for 3s. per pound, whilst Black Hamburgs, equal in quality were offered at from 2s. to 2s. 6d. Muscats ripe at the time named would have to be pushed on with continuous fireheat from the time the Vines were started, and the Hamburgs would also require assistance in this way for a considerable period. Bearing in mind the rents and rates that shopkeepers in London have to pay, and that they are dealing in a perishable article, and a luxury that people can dispense with, it is not difficult to guess how much of the above prices would represent the retailer's share, probably not less than one-half. To a certainty if he got the Grapes for nothing the whole amount would not be equal to the profits he would have been able to get out of similar productions a few years back. As a further evidence of the miserably low price that Grapes of the first quality are now sold for, it may be mentioned that the crop of Black Hamburgs grown this year by one of the most successful exhibitors, and one who has this season taken a number of 1st prizes with this variety, was disposed of for 2s. per pound for the crop.

Strawberries were not more than half a crop in the leading market districts where they are grown in quantity, consequently they sold better than last year, when scores of tons did not fetch the cost of picking and marketing; but still this season the prices realised were far from making up for the short supply.

Raspberries, which, taking one season with another, fluctuate less in value than other fruits, were this season such a drug that quantities were left ungathered.

Gooseberries and Currants were plentiful, and so cheap this year in most parts of the country as to be scarcely worth gathering. In London Gooseberries got down to a penny per pound, and Currants to three halfpence. In some of the large provincial towns Gooseberries were as low as 18 lb. for a shilling.

Plums this season present the unusual feature of yielding again an immense crop after bearing abundantly last year. All kinds, the shy fruiting Green Gages included, are heavily laden, the fruit in most cases being of finer quality than usual. As might be expected, the result of this is that Plums are a complete drug, so much so that some of the Kent growers have given up gathering, finding that the price they fetch will not pay the expenses of gathering.

Pears are this season more than usually uneven, some kinds bearing full crops, whilst others are all but fruitless.

Apples in most places are scarce; in a few localities they are fairly plentiful.

Verily growers of hardy fruit, as well as those who cultivate the tender kinds under glass, are having a bad time of it. Nor is the outlook in the future at all encouraging, for notwithstanding the statements that are so persistently given by some as to the advantages that may be realised by growing more fruit, it is evident that, as regards most of the hardy sorts in seasons when the crop is large, the supply is much greater than the demand; and with the kinds that are grown under glass, the prices now are continuously such as to leave the growers only an infinitesimal balance, or no balance at all, after the cost of production is covered.

The growers of vegetables find themselves similarly placed. The depression in agriculture has caused farmers, residing within a reasonable distance of the large towns, to turn their holdings into half market gardens, the outcome being, that through a good part of the season vegetables (excepting the various kinds of roots that will keep) make prices that leave little profit. Here again the home grower of Potatoes, Cabbage, Peas, Turnips, Carrots, French Beans, Lettuces, Radishes, and other things, finds that his earliest produce, which used to make up for the low prices he has to take in the middle of the season does not fetch more than half what it did in times past. Not the least disagreeable feature of all this is that, in common with everything the land produces, there are no prospects of garden produce making prices that will fairly remunerate the home growers. The cut flower trade is in no better case, as we shall show in a future article.

ANY one acquainted with DAHLIAS who made a critical examination of the flowers exhibited at the Crystal Palace on the 3d and 4th inst., must have been led to acknowledge there is urgent need for a new CLASSIFICATION; or else an entire reform in the making of a schedule of prizes. Who can venture to say what is, and what is not, a show or a fancy Dahlia? The one now touches the other so nearly, that those who know the flowers best hesitate to authoritatively state whether a certain variety is a show, or a fancy flower. But these are the two main heads under which exhibition Dahlias are divided, and they have existed for years past. That in the early days of the development of the fancy varieties they were of inferior merit, cannot be doubted, and that is probably the reason why they were grouped under a separate classification. But in these days of progress, the fancy Dahlia has quite overtaken the show Dahlia in point of size, symmetry, shape of petal, perfection of outline, height of centre, &c., and he would be a bold as-

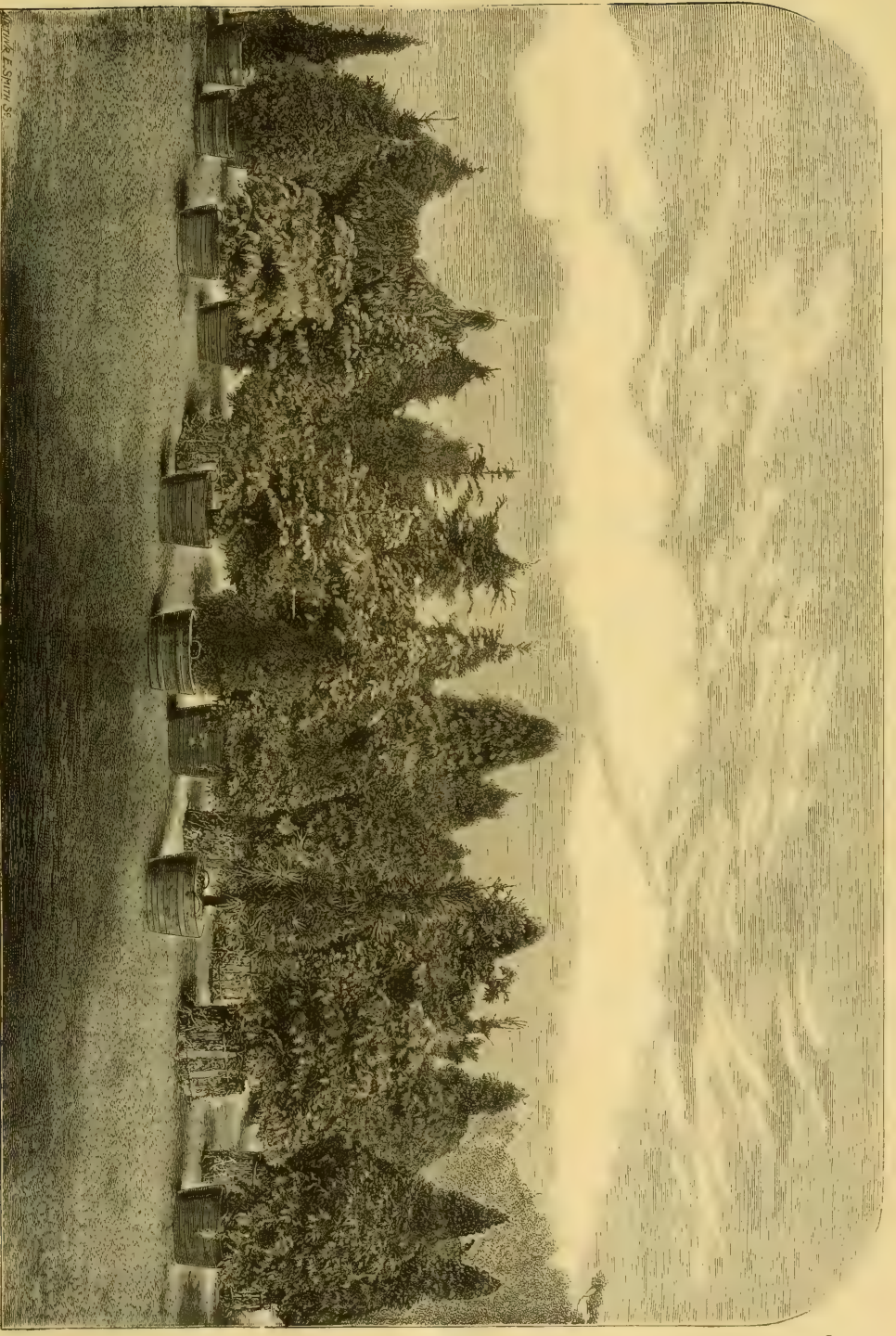
serter who ventured to say that in these respects the fancy varieties are inferior to the others. Add to this the indisputable fact that it is difficult in the case of a few flowers to say with certainty whether they should be classed with the show or fancy types; and then the question arises, Is the old classification worth retaining any longer?

Under the present system two or more distinct colours (if the variegation is in the form of stripes or flakes) are essential to a fancy Dahlia; but the arrangement of the colours, whether the light or the dark preponderate, is sufficient to constitute the flower a show or a fancy variety. The fact is, the division is regulated by the relative position of the colours. Now, if any flower having a white, blush, pale, sulphur, or yellow ground, be edged, tipped, or laced with a dark colour, it is classed with the show varieties; but when the disposition of the colours is reversed, when the ground-colour of the flower is dark, and it is edged or tipped with a lighter colour, then it is classed as a fancy Dahlia. Now, this is very arbitrary, and confusion is created by the appearance of flowers having their colours so disposed that it is difficult to assign their proper classification. A light flower, for instance, may have a distinct tip or edging of purple, and it is a show Dahlia; but let the purple be in the form of flakes or stripes, and then it would be included among the fancy varieties. A well-known show Dahlia, named Flag of Truce, is sometimes almost white, at other times delicately tipped with lilac.

At the recent Crystal Palace show a flower of this variety, in which the purple appeared longitudinally on the petals in the form of stripes or flakes, was shown in a stand of six fancy Dahlias, and awarded a prize. Fancy Dahlias will often sport to a self form, and the flowers are admissible for exhibition as show Dahlias; but should a show flower—say a crimson self—sport in the case of one or two petals only to an edged or tipped form, with the darker colour at the base, and its appearance in a stand of show flowers would lead to disqualification. On the other hand, a fancy variety that has sported to a self form, if it retains only two or three petals marked with the true fancy character, it is admissible on a stand of fancy Dahlias, though its presence would weaken it to some extent, but not disqualify it. So much confusion exists as to what constitutes a fancy Dahlia that in not a few provincial shows all tipped flowers are regarded as fancies, and the show flowers are the self-coloured or shaded varieties.

We venture to suggest, as a basis for a new classification of Dahlias, that the old divisions of show and fancy should be abandoned, and that both should be included under the head of exhibition Dahlias. Then four classes might be created as follows:—Self Dahlias, such as are of one colour and unshaded; as illustrations take Cardinal, Criterion, James Service, John Standish, Leah, Mrs. Henshaw, and Vice President. Shaded Dahlias, in which the self ground colour is shaded with something lighter or darker, but not distinctly tipped or edged, such as Burgundy, Herbert Turner, Imperial, Prince Bismarck, and Prince of Denmark; and tipped Dahlias, to include all tipped flowers; and striped Dahlias, all that are distinctly striped and flaked. There are some Dahlias among the fancies that are both tipped and striped, and these might be included among the tipped flowers, unless the tip is faint and uncertain.

Were this, or some such classification, attempted, schedules of prizes would have to be re-cast; but that is a matter that can soon be arranged. Prizes could be offered for collections of blooms comprehended under the foregoing headings, and the general public who



W. B. BARON & SONS

FIG. 75.—MESSRS. W. B. BARON & SONS' GROUP OF CONIFERS AT THE LIVERPOOL EXHIBITION. (SEE P. 370.)

attend Dahlia shows would be in a better position to make selections of favourite flowers, and have a clearer understanding of their characteristics and place in the several divisions. But what organisation or individual will inaugurate a new classification? That is the rub!

— **ORNAMENTAL CONIFERS.**—One of the most interesting and striking exhibits at the recent Provincial Show at Liverpool, was constituted by the fine group of Conifers exhibited by Messrs. W. BARRON & SONS, of Elvaston Nurseries, Borrowash (fig. 75). The trees were placed against the tent, to the entry to which they formed a striking adjunct. Among the specimens were fine representatives of *Abies Douglasii*, var. *glauca*, which is said to be harder than the common form. *Retinospora tetragona aurea*, a handsome pyramidal or columnar variety, with golden foliage, and which is stated to do well, even in such unfavourable localities as are afforded by the colliery districts. *Tsuga Sieboldii* has the advantage of starting later in spring than others of its class. *Cupressus Lawsoniana glauca* is noteworthy for being a good grower and of good habit. *C. L. intertexta* is known as one of the most elegant of its class. BARRON'S Golden Yew was represented by specimens rich in foliage and of good pyramidal habit. The true *Abies* (or *Picea*) concolor was shown in good specimens, as also *A. brachyphylla*, which bids fair to be as hardy as *A. Nordmanniana* and even more handsome. These are only a few of the striking specimens of which this fine group was composed.

— **"ILLUSTRATIONS OF BRITISH FUNGI."**—Dr. M. C. COOKE has lately issued the forty-third part of his useful *Illustrations of British Fungi*. The number of plates now amounts to 686, descriptions of the several species figured being given in the consecutive numbers of *Grevillea*.

— **INSECTS INJURIOUS TO FRUIT CROPS.**—Mr. CHARLES WHITEHEAD has published, for the Agricultural Department of the Privy Council, a report on the insects injurious to fruit crops, containing descriptions and figures of the commoner insects attacking fruit trees, such as it has been the practice of the *Gardeners' Chronicle* to give from its first foundation till now; JOHN CURTIS and J. O. WESTWOOD, indeed, have supplied most of the authentic information on this subject. It is an exceedingly useful thing to circulate this information in so convenient a form as the present—the more so, as much space is given to the important questions concerning prevention and remedies.

— **BOTANICAL COLLECTORS.**—Prof. MACOWAN, of Cape Town, recently addressed the South African Philosophical Society on the work done by collectors in South Africa, such as THUNBERG, DRERGE, BURCHELL, ECKLON, ZEYHER, PAPPE, HARNEY, and others, whose work is probably better known and appreciated here than on the spot. Happily these men have left able successors.

— **SILKWORM CULTURE.**—Dr. RILEY has issued a sixth edition of his *Manual of Instructions* for those who desire to devote themselves to this branch of industry. The work is published at the Washington Government Printing Office, and is replete with information on silkworms, their habits, diseases, and management, as well as the preparation of the silk. It appears that in the United States the leaves of the Osage Orange (*Maclura aurantiaca*) may be used as food for the worms as advantageously as those of the white Mulberry.

— **CACTUS DAHLIAS.**—Those who object to the "lumpy, inelegant" Dahlia may now take their choice from the more refined single Dahlias, or the more pictorial "Cactus" varieties. One such is before us from Mr. CANNELL in the shape of a flower nearly 5 inches across, and with row after row of flat petals of the richest crimson-scarlet, not formally and severely packed, but lightly thrown together in careless order, allowing the light to pass through their brilliant surfaces as through a medieval stained glass window, and securing endless diversities of light and shade, multitudes of curves and adaptations which invite sympathy and confer interest, because they tell of the contest for light and air, of the struggle for supremacy, or of mutual accommodation and judicious compromise; in a word, they show that the flower is

a sentient being, with a history worth studying,—a great contrast to the florists' Dahlia, from which life and individuality seem stamped out to be replaced by a piece of artificial mechanism with a pretty complexion but no mind! At the same time came some splendid blooms from Cork of Mr. HARTLAND'S Old Dahlia with very richly coloured flowers and reflexed petals.

— **BEGONIA LUCIDA VAR. ROSEA.**—Lately we saw this plant with its bright red-coloured flowers in what might almost be described as perfection, at M. SCHLUMBERGER'S establishment near Rouen. What a floriferous variety it is, too! M. SCHLUMBERGER assured us that since 1858 he had never once been without a flower. That surely is enough to recommend it for general cultivation in the greenhouse where a continuation of bloom for effect is desired.

— **CYPRIPIEDUM SANDERIANUM.**—This extraordinary new *Cypripedium* is now in bloom at Messrs. VEITCH'S Royal Exotic Nursery, Chelsea, and proves to be one of the most quaint and distinct of the genus. The shape of the pouch is much like that of *C. Stonei*, but is of a greenish bronze colour; the dorsal sepal is beautifully striped with chocolate-crimson on a yellowish green ground, and the petals, which form the most striking feature in the flower, are thrown back near the column, then extended spirally downwards, and ultimately elongated after the manner of *C. caudatum*, the tails extending from 1½ to 2 feet in length; in colour they resemble *Masdevallia chimera* (crimson and yellowish-white) at the broadest part, the narrow tails being brownish-crimson. The plant may be pronounced a decided and welcome acquisition. Messrs. VEITCH also have a very extraordinary and handsome nondescript in bloom, of which we shall have more to say later on.

— **"WHY SHOULD LONDON WAIT?"**—Abroad, in France, we see every little odd corner planted, no matter where it may be, and one is always tumbling on little plots of a very few yards square, having a brilliant display of plants and flowers; scarlet *Pelargoniums*, *Ageratums*, *Coleus*, *Musas*, &c., being the favourites for bedding purposes, and more often than not there is a background of evergreen shrubs. All this is displayed by a ground-work of grass, not gravel; and so many otherwise dingy corners are made into pleasing spots by a few plants. Surely something of this kind could be done in London. Are there not any odd street corners which could be so treated? The smoke is perhaps too powerful in some parts of London, but there are others where that objection hardly exists. 'Tis true that of late years something has been done, but is it enough? Are there not still some spaces railed in and covered with flag-stones instead of flowers?

— **ROYAL AGRICULTURAL AND BOTANIC SOCIETY OF GHENT.**—We are informed that this Society will hold an exhibition of *Chrysanthemums*, to be opened on Monday, November 8. This exhibition is to be an international one, and it is to be hoped will be successful. It is requested that entries be sent in before November 1. There will be held in connection and on the same day as the show a meeting of the "Chambre Syndicale."

— **ABROMA AUGUSTA.**—Amongst the many things that compete for a place in the stove this one seems to enjoy but a short-lived reputation, when it gets discarded probably to make room for some new comer. It was originally introduced as early as 1770, and was the *Theobroma augusta* of Linnaeus. Although so nearly allied to the Chocolate-tree, its fruit is quite useless for the same purpose, as implied in the more modern generic name now used, and which signifies that it is unfit for food, while *Theobroma* means food fit for the gods. In its native home in the East Indies it attains the size of a small tree, and is of some importance economically for cordage-making purposes. In Britain, however, it proves wonderfully accommodating in houses of prescribed area, and flowers more or less freely when only 2 or 3 feet high. A plant has been flowering for some time in the stove at Kew, although it does not exceed the latter height. The lower leaves are large and handsome, palmately five to seven lobed, with a cordate base and ovate, less divided towards the apex of the branches and amongst the flowers. The latter are nodding, notwithstanding the open and turned-up flower in the figure in the *Botanical Register*, vi,

518, which is drawn in that position to show the interior. The corolla is purple, and presents a peculiar appearance when its structure is examined, on account of the dilated and saccate base of the petals.

— **UNDERCLIFF HORTICULTURAL SOCIETY.**—The second show of the season held in connection with this Society took place lately at Steephill Castle, Ventnor, and proved a complete success. The exhibits were not so numerous; but they were of exceeding fine culture, especially the fruit and vegetables. Three large tents were utilised for the exhibits. The first thing which drew attention were the cut flowers, theatrical arrangements of three large baskets, exhibited by Major D. A. HAMBROUGH, Mr. A. E. DAY, and D. NORTON, Esq., being wonderfully hue. Messrs. DROVER & SONS, florists, Ventnor, also showed some very choice *Pelargoniums*, Dahlias, Verbenas, bouquets, lady-sprays, &c. Mr. MILLS, gardener to Lady Hutton, of Appley Towers, Ryde, and Mr. FRAPP, NITON, gave every satisfaction in their decision as judges. Mr. T. H. CLOUGH, the popular secretary, helped materially to the success of the show.

— **HYBRID ASHES.**—In the *Deutsche Gartenzeitung* for the current month, Dr. G. DIRCK describes and figures a couple of interesting hybrid Ashes. The seed-bearing parent was *Fraxinus parvifolia* and the other the simple-leaved form of the common Ash, *F. excelsior* var. *monophylla* (F. heterophylla, VAHL.) Of twenty-seven seedlings raised, no less than nine had simple or at the most trifoliate leaves which in texture, &c., approached closely to *F. parvifolia*.

— **HARDY FLOWERS FROM READING.**—At the annual exhibition of the Frimley, Yorktown, Cambridge, and Sandhurst Horticultural Society held in the grounds of the Government House at Sandhurst on the 8th inst., an extremely fine display of hardy flowers from the open ground was made by Messrs. SUTTON & SONS, of Reading. The value of this exhibit was in the instruction it afforded as to the fine and showy character of a large number of subjects obtained from seeds sown in the open ground—subjects not so often found in gardens as they deserve to be. They filled a large table, and they were tastefully set up in large bunches, so that the individuality of each could be seen to the best advantage. There were annual *Chrysanthemums* in great variety, the blue *Centaurea cyanus minor*, *Coreopsis tinctoria*, *Cosmosium Burdigalense*, single Dahlias, splendid spikes of Delphinium, *Dianthus chinensis* in variety, Gaillardias of many types, including *Lorenziana*, *Helichrysum* in fine variety, Hollyhocks in spikes cut from plants 8 to 10 feet in height, grown from seeds sown in the open ground this year; the pretty double crimson Jacobaea, Rocket Larkspurs, African and French Marigolds in great variety; Sweet Peas, also *Salpiglossis grandiflora* in such fine form as to set many of the visitors wondering what they were; double German Scabious of unwonted size and brilliancy of colour; Sunflowers, the yellow, purple, and white sweet Sultans, Asters in great variety, Stocks in the finest development, many varieties of Phlox Drummondii grandiflora, spikes of bold and showy Gladioli, and plants of the striped Japanese Maize. It was curious to notice that the visitors gathered themselves about the table containing these flowers as if they were looking for the first time upon many subjects hitherto strangers to them. The probability is they were. They were treated to a sight of many things that can be obtained at a comparatively small expense, and which can be employed to make their gardens look gay during the summer months, and at the same time avoiding the trouble of keeping bedding plants through the winter. This interesting and instructive exhibition received the highest commendation the judges could pass upon it.

— **PUBLICATIONS RECEIVED.**—*Tobacco: Growing, Curing, and Manufacturing; a Handbook for Planters.* Edited by C. G. WARNFORD LOCK, F.L.S. (London: E. & F. N. SPON, 125, Strand).—*Physiology of Plants.* By S. H. VINES, F.R.S. (Cambridge: University Press).—*Life Histories of Plants.* By Professor MCPHINE. (London: SWAN, SONNENSCHEIN & CO.—*Origine des Plantes Cultivées.* PAR ALPH. DE CANDOLLE. (Paris: Felix ALBAU, 103, Boulevard St. Germain).—*Subtropical Cultivation and Climates.* By R. C. HALDANE. (Edinburgh and London: W. BLACKWOOD & SONS).

—GARDENING APPOINTMENTS.—Mr. E. JONES, late Gardener to W. GILSTRAP, Esq., Farnham Park, Bury St. Edmunds, has been engaged as Gardener to H. COCK, Esq., Worcester Court, Worcester Park, Surrey.—Mr. JAMES WEBBER, for over three years Gardener at Hardwicke Court, Gloucester, has been appointed Gardener to G. F. LUTTRELL, Esq., Dunster Castle, Somersetshire.—Mr. F. CAPE, lately under Mr. KING, The Gardens, Oak Den, Holmwood, Surrey, has been engaged as Head Gardener by A. SAUNDERS, Esq., Cliffs End Hall, Ramsgate, Kent.—Mr. W. T. WYTON, for the past six years Foreman to F. W. GRAFTON, Esq., Heysham Hall, Lancaster, has been appointed Head Gardener to Major BIRD, Crookhey Hall, Cockerham, Garstang, Lancashire.

HOME CORRESPONDENCE.

Horticultural Palace and Colonial Fruit Exhibition.—It may be of interest to your readers to know that when the present exhibition at South Kensington is closed, another will, by private enterprise, supersede it. A freehold site of 16 acres has been bought within 4 miles of Charing Cross, close to three railway stations in the west of London, with a permanently open space of several hundred acres adjacent. It is intended to establish a permanent horticultural and fruit exhibition with many of the attractions of the present exhibition, which will be supplemented by a large hotel and dining club. The plans we are preparing will absorb £200,000, and will be on view in a few days at the temporary offices, 4, Station Buildings, South Kensington. A large amount of the above sum has been already promised by gentlemen connected with the colonies. *The Architects to the "Horticultural Palace."*

Wasps.—Last spring I drew attention to the great abundance of wasps which then prevailed. From other sources came evidence of that abundance; indeed, the number of so-called queen or breeder wasps was considered unusually large. It is true great numbers were destroyed, and thus checked the formation of nests; but even such destruction could hardly account for, in what seems to be a great fruit year, an extraordinary paucity of these destructive insects this autumn; at least such is my unusual experience here, for I have rarely seen fewer in the autumn months; indeed, where 50 have been killed sometimes previously, but one is found to destroy now. I shall be interested to learn whether this state of things is general [Certainly not in our experience, Ed.], and if it be so can any one give some tangible reason for it? Were it not for the remarkable prevalence of the wasps last spring it would naturally be supposed that the long and partly severe winter destroyed the breeders. Some more satisfactory reason than that must, however, be found. Having regard to the extent of the plum crop in Middlesex it might have been expected that the insects would have been exceedingly active here. If they are, then they leave me alone. Perhaps others have too many; perhaps not. Whilst we shall always prefer the room of the wasps to their company, yet they are such very familiar acquaintances that some interest must long attach to their proceedings. *A. D.*

The marked scarcity of wasps this season is being noticed on many hands, and it is all the more remarkable because queen wasps were numerous in early spring. It is supposed that the cold and inclement spring weather killed them off. Nests of wasps are certainly few and far between, but Mr. Bell of the Gardens, Strathfieldsaye, informed me a few days ago, that hornets were much more numerous than usual. An old gardener remarked a few days ago that when there was a good plum year, there was also plenty of wasps, but this does not appear to hold good for this season. Is there as great a scarcity of wasps in the north as well as in the south? *R. D.*

Epipactis latifolia.—It is difficult to see the force of the argument at p. 308 concerning this Orchid, although it is quite possible to have found it under the conditions mentioned. The same remark applies in a more or less modified degree to several other species of Orchid as well as other plants which have come under my observation. That there should be an entire absence of leaves on the *Epipactis* this summer after having flowered so strongly last year is singular, and ought to be accounted for in some other way than that the bud is recruiting itself underground before flowering again. If the bud and fleshy fibrous roots have become so much exhausted in the process of producing flowers that they are unable to produce leaves the following year, it would be a physical im-

possibility for them to recruit their vigour without the aid of foliage, unless it can be proved that the plant is either a parasite on the roots of something else, or a saprophyte (feeder on decaying animal or vegetable matter). Without leaves or other exposed and green parts there can be no assimilation, and a parasitic habit does not yet in this instance seem to have been demonstrated. I have detected the plant in a flowerless condition in cresses in the Isle of Wight, and also on the Surrey Downs in similar situations—conditions which I attribute to the denseness of the copsewood and insufficiency of light. Other species of Orchid seem to dwindle away in the same manner until they stop producing leaves, and become, for all practical purposes, dormant; but when the copsewood is again cleared away, they spring into life and activity so suddenly as to preclude the idea that they have originated from seeds in that time. *J. F.*

Peas, Telephone and Others.—One of your correspondents on this subject says it must be owing to cultivation that this Pea has mildewed and otherwise been unfavourable this season. I cannot say that. We cultivate deeply; the kitchen garden is 400 feet above sea level, 3 acres in extent, and without a bush or a tree in it. We sow some 30 quarts and grow all the leading kinds, and usually have Peas on the table five months in succession, finishing with the last week in October, and have gathered the first week in November; so that when I said that this variety had failed with me I did so conscientiously, and it will take some time to persuade me to grow it again, and also its twin brother, Telegraph, which I consider second-rate in flavour. There is hardly a Pea in cultivation in this country which we have not grown here, and many of them before they were even named or had been sent out, so that we know something of the subject. Stratagem for exposed gardens or places where space is a consideration, is simply a magnificent kind to grow—a grand cropper with fine flavour. Wordsley Winter is a kind but little known—a second early and a very desirable kind, and many others which your correspondents name are A. I, but we must not discard that old Pea, Champion of England, although (as I have heard it was sold by the raiser one Sunday morning for a quart of beer), it has stood the test of fifty years and very likely will do so for the same time to come. Our Ne Plus Ultras are just beginning, five grand rows without spot or blemish, and for late work they have no equal. *J. Rust, Eridge Castle, Sussex.*

Turnips.—I have had this season admirable evidence of the value of new seed of turnip in promoting quick growth as compared with old seed. Last year I sowed old seed I think of two years' saving, and the growth was so slow as to lose the season for the production of bulbs. Some seed saved from the same stocks this summer (and rather small seed, too, for I had to pull it early to save it from birds), and sown about the middle of August, in spite of the heat and drought, gave a capital crop, and the growth, although the ground is poor, has been remarkable. I could not wish for better, having in view nice medium-sized bulbs for winter use. The sort is that excellent but still despised kind, Yellow Dutch, or otherwise known as Orange Jelly, the best-favoured Turnip we have, and quite as handsome as any. However, its flesh is yellow rather than white, and that is a sin not to be condoned. The earliest maturing Turnip we have now seems to be the Strap-leaved Milan, an improved Early Manich, keeping better and quite mild. For early use comes the Early Six Weeks, and for winter work the same kind in mild situations. Will any experienced seedsman, who has no speciality in Turnips, kindly say how far the Six Weeks, Muscatel, Snowball, Jersey Lily, differ or agree, and if so, which of these is the true original appellation. The purple and green-top Turnips are rather too large and coarse for garden work, with the exception of those which are exceptionally early. I would ask further is there a better winter garden Turnip than Six Weeks. *A. D.*

The Origin of Helianthus multiflorus.—In Asa Gray's *North American Flora*, vol. i., part 2, p. 280, we are told that *H. multiflorus* "must have been derived from *H. decapetalus*," but why is it not a hybrid between *H. decapetalus* and *H. annuus*, the latter being probably the seed parent? I. The genus *Helianthus* readily produces hybrids, and some annual kinds, fertilised with the pollen of some perennial kinds, produce perennial hybrids. *H. cucumerifolius* in my garden produced several forms of hybrid with *H. doronicoides*, which were perennial. I recorded the fact at the time, but the hybrids were not worth preserving. 2. In its habit and general appearance and its lateness of flowering *H. multiflorus* re-embles *H. annuus* more than *H. decapetalus*. A fine specimen of *H. multiflorus*, grown from a sowing but to a single stalk, and carrying all its flowers horizontally, many of them 6 inches across,

may easily be mistaken at first sight for *H. annuus*. 3. The leaf characters, which are important in *Helianthus*, come in *H. multiflorus* much nearer to *H. annuus* than to *H. decapetalus*. In the latter the leaves are nearly rhomboidal, with a short winged petiole, and sparsely and irregularly serrate. In the other two they are cordate-ovate, with a long free petiole, and more densely serrate. Nearly all the Sunflowers, except *annuus*, which flowers too late, ripen seed here; but I have never been able to find a seed on *H. multiflorus* or on the other hybrids mentioned. If *H. multiflorus* is a development of *H. decapetalus*, where are the intermediate forms to fill up the wide gap? The so-called "major," "maximum," and "flore-pleno," are merely different forms of the same development, and present precisely the same leaf and flower characters, size and doubling being mere accidents of cultivation. *C. Wolley Dod, Edge Hall, Malpas.* [The leaves sent bear out our correspondent's statements. As to *H. decapetalus*, in addition to the characters mentioned, the venation is also different, the secondary veins come off from the midrib at a more acute angle, and run nearly up to the margin of the leaf before they curve and break up into a network. The venation of *H. multiflorus* and *H. annuus* seems to be identical. Ed.]

"Agaricus personatus dangerous."—A note under the above heading, from the pen of Mr. W. G. Smith, occurs at p. 307 of the *Gardeners' Chronicle* for September 4 last, respecting which I have a few words to say. Mr. Smith calls attention to a previous article of his, in which it is pointed out that the *Agaric* is occasionally of a dangerous character—a fact subsequently confirmed by the Rev. J. M. Berkeley. He then says:—"In the *Daily News* for August 25 last a report is given of a case of a man and his daughter who were both killed by eating fungi locally known as 'Blue Buttons,' and no doubt *Agaricus personatus*. I have other records of the same nature." In this case, however, I believe the saddle is placed on the wrong horse, and that *Agaricus phalloides* is the real culprit. I do not the issue of the *Daily News* in question, but have no doubt it refers to the case of the man William Whitworth and his daughter, who died at Nottingham. The facts are these:—Dr. H. Handford, of Nottingham, wrote me on August 23 last as follows:—"I am sending you by this post some specimens of fungi which have caused fatal poisoning in the case of a child, and his father is now in a very critical state under my care in a general hospital situated here. These specimens were handed to me by my colleague, Dr. M. C. Cooke, who determined them to be *Agaricus* (*Amanita*) *phalloides*, Fries (a species which poisoned some people at King's Lynn two or three years ago). There is no doubt of the specimens sent being the plant which did the mischief, for Dr. Handford remarked that they were 'all that remained of those that were gathered.' He described them thus:—"The epidermis in the smaller ones, when fresh, was of a light yellowish olive-green. In the older ones the green was much darker. The gills were quite white." I at once replied to Dr. Handford, who, writing on August 26, supplied the following additional particulars (I give the substance of them):—"My patient died sixty-seven hours after eating the fungus. He mistook it what they call here a 'blue button' or 'blue bottom,' *Agaricus* (*Tricholoma*) *personatus*, which is sold in very large quantities in the market here. A *phalloides* must be a very poisonous variety, as the child only ate part of one." Such are the facts—as I know them—and in this case *Agaricus personatus* may be acquitted, as "Not guilty." Of the other cases mentioned I can say nothing, except to suggest the possibility of a specimen of a poisonous kind being sometimes gathered by mistake amongst a number of eatable ones. One cannot help wishing that the conditions under which an edible species may become dangerous could be definitely ascertained. *R. A. Rolfe.*

Lilium auratum.—Perhaps it may interest your correspondent "A. D. Webb" to hear from other readers, to hear that this handsome and attractive Lily succeeds remarkably well here planted in the open, amongst and between the *Rhododendrons*, the soil being a mixture of peat and loam, and well drained. Single bulbs that were planted in March, 1884, are this year producing from two to four spikes, which are, on an average, from 6 to 8 feet in height. None have less than twelve flowers on a spike, and on one plant with two spikes there are sixty-six blooms, thirty-three on each spike. There have been very striking and noble effect, standing, as they do, above the level of the green foliage of the *Rhododendrons*. *John Austen, Witley Court.*

German Moss Litter for Orchids.—I shall be glad to know if any of your readers can give information as to the use of the above. The great difficulty and expense in getting good peat for Orchids makes one desirous to obtain a substitute, provided it is equally good. But it will not do with such choice

and costly plants to be "penny wise and pounds foolish." I am therefore, for myself and all lovers of Orchids, anxious to obtain what information can be given for our guidance. I had, about five months since, a *Leelia* to which was attached on the block what appeared to me to be some pressed material different to our English peat; finding the roots pushed through it and were numerous, vigorous, and healthy, I examined it closely last week, and found on comparison it was undoubtedly the "German litter" now in such general use in our stables. I am greatly induced, seeing how well this plant is doing, to try the same material on other Orchids by way of experiment, but should not like to risk much without having, if possible, the experience of others. I have heard that it has been tried, and after a time got slimy, and was discontinued. Whether it would be different in a pot to what mine is on a block remains to be proved. *H. J. Buchan, Wilton House, Southampton.*

Non-growth of Primula Seeds.—I got a packet of each of the wing Primulas from a nurseryman, and sowed them in July, but not a seed has yet appeared. The sorts were—Sieboldi, alpina, sibirica, japonica. Will any of your readers say whether I may yet expect a crop? I am told Primulas remain dormant in the pans until the spring. Will any of your readers advise me? *Mrs. Abbot, Abbotleigh, Clifton, near Bristol.* [Primula seeds are often very capricious and long in germinating, and if you keep yours under proper and suitable conditions of heat, moisture, soil, &c., they will probably germinate in the spring, Ed.]

Horticultural Societies and Cottagers.—I have read with much interest the remarks on the National Co-operative Flower Show, at p. 272, and I am inclined to agree with the opinion there expressed—viz., that practical suggestions may be of more value than long discussions on political economy, &c. It will readily be admitted that there is no lack of horticultural societies in the country, and in justice to them it will be admitted that they are nearly all endeavoured to benefit, as far as possible, the cottage gardener by offering him prizes for the meritorious productions of his garden or allotment, and thereby inducing him to take increased interest in the cultivation of the same. It is at the same time necessary, or at least desirable, to do more than this, as the cottager's productions, however excellent they may be found to be, can hardly be safely accepted as a proof of the general excellence of the management of the garden which produced them, for it not infrequently happens that a cottager may be able to show excellent examples of such vegetables as the Potato and the Onion, to which particular attention may have been directed, while other nearly, if not equally useful crops may have been neglected. To prevent, as far as possible, this condition of things, which, unfortunately, is by no means uncommon, and to encourage something like an all-round or uniform system of cultivation, such societies should if possible, take cognizance of such gardens in their entirety. I am aware that it may sometimes be difficult to do this on account of the distance which may separate such gardens from each other, but even this difficulty may be generally overcome. I will, if you will allow me to do so, give your readers a few particulars of the practice of a society with which I am connected, as it bears upon this subject, trusting that possibly some societies which may not have given attention to the matter may be induced to follow, or rather to improve upon the practice of the society I am alluding to, viz., the Bury and West Suffolk Horticultural Society, which, although by no means a very flourishing institution, can nevertheless boast of having existed for many years, or from about the year 1830, and during its career may be credited with having done some good, or at all events it has endeavoured to do so. This society, in addition to offering prizes for the various cottage garden productions which may be exhibited at its shows, also offers prizes to the gardeners in their entirety, that is to the best managed gardens, taking into consideration the quality of the various crops of fruit and vegetables, the condition of walks, fences, and general keeping. To accomplish this object the portion of country surrounding the town of Bury St. Edmunds is divided into districts extending some 8 or 9 miles from the town, and intending competitors are invited to send their names and addresses to the secretary not later than May 1 for each year, when they are each supplied with a form to fill up. This being found satisfactory, their names are entered as competitors in their respective districts. Two judges, both being members of the Society, one an amateur and the other a practical gardener, are appointed for each district, whose duty it is to inspect the competing gardeners' crops, or, oftener, during the year, and to award the prizes, which are paid to the successful competitors at the last show held by the Society for each year. Four prizes—that is, a 1st, 2d, 3d, and a 4th—are allowed to be given in money in each district each year, as well as extra prizes, where

such are considered by the judges as being merited. It is considered that the offering of these prizes act as a stimulus to the cottager's endeavours to excel in the cultivation of his garden, and the calling forth of these efforts, it is hoped, may be of more value to him than even the prize he is trying to secure. In addition to the money prizes alluded to, prizes in kind, consisting of garden implements, and various other useful articles, are each year given by members of the Society, as well as by other friends and well-wishers of the cottager; all of which are assigned to the most deserving by the appointed judges and the committee of the Society, and all of which are most gratefully received. It may also be here stated that the judges who examine the competing gardens consider it a very pleasing part of their duty to offer suggestions and advice to the owners of the competing gardens, and which advice is invariably respectfully listened to, and, as far as possible, followed. And it may, perhaps, not be too much to infer that such advice may have borne its fruits, to judge by the quality of the productions exhibited by the cottagers at the Society's shows, which will generally compare favourably with the productions of the professional gardeners. The Society pays the prizes gained by the cottagers at its shows from its general fund, but the garden funds is altogether distinct and separate from the funds of the Society, and is very kindly supported by voluntary contributions, the donors of which are not confined to the members of the Society. *P. Grieve, Bury St. Edmunds.*

"Revision of the Genus Phalaenopsis."—One or two errors have crept into my paper on the genus Phalaenopsis, which I should like to correct at the earliest possible moment. First I would remark that when I prepared the MSS. I was not aware of the "Synopsis of the Genus Phalaenopsis," by Mr. F. W. Burbridge, which appeared in the *Gardeners' Record*. Mr. Burbridge, I know, will excuse the oversight. On p. 275 F. Lowii is said to be a native of Borneo and Moulmein. The former locality is an error, and should be erased. How it got into my rough notes I cannot say. P. Mariz is described as Bornean, which Mr. Burbridge tells me is an error. The locality was obtained from the *Gardening World*, i. p. 540, where the plant is spoken as "one of Mr. Burbridge's finds in Borneo." From Burbridge's *Gardens of the Swan*, p. 343, I find that it was discovered in the small island of the Sula Archipelago; and in the original description in the *Orchid Album* it is said to grow at an elevation of 2000 feet above sea level. These mistakes also occur in the introduction, and should be corrected. Also on p. 170, column 1, line 30 from bottom, P. Stuartiana is a slip for P. Sanderiana, as, indeed, the context would show. At the head of this column I speak of P. pallens as apparently not now in cultivation. This I am pleased to find is an error, for Mr. F. Moore, of Glasnevin, writes to say that he has a plant which flowered during the present year. In conclusion, I beg to thank Messrs. Burbridge and Moore for kindly pointing out these errors. I would also take this opportunity of saying how much I should value flowers of any of the rarer or imperfectly known species, or any information which may tend to complete our knowledge of this beautiful genus. They would be preserved in the herbarium here, and would thus be available for reference at any future period. *R. A. Rolfe, Herbarium, Royal Gardens, Kew.*

Boilers.—In looking through your last week's edition, we notice an account of the establishment of Messrs. Gregory & Evans, at Sidcup, in which it is stated that "Eight of Rochford's boilers are at work in the place, some of them 15 feet long, others 9 feet; in some respect the latter are liked best." We beg to say that the whole of these boilers have been supplied and fixed by us, and are what we term the horizontal tubular, which is considered a great improvement on those of the "Rochford" pattern. *Thames Bank Iron Company.*

Proliferous Narcissus Bulbs.—I send some specimens of a variety of *Narcissus pseudonarcissus*, showing a prolific habit far in excess of anything I have noticed before in any *Narcissus*. The variety is one which is comparatively new to me, having been sent to me direct from Tuscany about two years ago, and they have not been moved since they were planted. About 50 per cent. out of about 200 show this habit; it is not, I think, due to soil, as other *Daffodils* in the same bed show nothing abnormal. Bulbs round the edge of the basal tunic are generally produced very sparingly in *Narcissus*; and as the variety I send is one which Mr. Barr considers to be the single form of the large yellow garden *Daffodil*, I have been examining bulbs of those which have been planted in good soil, not crowded, for one and two years, but I can find nothing to compare them to with the prolificness of these which I send. *C. W. D. [Any Narcissus bulb might be equally prolific, but as a*

matter of fact they are not. Why not is more than we can tell: if we say it is the result of hereditary tendency we express a fact with no explanation. Ed.]

Reports of Societies.

THE ROYAL CALEDONIAN HORTICULTURAL.

As announced in our issue of last week this Society held its autumn show in the Waverley Market, Edinburgh, on the 8th and 9th inst. Nearly £300 were offered in prizes, and the competition, particularly in the fruit classes, was very keen. Grapes were the great feature of the show. It was generally conceded that a finer and more extensive display of these was never before brought together under the auspices of the Society, which is saying a great deal when its fame in organising great fruit tournaments is considered. There were over 400 bunches of Grapes tabled, not one of which could justly be called inferior, while the average quality reached the highest standard of merit. A little greenness here and there marring otherwise perfect samples was the only point detracting from the excellence of the general display in the various classes of Grapes. Other classes of fruit formed in the aggregate also an extensive show, and with the exception of some of the hardy fruits, which were mainly exhibited by northern growers, the quality was generally good. The short summer in Scotland, with its low mean temperature, sufficiently accounts for any deficiency observable in Apples and Pears in regard to their quality.

In plants there was a falling off in numbers, but the quality of those exhibited was well maintained. Cut flowers were numerous and generally of high excellence. In this connection we were glad to note evidence of the revival of the Hollyhock, which was well represented in both noble spikes and grand single blooms, reminding one of its glorious qualities as an autumn flower before disease set in and all but exterminated it. Turning to the schedule the 1st place is given to

COLLECTIONS OF FRUIT.

The entries for the collection of twelve sorts were not numerous. Mr. McIndoe, Hutton Hall, was placed 1st with a very superior lot containing grand bunches of Gros Maroc and Black Hamburg Grapes; very fine Pitmainst Duchess Pear and Galande Peach, and good Pines. Mr. D. Murray, Culzean, was a very close 2d, his collections containing the finest samples of Golden Hamburg Grape in the show, the bunches being models of form, and the colour exquisite. Mr. Morrison, Archerfield, took the 3d prize, with a very creditable collection.

In the class of eight sorts, excluding Pines, there was a more extensive number of exhibitors. Mr. W. McKelvie, Broxmouth Park, stood 1st in this class, with a collection containing splendidly finished Black Hamburg and Muscat of Alexandria Grapes, Royal George, and Grosse Mignonne Peaches and Pitmainst Orange Nectarine; Mr. Jas. Day, Garlieston, and Mr. George McKinnon, Melville Castle, were 2d and 3d respectively, each with very fine exhibits.

There were in the next class—that of ten dishes of fruits grown out-of-doors, a large number of exhibitors. Mr. L. Dow, Newbyth, carried off the 1st prize, with fine samples of Green Gage and Pond's Seedling Plums, Moor Park and Breda Apricots, and clean, well-finished samples of Thorle Pippin Apple and Jargonelle Pear; Mr. McIntyre, Darlington, was a good 2d; and Mr. Day, Garlieston, came in as a capital 3d.

In class 4, for twelve dishes of orchard-house fruit, the second question of the interpretation of the word "sorts," as it appears in schedule, and is loosely enough expressed in them, and equally loosely interpreted by judges, turned up. We do not pretend to understand the meaning of the word as applied to the particular case in question, but there can be no doubt as to the superior merit of the productions of Mr. Hunter, Lambton Castle, which took the 1st prize. Apart from the question alluded to they were unquestionably the best staged for the prize. The Burslem Del. Pears, Grigolo Bonillon, and Souvenir du Congress Pears were superior samples, as were also the rarely seen Oslin and fine Kerry Pippin Apples, and white Magnum and Engelbert Plums. Mr. D. Melville, Elliston Park, took 2d prize with a very fine collection of certainly more distinct sorts than that constituting the 1st prize lot; the quality also was fine. Lord Napier Nectarines, Fondante d'Automne Pear, and Late Admiral Peach being notably good. Mr. Thomas Bowman, Lasswade, made a very creditable 3d in this class.

GRAPES.

On the first class of Grapes, six black and six

white, the interest of Grape growers was mainly centred. The 1st prize was closely contested. It was secured by Mr. McKelvie, Broxmouth Park, with grand samples of Muscat of Alexandria, Muscat Hamburgh, Barbarossa, Kempsey, and Black Alicante, in splendid form. Mr. J. Boyd, Callander Park, took 2d prize in this class, and Mr. J. Hunter 3d, each staging Grapes of a quality calculated to sustain their names as noted Grape growers.

In the class for eight bunches, Mr. Boyd came to the front with magnificent bunches of Madresfield Court, Muscat Hamburgh, Alnwick Seedling, and Black Hamburgh; Mr. McKelvie was a close 2d, with perhaps the best samples of Muscat of Alexandria, Gros Maroc, and Madresfield Court in the show included in his collection.

The class providing for four bunches of Grapes, distinct, brought out a large number of competitors. Mr. Boyd stood 1st with well-finished bunches of Alnwick Seedling, Black Alicante, Muscat Hamburgh, and Black Hamburgh; Mr. J. McHattie, New Battle, was 2d with splendid samples of Lady Downes, Duchess of Buccleuch, Black Hamburgh, and Muscat of Alexandria, the last named barely finished; Mr. Hammond, Brayton Hall, came in 3d, with four bunches, which struck us as being deserving of a higher place.

First honours in class 8, viz., two bunches Muscat of Alexandria, were easily carried by Mr. McKelvie,

lence. The best Queen came from Mr. G. Ramsay, Fordell, Mr. McIndoe, Hutton Hall, making a good 2d.

Mr. McIntyre, The Glen, Inverleithen, was the only exhibitor in the class of smooth Cayennes, but staged a very good fruit, securing the 1st prize.

The last-named exhibitor also secured the 1st prize in the class for two Pines, and was closely followed by Mr. Ramsay, the only other competitor.

MELONS were a sparse feature, but were of excellent quality. In the green-fleshed class Messrs. L. Dow and John Hammond were respectively 1st and 2d; and in the scarlet-fleshed class Messrs. McIndoe and C. Comfort, Broomfield, were the prize-takers in the order set down.

FIGS formed a poor show as regards numbers, but the 1st and 2d prize lots were both of superior merit, the twelve from Mr. McIntyre, The Glen, taking 1st prize; those from Mr. D. Melville being placed 2d.

PEACHES were well represented, but the 1st prize lot, from Mr. McLeod, Stirling, consisting of twelve enormous and perfect Lord Palmerstons, excited general attention. Mr. John Hammond's twelve were little behind in point of size, and being described as a seedling from Late Admirable, but bearing some resemblance to Stirling Castle, created considerable interest apart from the evident excellence of the variety as a late Peach.

as we have seen them at an autumn show here, but we have rarely seen better specimens of cultivation than appeared in some of the classes. The tables of plants, 20 feet by 5 feet, arranged for effect, in the gardeners' class, was keenly contested by Mr. Grossart, Oswald Road, and by Mr. C. Smith, Restalrig. Both tables were good, but Mr. Grossart carried the 1st prize with a table in which choice foliage and flowering plants—among the latter a good sprinkling of Orchids were blended with admirable taste.

In Cape Heaths and stove and greenhouse plants Mr. John Paterson, Millbank, distanced all competitors with his first-rate specimens in these classes.

In Ferns a Silver Challenge Cup, given for six exotic species, exclusive of Adiantum and Gleichenia was won Mr. McKinnon, Melville Castle, who staged a very fine lot indeed. The 1st prize for twelve dwarf British Ferns was easily secured by Mr. A. Anderson, of Kilrig, an enthusiastic amateur. His collection was a very select one, containing well cultivated specimens of Asplenium germanicum, A. septentrionale, Blechnum spicatum Maundersii, Woodsia hyperborea, and other choice sorts.

Orchids were not numerous but good, the principal exhibitors being Mr. Grossart, who carried off the highest honours; Mr. McLeod, Stirling; Mr. Findlay, Osborne Terrace, Edinburgh; and Mr. John Paterson. Tuberosus Begonias were well represented by the 1st prize lot, belonging to Mr. A. Kerr, Sunlaw.

Table plants also were a plentiful and well contested class amongst gardeners, Mr. McIntyre, Barlingtons, taking the 1st position in the foliage kinds, and Mr. Grossart beating all in the flowering kinds.

NURSERYMEN'S TABLES ARRANGED FOR EFFECT.

Of these there were only two in competition for the Society's prize. The competing tables were 40 feet by 10 feet, and the contest lay between Messrs. Laird & Sons and Messrs. Ireland & Thomson. The first-named firm obtained the 1st prize, with a table of plants which for clearness, health, and the richness of colouring which characterised the Crotons, Dracenas, and all other foliage plants, has never been surpassed at these competitions. There were also some remarkably well done plants of the newer Alocasias and Anthuriums, abundance of lighter and more graceful materials, such as Cocos, Phoenix, Asparagus in several forms, and a light sprinkling of floral colouring. The whole was grouped with good taste.

Messrs. Ireland & Thomson, though beaten, were not disgraced; their table was rich in very desirable stock, and formed a charming picture, in which graceful and highly coloured foliage blended pleasingly.

NURSERYMEN'S TABLE PLANTS.

The collections of table plants put up by nurserymen were excellent, especially those of Messrs. Laird & Sons, which took 1st prize in the foliage class, and also in the flowering class; Messrs. Ireland & Thomson being placed 2d in both cases.

Messrs. Methven & Sons had a very handsome table of Liliums, Palms, and miscellaneous stove and greenhouse plants in flowering and foliage sorts, very tastefully put together. They exhibited also on the same table specimens of the choice wreaths and crosses which are a speciality of theirs. In another part of the hall they displayed an extensive collection of ornamental Ivies in pots, which were greatly admired.

Messrs. Dicksons & Co. had a large table, on which they displayed a good collection of greenhouse, stove, and hardy plants along its centre. On one side of the whole length of the table was laid out a collection of about 130 varieties of Apples, the production of their own trees at Liberton Nursery. The collection was interesting and instructive to those on the outlook for selections. On the other side of the table an assortment of cut flowers including hardy border perennials, Dahlias, Carnations, Gladioli, &c., was displayed.

Near by the last-named firm, Messrs. Lamont & Son, had a large table occupied chiefly with blooms of their splendid strain of Single Dahlias, already commented on in recent issues.

The Lawson Nursery Company made up an attractive group of well-grown Conifers, Ivies, and other hardy stock in pots at one end of the hall. Some large naturally grown plants of Clematis viticella rubra and several varieties of greenhouse Rhododendrons in flower, added colour and interest to the group. A very distinct Golden Yew named Taxus horizontalis aurea—a form we have not met with before—attracted general attention.

Mr. Robertson Munro, Jocks Lodge, had a pleasing table of hardy perennial and alpine plants, summer-flowering Chrysanthemums, and Dahlias.

The New Bull Company, Colchester, were represented by a very attractive exhibit of Lilium blooms, especially forms of L. auratum, and L. speciosum, Nerines, Gladioli, and a few Orchids.

Mr. Thos. S. Ware, Tottenham, put up an excellent assortment of single and double and pompon Dahlia blooms.



FIG. 76.—PROLIFEROUS NARCISSUS BULBS. (SEE P. 372.)

whose bunches were excellent; Mr. Day took 2d position with large bunches and enormous berries which however fell somewhat short of perfect finish.

The two finest Black Hamburgs were put up by Mr. Boyd, and the next best by Mr. Murray, Culzean, both lots being excellent in colour and finish.

Mr. Potter, Whitehall, Carlisle, carried off the 1st prize for one bunch Muscat of Alexandria, a not fully finished sample, which however foretold perfection by-and-by; and Mr. Murray, Parkhall, took the 2d prize.

The best single bunch Black Hamburgh came from Mr. Collins, Walkerburn; the best single Alicante from Mr. Wilson, King's Knowes; the best Alnwick Seedling from Mr. D. Murray; the best Gros Colmar from Mr. J. Jeffrey, Craigcleuch, Langholm; the best Lady Downes from Mr. W. Murray, Parkhall.

The best black Grape, not named in the schedule, came from Mr. McKelvie, being a fine bunch of Gros Maroc.

The best white Grape, not named in the schedule, was put up by Mr. Ramsay, Fordell, a remarkable bunch of Chasselas Napoleon.

The best flavoured black Grape proved to be a small but highly finished sample of Muscat Hamburgh, from Mr. McIndoe; while the best flavoured white was Duchess of Buccleuch, grown by Mr. McHattie.

The best bloomed black Grape was staged by Mr. Boyd.

PINES were not numerous nor remarkable for excel-

NECTARINES were few but good, the Pitmaston Orange, from Mr. Harkness, Broadmeadows, which took 1st prize, being of superior quality.

APRICOTS were rather scarce, but well represented by those from Mr. Galloway, Minto House, twelve fine Moorpark, which took 1st prize.

PLUMS were pretty numerous, the best coming from Mr. McIntyre, Darlington, Mr. Richard Parker, Impney, Droitwich, and Mr. Gideon Potter, North Berwick.

PEARS were only moderately numerous, but some very good samples were put up, the best in the class of six varieties fit for table being from Mr. McLean, Maidstone.

APPLES constituted a numerous display, but with a few exceptions were not up to average quality at this season of the year. The best collection of twelve varieties was exhibited by Mr. Galloway. The best six dessert varieties fit for table were put up by Mr. D. Murray. The best six Blenheim Oranges from Mr. Richard Parker. The best six Cox's Oranges also came from the last-named grower. The best six each of Ecklinville seedling, Keswick Codlin, Warner's King, and the six heaviest Apples were put up by Mr. Brotherton, Tynningham. The finest Golden Nobles, Lord Suffield, and Ribston Pippin were the growth of Mr. McLean.

PLANTS.

As has already been said these were not so numerous

The table of plants exhibited by Mr. Lindsay, Curator of the Edinburgh Botanic Gardens was in so far as plants were concerned, perhaps the most interesting of any in the hall to both the gardening and the general public. It was furnished with beautifully-grown plants of various *Succrarias*, *Darlingtonias*, *Nepenthes*, *Droseras*, *Rhipidopteris*, and many other things interestingly attractive even to the uninitiated in plant lore.

CUT FLOWERS.

In the classes set apart for gardeners and amateurs there was some very close competition, and there was a pretty full representation of the various classes of autumn flowers. The spikes of Hollyhocks tabled by Mr. Kerr, Sunlows, left nothing to be desired, the same may be said of his single blooms, which were good in their form and cleanness of petal. The six blooms shown by Mr. Tweedie, teacher, Swinton, afforded gratifying evidence also of the fact, that a longish has been found in several parts of the country simultaneously, by which the hitherto fatal fungus that has so long rendered the successful culture of this favourite autumn flower impossible may be overcome.

In the nurserymen's classes of cut flowers there were some capital Hollyhocks exhibited by Mr. Campbell, florist, High Blantyre, who took 1st prize for both spikes and single blooms. Messrs. Stewart & Mein, Kelso, were 2d. Gladioli were shown in perfection by the fast-named firm, their thirty spikes gaining 1st prize, and the admission of everybody.

Single Dahlias were competed for by Messrs. Lamont & Son, Dundee. Laird & Sons, the former taking an easy 1st prize.

There was a limited show of double Dahlias. Messrs. Laird & Sons were placed 1st for twenty-four show sorts, and Mr. Hugh Dickson, Belmont, 2d—a position which, in the opinion of many, it was considered should have been reversed.

Roses were well exhibited by Messrs. Cocker & Sons, Aberdeen; Mr. Dickson, Belmont; Mr. T. Smith, Stranraer; and Messrs. Croll, Dundee. The contest for honours between the two first-named growers in the larger class of twenty-four blooms, we understand it was somewhat of a surprise to Messrs. Cocker and many besides that they were awarded the 1st prize.

In the class of eighteen blooms, Mr. Dickson was placed 1st, and Mr. T. Smith 2d.

VEGETABLES.

There was a grand number of vegetables, one of the finest that has been seen in recent years at this show. Great excellence characterised many of the exhibits, the grand Onions set up by Mr. D. Murray, Culzean, the enormous Leeks of Mr. Cairns, The Hirsch, Coldstream, and the collection of seventy-five distinct perfect samples of Potatoes by Mr. Bogie, Dundonald, were specially notable.

ROYAL NORTHERN HORTICULTURAL OF ABERDEEN: AUTUMN SHOW.

On Friday and Saturday, the 10th and 11th inst., the annual autumn show of this Society was held in the Music Hall Buildings, Aberdeen. The exhibition was generally regarded as one of the best the Society has had.

In the section for pot plants there were some good specimens of Fuchsias. As a rule the plants were in excellent bloom, but the foliage was in bad condition. For Fuchsias, which were best in the amateur section, Mr. William Shirreff, Aberdeen, took 1st, 2d, and 3d prizes.

Liliums, Begonias, Dracenas, and Ferns were well represented. Indeed, in regard to the cut flowers, generally speaking the display was magnificent. There were Dahlias (single, and double, and pompon), Gladioli, African and French Marigolds, Asters, Carnations, Phloxes, and Pansies. Herbaceous flowers were the best feature in this section. Hand bouquets come in for a large share of attention, and they comprised a very creditable display, the wild flowers of course being a feature.

In the competition confined to nurserymen Messrs. Cocker & Sons, Aberdeen, took the 1st honours for double Dahlias, single Dahlias, and Roses; while Messrs. Laird & Sons, Edinburgh, were 2d for Dahlias; and Messrs. D. & W. Croll, Dundee, 2d for Roses. The Edinburgh firm took the 1st place for table plants, Messrs. Cocker & Sons being 2d, and Messrs. W. Smith & Son, Aberdeen, 3d.

For Roses and single Dahlias, in the professional class, Mr. James Hunter, Richmond Hill, was 1st. For double Dahlias, Mr. James Wilson, Montrose, was 1st.

For pompons, Mr. A. Davidson, Aberdeen, was 1st. FRUIT.—In the section for fruit, the display of Grapes was the finest seen at any of the Society's shows for many years. For bunches of Grapes Mr. Straton, gr. to Mr. Lumden, of Balmacleid, took the 1st prize in the competition for three varieties and two varieties;

the 2d and 3d honours going to Mr. Andrew Reid, Darris, and Mr. John Forrest, gr. to the Earl of Aberdeen, Haddo House.

Mr. Forrest was 1st for white Grapes; and he occupied a similar position in the competition for the best collection of fruit considered as a whole.

VEGETABLES.—The section for vegetables was by far the best in the show. There were no less than seven baskets of vegetables, and the person who gained a prize had to have something very special before he could secure the honour. Mr. George Ogg, gr. to Major Ramsay, of Barra, took the premier position for baskets of vegetables in the section open to gardeners only, and Messrs. George Milne, Cluny, and George Wilson, Montrose, were 2d and 3d respectively.

In the competition confined to market gardeners, Mr. William Henderson, Bloomfield, Aberdeen, was 1st; Mr. Davidson, Aberdeen, 2d; and Mr. John Yule, Woodside, 3d.

For Potatoes, which comprised the best display in the hall, Mr. Grigor, Sunnyside, carried the chief honours, obtaining the Society's Silver Cup.

DECORATIONS.—The table arranged by Messrs. Cocker & Sons contained a collection of Carnations and Picotees, in which were over 150 blooms, including all the finest varieties in cultivation. Their Roses were a special feature, made up in bunches of all the leading varieties, including amongst those which were specially caught the eye, Marie Van Houtte, Grace Darling, Madame de Uteville, and Madame Lambard. The I.P.'s were also represented, but one had only to look at the 1st prize stand to realise the excellence of the collection.

Conspicuous amongst the herbaceous plants were the three varieties of the Iceland Poppy, white, orange, and yellow, which are very popular.

Messrs. Smith & Sons, of Aberdeen and Kintore, exhibited neat and select collections of stove and greenhouse plants, Ferns, Gladioli, hardy herbaceous flowers, &c. The Gladioli were of the seedling and named hybrid varieties, and included some very fine new flowers. The speciality of this firm's exhibit, however, was their rare and extensive collection of hardy herbaceous flowers, a class of flowers rapidly growing in popularity, and replacing the erstwhile bedding plants.

Messrs. Ben Reid & Co., of Aberdeen, also showed a capital collection of stove and greenhouse plants, including *Ananas sativa* variegata, a very handsome specimen, a few good pots of Liliums, Pelargoniums, Crotons, Palms, Dracenas, Pandanus, Ferns, Coleus, Aralias, Caladiums, &c.

Messrs. Dobie & Company, Rothsay, sent a beautiful collection of flowers for exhibition.

DUNDEE SHOW: September 2.

A LARGE marquee and two tents were erected on the Magdalen Green for the accommodation of the exhibits, which were in excess of last year, numbering 1704. For plants there were 207 entries, cut flowers 500, fruit 267, and vegetables 620, in addition to 110 entries in the honey department.

The central marquee, 300 feet in length by 45 feet in breadth, was devoted to pot plants and flowers. The tent on the East of it was occupied with fruit, honey, and flowers, while the one on the West was set apart for vegetables. The display of tree Ferns, Palms, and large foliaged plants presented quite an impressive appearance.

The foremost group of pot plants were the four pots of summer flowering *Chrysanthemums*, for which Mr. William Kennedy, gr. to Provost Ballingsall, gained the 1st prize. These remarkable plants have excited the admiration of nurserymen, gardeners, and amateurs. They were not only large, but firm and shapely in form, and of decided colouring, throwing the other competitors far in the shade.

Mr. Kennedy also showed six cut white *Chrysanthemums* at the left hand side of the entrance to the east marquee. They measured from 14 to 16 inches in circumference, and the breadth, fineness, and substance of the petals were specially noteworthy.

In Mr. George Davidson's prize lot of Lilium auratum the stems were from 5 to 7 feet high, and showed about 100 full-sized, rich-coloured flowers in excellent condition.

TABLES.

To gardeners and owners of conservatories the most conspicuous feature of the show was the competition between two redoubtable prizetakers for the best "table, 18 feet long by 8, of stove and greenhouse plants, for effect." The 1st prize went to Mr. Peter M'Arthur, gr. to Mr. John Leng, Kinbrae, and the 2d to Mr. William Allison, gr. to Mr. W. F. Low, Seaview.

There were no less than seventy beautiful Crotons on the two tables. Mr. Allison showed rare and valuable specimens of *Lycaite Skinneri* alba and *Saccolabium Buennia* majas. He also carried off the 1st prize in the interesting contest for the £4 and £2 10s. prizes for nine stove plants; Mr. Peter Marshall, gr. to Provost Robertson, Balmore, another worthy prize-

taker, came in 2d. Both groups of plants were admirable specimens. Conspicuous among Mr. Allison's were *Cycas revoluta*, *Stephanotis floribunda*, and *Crotons Andreanus*, interruptus, and Queen Victoria. Mr. Marshall among his nine showed *Phormium variegatum*, *Coprosma Baueriana*, and a remarkably fine *Saxifraga* purpurea, and perhaps the largest *Cycas revoluta* in the show. The competitions for the six prizes for six stove and greenhouse plants were also much admired.

The Fuchsias were not many in number, but exceedingly graceful in habit and beautiful in flower. Mr. Hector J. Watts, gr. to the Misses Thow, Craigmore, who gained the 1st prize for three, had splendid specimens.

In flat and quilled Asters the competition was extensive and keen, as all the flowers were in fine form and condition.

Miss Pitkethly, Elcho Cottage, Perth, showed, in her prize twelve herbaceous flowers from the open border, a very beautiful array, deserving attention.

The single Dahlias have grown greatly in favour, and the nine bunches, for which Mr. James Hunter, gr. to Mr. John Lyall Grant, Richmond Hill, Aberdeen, gained 1st prize, were specially noticeable by the taste displayed in their arrangement.

The Dundee shows are never complete without Messrs. James Cocker & Sons' Roses. As usual these enterprising Aberdonians were in the front with exquisite examples of their favourite flower. Among their numerous exhibits were a number of new Tea Roses. Messrs. Cocker were also 1st in double Dahlias.

Messrs. John Stewart & Sons, nurserymen and seedsmen, Dundee and Broughty Ferry, exhibited a fine collection of ornamental Conifers, which are arranged in a group adjoining the Committee's tent. Among the best specimens of the collection are *Abies* or *Picea concolor*, a silver Fir from the Rocky Mountains, with leaves of a striking glaucous hue; *Thuja occidentalis* lutea, a golden-leaved variety of the North American Arbor-vitae, which is likely to become a general favourite, owing to its extreme hardiness; *Juniperus sinensis* aurea, a fine specimen of the golden variety of the Chinese Juniper, a plant which seems to thrive in very exposed situations in Scotland; *Prunopitys elegans*, a Yew-like plant, with bright green foliage, a native of the mountainous districts of Chili, but which has proved itself hardly only in the most favoured situations in this country; and a number of *Elwanger's* or the Tom Thumb Arbor-vitae, of dwarf habit and feathery appearance. The group is edged by little plants of the Japanese golden *Retinospora*.

Messrs. W. P. Laird & Sinclair showed a magnificent collection of stove and greenhouse plants, exotic Ferns, double, single, and pompon Dahlias, bedding Violas, &c. For the competition tables the firm stands alone, and to their credit had staged a rich collection of plants which for wealth of colour, diversity of foliage, and tasteful arrangement attracted considerable attention. In the centre of their table was placed a magnificent specimen of *Dracena Lindenii*, a variety of recent introduction, and whose graceful foliage rendered it peculiarly adapted for the position. It was well supported by superb specimens of *Croton Chelsoni*, *C. volutus*, *C. Williamsi*, and *C. Lady Zealand*, the bright golden foliage of which presented a pleasing contrast with the dark red colour of the *Dracenas*, several of which, such as *D. Mrs. Freake*, *D. nigrescens*, &c., are well worthy of notice. Among the more prominent plants were fine specimens of that graceful of all Palms, *Gonoma gracilis*, *Maranta Veitchii*, *Dieffenbachia Buerfii*, *Athyrium ornatum*, and *Alceasia Sanderiana*, the latter of which is a charming variety of recent introduction. The ground work of this table was composed of small Palms, Ferns in great variety, and the graceful hanging mosses lent a pleasing effect to the whole. They also staged a large collection of plants for exhibition, containing fine Crotons, *Dracenas*, Palms, &c. For twelve exotic Ferns they again gained the premier position with beautifully grown specimens of *Adiantums*, &c. The twelve plants for table decoration brought forward a large number of entries, and with perfect specimens of *Crotons*, *Aralias*, *Dracenas*, and Palms, this firm deservedly were placed 1st.

The Messrs. Croll had, as usual, exhibited largely, and took several prizes. Their 1st prize Gladioli were very fine, and among these were *Anna*, *Shakespeare*, and *Thalia*. Roses, of which they make a speciality, were numerous; most noticeable among them were *Charles Lefebvre*, *Gloire de Dijon*, *La France*, *Alfred Colomb*, *A. K. Williams*, and *Prince of Wales*.

OXFORD MILLS FLOWER SHOW.

The yearly floral and horticultural show of the Oxford Gardeners' Society, Ashton, was opened on Saturday afternoon by Mr. Bruce Findlay, of the Royal Horticultural Gardens. The flowers entered for competition were unusually good, some of the specimens of Stocks being very large and compact—

in fact, the best ever exhibited at the show. There were also some very fine Gladioli and Liliums. The fruit generally was excellent, the Peas particularly so; and some of the vegetables were worthy of commendation, especially the Cauliflowers.

Mr. R. France, of Crowthorn Nursery, as in former years, had a large collection on view. His show of Roses was very good. There were two-and-a-half dozen blooms in a box, all of them labelled and named for the benefit of those who desired such information. He also showed fine examples of Marigolds, Dahlias, Asters, Antirrhinums, Zinnias, Ferns, Balsams, Fuchsias, Begonias, Coleuses, Pelargoniums, T. plants, Pelargoniums, Dracenas, &c., the whole forming a very interesting exhibition, and one particularly creditable to local skill and perseverance in overcoming so well the drawbacks of a sterile soil, damp climate, and smoky atmosphere as to be able to bring forth results fairly to be put in competition, in some cases, with the produce of more favoured localities.

Mr. G. R. Garner, florist, of Bakewell, exhibited an admirable collection of flowers tastefully arranged in moss on a sandbed.

The Phloxes elicited admiration as magnificent specimens, and it was noticeable as a whole that the flowers were much larger than the corresponding ones usually seen in this locality. The Asters and Roses and single Dahlias were particularly noticeable for their large dimensions.

THE OPENING CEREMONY.

Mr. Bruce Findlay said he had been asked by Mr. Rupert Mason to appear there to say a few words on the subject of cottage gardening and the allotment system. Cottage gardening shows were increasing and multiplying throughout the land. Touching cottage gardening and allotments, he gave a lecture seven or eight years ago in Manchester, in which he said:—

"Whatever relates to the improvement of the soil and its profitable appropriation is of the highest importance. It is well known that the agricultural labourer of this country have not the same interest in the soil as they once had. Every village and district of the country readily affords examples of patches of land having been consolidated with a larger tract belonging to some wealthy person in the neighbourhood. Though this is a necessary consequence of the improved state of agriculture, the decay of the cottar tenantry is an evil which has been always insufficiently appreciated. There can be no doubt whatever that where practicable it is consistent with sound policy to let the English labourer have a share of the land. Various schemes have been propounded, having for their object the improving the condition of the agricultural labourer, many of which seem to be incompatible with his capacities. Out of this element he is timid and helpless, but in all his powers seem to be gratified. The desire he evinces to become possessed of a patch of land to cultivate on his own account is little short of a passion, and it seems important to retain him in that to which he has been so long an apprentice. Inconsiderate friends, on the other hand, in talking and writing about it have pronounced it to be the realisation, in a great measure, of the state of perfect existence which poets have sighed for, and that which will sooner or later possess the whole land, but poets, as a rule, are but ill qualified judges of what is practically beneficial, and in the allotment system there is no poetry except that which springs from hard work. If anything will "possess the land" it is hard work. The allotment system itself would throw out thousands as unworthy to touch the soil which has appropriated to its most useful purposes. This subject has occupied the attention of almost every writer on rural economy, but the benefits to be derived will not fully appear in any case where spade husbandry is not strictly carried out and the greatest cleanliness maintained."

It is to be hoped that some intelligent farmers will take the hint thrown out by Mr. Gladstone, for there can be no doubt that the very implements in use under the allotment system leave the plough at an immeasurable distance in the background. Ireland has been often mentioned as a country of cottage allotments, and it has been asked is there anything there to induce its adoption elsewhere. Ireland may have its allotments, but certainly they are not cultivated; and so long as it remains a theatre of tumult and disorder, how can the arts of peace be prosecuted to a degree to give us any indication of what is really good or bad in the undertaking? It is scarcely fair, therefore, to form any opinion of the allotment system from the picture presented to us by Ireland. Besides which, it is notorious that, the great proportion of the labouring classes in that country prefer idle, reckless, and exciting scenes, to the cultivation of their crops. Against the generous people allotments will do great things, but they will not save the idler from the disgraceful situation which awaits him in society."

NATIONAL CHRYSANTHEMUM.

An exhibition of early Chrysanthemums, with Dahlias, Gladioli, &c., was held at the Westminster Aquarium on September 9 and 10, when the following prizes were awarded:—

PRIZE WINNERS.				
Class.	Exhibits.	First.	Second.	Third.
<i>Chrysanthemums.</i>				
1	Group of early-flowering Chrysanthemums, arranged in a space not exceeding 60 square feet, quality and general effect to be the leading features	Mr. N. Davis, Camberwell	Mr. J. Wright, Temple	Mr. G. Stevens, Putney
2	Group of early-flowering Chrysanthemums arranged in a space not exceeding 40 square feet, quality and general effect to be the leading features (nurserymen excluded)	....	....	....
3	Collection of forty-eight plants as grown for market	....	Mr. W. Holme, Hackney	....
4	6 plants (untrained) of Madame C. Desgrange	Mr. Wright, Temple	Mr. Stevens, Putney	....
5	6 plants (untrained) any varieties except Madame C. Desgrange	Mr. Stevens, Putney	....	....
<i>Cut Flowers.</i>				
6	Collection of cut Chrysanthemums (any varieties)	Mr. Stevens, Putney	Mr. Davis, Camberwell	Mr. W. Piercey, Forest Hill
7	12 blooms, Madame C. Desgrange	Mr. Wright, Temple	Mr. Stevens, Putney	Mr. T. Sadler, Stratford
8	12 Blooms, any varieties except Madame C. Desgrange	Mr. Sadler, Stratford	Mr. Davis, Camberwell	....
9	12 Pompons (hybrids allowed), three flowers of each, to be shown with foliage	Mr. Davis, Camberwell	Mr. W. Holmes, Hackney	....
10	6 Bunches, Madame C. Desgrange, three blooms in each, with foliage	Mr. Stevens, Putney	....	....
11	6 Bunches, any varieties except Madame C. Desgrange, three blooms in each, with foliage	....	....	Mr. G. Dolas, Wickworth

The following prizes were offered by the Royal Aquarium Company:—

PRIZE WINNERS.				
Class.	Exhibits.	First.	Second.	Third.
<i>Gladioli.</i>				
12	Collection of Gladioli spikes	£ s. d. 4 0 0	£ s. d. 3 0 0	£ s. d. 2 0 0
13	12 Gladioli spikes	1 0 0	0 10 0	0 5 0
<i>Dahlias.</i>				
14	45 blooms (show or fancy), not less than twenty-four varieties, or more than two blooms of one variety	4 0 0	3 0 0	2 0 0
15	24 blooms, show varieties, distinct	1 0 0	2 0 0	1 0 0
16	24 blooms, fancy varieties, distinct	1 0 0	2 0 0	1 0 0
17	24 bunches, pompon varieties, distinct	2 0 0	1 10 0	1 0 0
18	24 bunches, single varieties, distinct	2 0 0	1 10 0	1 0 0
19	12 blooms, show varieties, distinct	1 0 0	0 15 0	0 10 0
20	12 blooms, fancy varieties, distinct	1 0 0	0 15 0	0 10 0
21	12 bunches, pompon varieties, distinct	1 0 0	0 15 0	0 10 0
22	12 bunches, single varieties, distinct	1 0 0	0 15 0	0 10 0

JUDGES.

Dahlias, Gladioli, &c.:—Messrs. R. Dean, G. Gordon, and Swift. Chrysanthemums:—Messrs. Gilbey, Gibson, and Kendall. Honorary Secretary: Mr. William Holmes, Frampton Park Nurseries, Hackney.

of the show day. It leads to a great deal of confusion, and it causes a vexatious delay.

FUCHSIAS.

Fuchsias have the foremost place in the schedule of prizes, and here they were presented in that character for which the district is famous. Mr. J. Lye, gr. to the Hon. Mrs. Hay, Cliffe Hall, Market Lavington, was 1st with nine remarkable specimens, grown and flowered in his usual excellent style, the varieties being *Dod's Favourite*, *Thomas King*, *Henry Brook*, *Benjamin Pearson*, *Final*, and *Floribunda*; dark varieties; *Lye's Favourite*, *Emily Bright* and *Pink Perfection*, light sorts; 2d, Mr. George Tucker, gr. to Major W. P. Clark, Trowbridge, with only just inferior plants of *Charming*, very fine; *Dod's Favourite*, *Bountiful*, dark; and Mrs. Lucy Timmis, double white corolla, as his best plants. 3d, Mr. E. Snell, gr. to Mr. Council, Bath. Mr. J. Raddick, gr. to Mr. Pinder, Bath, was 1st with six plants, staging excellent specimens; Mr. A. W. Southam, gr. to F. J. Walker, Esq., Bath, being 2d.

The best four were shown by Mr. Thomas Jolly, gr. to A. Hawkins, Esq., Bath, a very good lot. There were classes also for single specimens, light and dark variety.

STOVE AND GREENHOUSE PLANTS.

Mr. James Cypher, of Cheltenham, scored another

victory, being an easy 1st with twelve plants in bloom, his best being *Lapageria alba*, Ixora Duffi, his huge *Phenocoma*, *Allamanda nobilis*, Ixora Regina, and Erica Altoni Turnbull; 2d, Mr. W. Lopley, gr. to C. Gardner, Esq.; and 3d, Mr. J. F. Mould, nurseryman, Pewsey.

Mr. Tucker had the best six plants, staging nice fresh well-grown and flowered examples of *Bougainvillea glabra*, *Lapageria rosea*, *Stephanotis floribunda*, *Anthurium Scherzerianum*, *Allamanda Hendersoni*, and *Rondeletia speciosa* major; 2d, Mr. W. J. Mould, gr. to E. E. Bryant, Esq., with *Allamanda Hendersoni*, *A. nobilis*, *Ixora amabilis*, Erica Eweriana, &c.

In the classes for a single specimen stove, and also of greenhouse plant, Mr. J. Cypher was 1st.

Mr. J. W. Mould had the best new or rare plant, staging *Anthurium Veitchii*; Mr. J. Mould being 2d, with *Croton Bergmanni*. Mr. J. Cypher had the best six Heaths, the specimens small; and Mr. J. F. Mould was 2d.

Mr. W. J. Mould had the best three; Mr. W. C. Drummond, nurseryman, Bath, being 2d. There was also a class for single specimens. Mr. J. Cypher was 1st with six *Orchids*, showing nice examples of *Cattleya Gaskelliana*, *C. Dowiana*, *C. speciosissima*, *Odontoglossum grande*, *Dendrobium bigibbum*, and *Saccolabium Blumei*; 2d, Messrs. Heath & Son, nurserymen, Cheltenham; and 3d, Mr. T. W. Fisher, gr. to R. B. Cator, Esq., Bath.

MISCELLANEOUS FLOWERING PLANTS.

Foremost among these must be placed the bedding *Pelargoniums*. The best six specimens—the best grown and flowered plants we have seen this season—came from Mr. Tucker, the varieties were Mrs. J. Gibson, Evening Star, President, Mrs. Strutt, Lizzie Brooks, and F. Atkins; 2d, Mr. G. Ruddick.

Variegated varieties were also shown in sixes: Mr. J. Lye had six excellent plants in the class from which tricolors were excluded.

Balsams were represented by sturdy well flowered specimens. *Verbenas* were good, *Petunias* also; there were a few good *Achimenes*, *Cockscombs* were very fine.

Mr. A. A. Walters, nurseryman, Bath, had the best three *Liliums*; Messrs. G. Cooling & Son, Bath, being 2d. Mr. Cypher had the best specimen *L. auratum*; and J. Cypher being 2d.

Tuberous-rooted Begonias were a very fine feature, the Rev. Canon Bernard had the best six, including *Snowflake*, a very fine white; Mr. W. Gingell, gr. to W. Clifford, Esq., being 2d; and Mr. J. Durbin, gr. to Solomon Tredwell, Bath, 3d.

FINE-FOLIAGED PLANTS, &c.

The best twelve came from Mr. J. Cypher, as usual, a fine lot; Mr. J. F. Mould being 2d. Mr. W. C. Drummond had the best single specimen. Mr. W. Dobson being 2d. Mr. Cypher had the best single specimen; Mr. Drummond coming in 2d. Mr. J. Lye was placed 1st, with six capital specimens of *Coleus*, well grown and the leaves finely coloured.

Ferns were shown in collections of fifteen and nine. With the larger number Mr. J. Coke, gr. to A. P. Stancombe, Esq., Trowbridge, was 1st with a medium-sized, fresh and very even lot; Mr. W. J. Mould being 2d; and Mr. Tucker, 3d. In the class for nine plants, Mr. Thomas Tinkle, gr. to Thos. Carr, Esq., Bath, was 1st, with a very good lot, having *Davallia Mooreana*, *D. canariensis*, and *D. Tyermani*, *Gymnogramma Martensi*, *Asplenium adnigrum*, *Adiantum cucullatum*, *A. gracillimum*, &c.; 2d, Mr. W. C. Drummond, Bath. British Ferns were also shown in collections of fifteen.

CUT FLOWERS.

A very fine collection of thirty-six spikes of *Gladioli* came from Mr. S. Bird, gr. to S. Dobree, Esq., Wiltlington, showing the best style; Mr. G. W. Walters, Chippenham, being 2d. Mr. James Tout had the best twelve spikes; Mr. S. Tottle being 2d. *Dahlias* were numerous and finely shown. Messrs. Keynes, Williams & Co., Salisbury, were 1st with twenty-four blooms, the leading blooms being *Colonist*, *Harry Keith*, Mrs. Langtry, Vice-President, Constance, Henry Bond, William Rawlings, Miss Cannell, Mrs. Gladstone, Mrs. Shirley Hibberd, Lord Chelmsford, John Wyatt, &c.; 2d, Mr. G. Humphries, Filton, Chippenham.

Mr. Henry Bush, Bath, had the best twelve; Mr. Humphries being 2d.

Messrs. Keynes & Co. had the best nine fancy varieties, staging excellent blooms of *Gaity*, *Rebecca*, *Pelican*, *Fanny Sturt*, *Henry Glascock*, *Rev. J. B. M'Cann*, *General Gordon*, *Salamander*, and a seedling; 2d, Mr. G. Humphries.

Messrs. Keynes & Co. also had the best twelve bunches of single *Dahlias*, Mr. A. A. Walters being 2d, and M. T. Tinkle 3d.

Roses were well shown also. Mr. J. Mattock, nurseryman, Oxford, had the best twenty-four, three of each, the following being especially noticeable—*Souvenir d'Elise Vardon*, *Madame H. Jamin*, *Perle des Jardins*, *Souvenir de Paul Neron*, *Marie van*

Houtte, *Jean Pernet*, &c.; 2d, Mr. G. Campbell, gr. to J. P. Budd, Esq., Bath; Mr. W. Smith had the best twelve, three blooms of each, Mr. W. Narraway, Oxford, being 2d; Mr. Smith was also 1st with twelve single bunches; Mr. S. P. Budd being 2d.

Mr. A. Hawkins was 1st, with twelve varieties of *Verbenas*, six trusses in a bunch, staging a very good lot; Messrs. Geo. Cooling & Son being 2d. The last named had the best twelve bunches of zonal *Pelargoniums*, staging a very fine lot indeed; Mr. J. Mattock being 2d.

Asters, both French and German, were very fine indeed, and very numerous. The best twenty-four blooms of German Asters came from Mr. W. J. Jones, gr. to J. S. Pope, Esq., Bath; Mr. A. A. Walters being 2d. Mr. Evry had the best twenty-four French Asters; Mr. W. J. Jones being 2d.

Phloxes, in spikes, in twelve varieties, were well shown by Messrs. W. Lutton & J. Mattock.

The best twenty-four bunches of cut flowers came from Messrs. Heath & Co., Cheltenham, but they risked the chance of disqualification by putting up four or five varieties of *Gloxinias* in a bunch, the exhibit being restricted to twenty-four varieties; Mr. W. C. Drummond was 2d, but with a much less valuable collection.

TABLE DECORATIONS, BOUQUETS, &c.

Mr. J. Cypher had the best centre-piece for a dinner-table; Mr. W. Dobson being 2d. These were done in the best taste, and the same exhibitors were also 1st and 2d with a hand bouquet. Bouquets of wild flowers were also largely and admirably shown; and epergnes of the same also; also collection of twenty-four bunches.

FRUIT.

It was said to have been one of the finest exhibitions of fruit seen in Bath for some time. The best collection of eight dishes came from Mr. Nash, gr. to the Duke of Beaufort, Badminton, who had a very good lot, consisting of *Alicante* and *Muscad* of *Alexandria* Grapes, *Bellegarde* Peaches, *Nectarine Victoria* (?), Apples, Figs, *Washington Plum* and *Melon*. 2d, Mr. Pratt, gr. to the Marquis of Bath, Longleat, with fine *Black Hamburg*, and *Muscad* of *Alexandria* Grapes and Figs. 3d, Mr. A. Miller, gr. to W. H. Long, Esq., M.P., Rood, Ashton. Mr. Miller was the only exhibitor of a Pine, and was placed 1st with a good Queen.

The class for eight bunches of Grapes resulted in a close tussle between Mr. Taylor, formerly of Longleat, and now gr. to Mr. Alderman Chaffin, Bath, and Mr. Pratt; the former was placed 1st with fine and well finished examples of *Gros Maroc*, *Alicante*, *Alawick* seedling and well finished *Muscad* of *Alexandria*; Mr. Pratt had the fine *Black Hamburgs*, *Alicante*, and *Muscad* of *Alexandria*, for which he is so famous, the former were remarkably fine, and Mrs. Pice's *Muscads* his weakest pair.

Mr. Marchant, gr. to Jerom March, Esq., Bath, had the best three bunches of *Black Hamburg*, beating Mr. Pratt, who was 2d.

Mr. Pratt was 1st with three excellent bunches of *Muscad* of *Alexandria*; Mr. J. Elliott, gr. to H. W. Tugwell, Esq., Bath, being 2d. Mr. J. Milton, gr. to J. Macpherson, Esq., was the only exhibitor of *Gros Colmar*, showing rather indifferent bunches. Mr. A. Young, gr. to B. Thomas, Esq., was 1st with two bunches of any other white, having *Buckland Sweetwater*; Mr. Igoulden, gr. to the Earl of Cork, Marston House, Frome, being 2d with the same.

In the class for any other black, Mr. Nash was 1st with *Alicante*, Mr. E. G. Peacock was 2d with the same. *Melons* were very plentiful. Mr. Igoulden had the best dish of nine Peaches, showing capital *Barrington*; Mr. Pym, gr. to Mrs. Goldsworth, Trowbridge, being 2d with *Exquisite*. Mr. J. Derham was 1st with a dish of six, having the fruit of Ford's Seedling; Mr. H. E. Lewis, gr. to B. Castle, Esq., being 2d with *Royal George*; Mr. J. Murch had the best nine *Nectarines*, staging *Victoria*; Mr. G. Pym being 2d with *Pine-apple*.

Nectarines, in dishes of six, were poorly shown. *Plums*, *Figs*, *Cherries*, *Filberts*, *Pears*, and *Apples*, were all very good, and in great numbers.

VEGETABLES.

Vegetables were in strong force also. Mr. Miller, Rood, Ashton Gardens, had the best collection of eight dishes, one of the best collections this excellent gardener has ever staged; it consisted of *Cauliflowers*, *Artichokes*, *Turnips*, *Ne Plus Ultra Peas*, *Rowham Park Onion*, *Tomatoes*, *Runner Beans*, and *Potatoes*. 2d, Mr. T. Evry; 3d, Mr. W. Smith. The prizes in this class were presented by Messrs. Sutton & Sons.

Messrs. James Carter & Co. gave the prizes in the class for six varieties: here Mr. E. J. Day, gr. to W. Emerton, Esq., was 1st; and Mr. George Snow, gr. to Colonel Grant, 2d.

In another class for six varieties, Mr. F. March was 1st, and Mr. George Horsell 2d.

Collections of vegetables shown by cottagers were

very fine, and they staged excellent *Potatoes*; the best four dishes came from Mr. G. Whale, who had *Vicar of Laleham*, *Schoolmaster*, and two others bearing local names. Mr. John Green was 2d with *American Purple King*, *American Rose*, *Vicar of Laleham*, and *Wiltshire Giant*.

Certificates of Merit were awarded to Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, for a fine representative collection of *Dahlias*; and to Messrs. G. Cooling & Sons, Bath, for *Dahlias*, *Roses*, &c. A stand of cut *Begonias* from Solomon Treadwell, Esq., was highly commended.

BLACKPOOL.

THE first show of flowers, fruits, and vegetables, was held in the Winter Garden on the 9th, 10th, and 11th.

GROUPS.

The principal feature of the plant department was the groups arranged for effect; but we were at a loss to know on what grounds the judges came to the decision they did in awarding the 1st prize in the large group to Mr. Featherstone, of Leeds, whose group was formal and stiff while that exhibited by Mr. Williams, gr. to S. Beerlin, Esq., of Didsbury, and awarded 2d, was light and graceful, containing many novelties of sterling merit. These groups covered a space of 300 square feet; for 150 square feet, Mr. Featherstone was rightly awarded the 1st, while the 2d went to Mr. Wood of Burnley.

PLANTS.

For six stove and greenhouse plants in flower: 1st, Mr. Williams, gr. to S. Beerlin, Esq.

The only exhibitor for *Orchids* was Mr. Thornboro, who showed three well flowered plants of *Cattleya Gaskelliana* and *Harisoniana*, and *Odontoglossum grande*, while a good *O. Alexandra* with fine spike was 1st for single specimen.

For table plants the competition was keen: J. Hill, of Rochdale, was 1st; 2d, Mr. Williams.

For six exotic Ferns, 1st, Mr. Thornboro, who showed nice clean specimens; 2d, Mr. Williams, who showed well, but his varieties were not so distinct specimens.

CUT FLOWERS.

These were only fair, with the exception of the *heavenly* collections, the 1st for which was awarded to Messrs. J. R. Callam; 2d, Mr. Shaw; 3d, P. Cardwell.

There were very good *Roses*: 1st for eighteen distinct went to Messrs. Callam; 2d, Mr. Cardwell.

Dahlias were also fair, the 1st for twenty-four and twelve both being awarded to Mr. C. Rylance, Mr. W. Shaw being 2d in both classes.

Asters, *Carnations* and *Picotees*, *Gladioli*, &c., were shown in quantity, but call for no comment.

Bouquets, *Buttonholes*, and *Sprays*, were shown in quantity, but, as is so often the case, the former were far too crowded. The 1st in both ball and wedding was awarded to Mr. Featherstone, while both 2d went to Mr. Rylance. Mr. Thornboro was 1st for *button-holes*—a decent lot, and also for a *ladies' spray*.

FRUIT.

We cannot speak highly of the quality of the fruit, although a few decent dishes were shown.

For collections of six varieties, 1st, Mr. W. Shaw, who had a good *Melon* and *Peaches*, *fig* Grapes, *Cherries*, *Plums*, and *Pears*; 2d, Mr. Thos. Hare, Grantham.

For white and black Grapes, two bunches, Mr. W. Smith, of Chorley, was 1st.

The heaviest bunch came from Mr. Thompson. A Pine from Col. Dixon secured 1st; while the first in each class for *Figs*, *Melons*, and *Nectarines* was awarded to Mr. Hare.

A fine half-dozen *Peaches* from Mr. Thompson secured him 1st.

Col. Dixon was 1st for *Apricots*. Apples were shown in quantity. Mr. Rylance was 1st for culinary; while for dessert Messrs. Callam's was the best exhibition.

Vegetables.—The classes for collection only brought one exhibitor, who was worthily awarded the highest honours for a good, well-grown assortment. A good brace of *Cucumbers* from Mr. Thornboro was 1st in its class.

SPECIAL PRIZES.

Special prizes were offered by Messrs. Webb & Son, of Stourbridge, viz., a handsome centre-piece, for meritorious exhibits not mentioned in schedule, which was awarded to the Liverpool Horticultural Company for a collection of plants.

A pair of vases from Mr. J. Wedgewood, Stoke-on-Trent, to Messrs. Callam, for a collection of cut *Roses*; a half specimen *Adiantum Farleyense*, by Messrs. Birkenhead, of Sale.

A Certificate of Merit and a Special Prize were awarded to Mrs. Southam, of New Brighton, for her

handsome dried picture flower groups; and a Certificate of Merit to Messrs. Morley & Son, for flowers of double and single tuberous Begonias.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL: Sept. 8.

THE entries were greatly in excess of those of former years, and the quality of the exhibits was very high. Although the season from a horticultural point of view has not been one of the best, it has been a fairly good one, and until last Sunday—when one of the most severe rainstorms experienced in recent years passed over the district—gardeners had not much to complain of. For the first time since the shows of the Society have been held in St. Andrew's Hall all the available space in the large building was utilised. The entrance hall was surrounded with tables for the display of cut flowers, which also occupied one of the lesser halls. The other small hall was filled with vegetables, and the great hall was almost entirely occupied with decorative plants of large size. The striking feature about the exhibition here was, that while there was plenty of colour among the exhibits there was not a great wealth of bloom. The general effect, however, was very good, and was produced by the judicious arrangement of foliage plants. The platform, which, as usual, was handed over to Messrs. J. & R. Thyne for decoration, had on it a fine collection of stove plants, rising tier on tier up to a fringe of very graceful Palm trees. Among the whole there was not a single blossom. Variety was imparted to the display by the grouping here and there of a number of the firm's Crotons, Thymel and Regina, which, although they have already been exhibited, were new to most of those who saw them yesterday. The Messrs. Thyne received a special Certificate for them from the Royal Caledonian Horticultural Society, but neither of the plants have yet been put into commerce. The greater portion of the area of the hall was occupied with tables of plants arranged for effect. In all there were no fewer than six entries. The 1st prize, along with which was also awarded a Gold Medal given by Mr. John L. Henderson, Vice-President of the Society, was taken by Mr. Ross, gr. to Mr. George Ferguson, Trinidad Villa, Ibrox. The table was very well finished, banks of Ferns and Crotons, interspersed with Lilies, rising nicely upwards to the central feature, a small Palm tree, which, if anything, however, seemed a little too large for the size of the table. The edges were tastefully screened with plants and grasses of a drooping habit. All the specimens in the collection were noteworthy for their fine, clean, fresh growth. The table which was placed 2d, was not so well covered, there being a deficiency in the groundwork, and the top plant—a small Palm tree—was decidedly too heavy. The specimens were not so cleanly grown as those on the 1st prize table.

The competition for Orchids brought out only four entries, two in each class. The 1st prize for one plant was carried off by Mr. Peter Walker, Hope Park, Bonnybridge, with *Vanda Sanderiana*, which seemed to be well established, and was in magnificent flower.

Mr. J. Macleod, Brentnall Park, Strirling, was 1st for Mr. Orchids with *Ceclogyne Massangeana* and a *Cattleya*.

The cut flowers all round were of capital quality. Chief among them, the Dahlias, were noteworthy for the admirable manner in which they were exhibited. The 1st prize, with Silver Medal given by Mr. William E. Taylor, one of the Honorary Directors of the Association, was gained by Mr. D. McFarlane, Fionair, Garden, Greenock, with a collection of twenty-four blooms, among which were Vice President, Harrison Weir, Statesman, Madam Soubry, and Mrs. Gladstone.

Messrs. Samuel M'Gredy & Son, Woodside Nurseries, Portadown, sent a stand of Cactus and bouquet Dahlias, which, although they had been rather knocked about in the passage across the Channel, staged very well. One of the sorts, a real Cactus Dahlia, *Glare de la Reine*, attracted a good deal of attention on account of its good form, substance, and exceedingly bright hue. Messrs. M'Gredy also sent twenty-four hybrid perpetual Rose blooms, which, considering the lateness of the season, were in capital condition.

Several old-fashioned garden favourites turned up among the cut flowers. Mr. Campbell, High Blantyre, for instance, sent a good collection of Hollyhocks. Among these were two seedlings, *John Lyon* and *Sir George Walsley*, the one a full primrose, the other a claret or plum. The judges awarded him a First-class Certificate of Merit for a seedling *Picotee*, Mrs. Campbell, a white delicately edged with pink. Mr. J. Baxter, Daldowie, also received a Certificate for a seedling *Viola*, called *York and Lancaster*, because its petals are striped in the same way as those of the old-fashioned single rose of that name. Mr. Baxter likewise took 1st place in the competition for twelve bunches of *Violas*.

Of the vegetables the general opinion was that they were the finest yet seen in the West of Scotland. Mr. Donald M'Bean, gr. to Mr. J. C. Cunningham, Craigsands, as usual, carried off the chief honours.

The display of fruit was not very large, but it was good as far as it went.

DUMFRIES FLOWER SHOW.

IN the Mechanics' Hall the centre of the floor was occupied by the four tables of plants, 16 feet by 8, entered for competition in the open class. That of Mr. W. H. Scott, of Nunfield, was justly placed 1st on the prize list, arrested attention by the effect of the grouping, the blending of shades being skilfully and tastefully managed. The principal plants in the group were Crotons, Palms, *Dracaenas*, &c., with a nice lot of Orchids in bloom dotted through; and it was edged with a fringe of *Panicum variegatum* and *Isolepis gracilis*. In the group shown by Messrs. Clark Brothers, Carlisle, who received 2d prize the centre was made up with a beautiful *Cocos Weddelliana* Palm, set round with *Eulalia japonica*. There was a little sprinkling of *Celosia pyramidalis* in the group; and it was dotted throughout with Crotons of very high colour. At each corner there were Palms, set round with scarlet Begonias, this arrangement being very effective; the edging was *Panicum* and *Isolepis*. Captain Maxwell, of Terregles, who was placed 3d in order of merit, showed a group, the centre of which was composed of fine Palms and a magnificent *Dracaena*; it was interspersed with Orchids, a few *Chrysanthemums* in flower, and beautifully coloured small Crotons; the edging was *Panicum*. Mr. Service, Maxwelltown, showed a greater mass of blooms than any of the others, his group presenting quite a gay appearance.

On the left of the hall, on entering, were staged most of the pot plant exhibits in the professional class. In ornamental foliage plants there was good competition. The best plant of the whole lot was a *Croton d'Israeli*, which was shown by Mr. Scott, of Nunfield, in his group; it was beautifully coloured, well grown, and in every way a gem. The other collections consisted chiefly of Crotons, Palms, and *Pandanus*. The stove or greenhouse plant flowers were in fine condition.

In the amateurs' class, which was staged on the right side of the hall, there were also tables of plants for competition similar to the gardeners', but of a smaller size. In these the display was very attractive. The amateurs' pot plants all through were a most creditable lot. The gardeners' pot *Petunias*, *Chrysanthemums*, &c., which were on this side of the hall, formed a nice group of well-flowered plants.

The platform was principally devoted to fruit and table plants, which were effectively arranged on a raised board behind the Grapes, or in front of them, looking into the body of the hall. Grapes particularly were very fine, the majority of them being well grown, and the bloom magnificent.

There were three collections of wild fruit entered. In two—one of which was awarded the 1st prize—no less than fifty different varieties were exhibited.

To have the cut flowers in the gallery instead of the vegetables as in former years, was a very great improvement. Roses were very fine, probably better than they have ever been at our autumn shows; and *Gladioli* and Dahlias were also well worthy of mention. *Marigolds* were very nice all through.

In the Market Hall, which was devoted principally to what may be called the "useful" or kitchen garden department of the exhibition, were also placed a number of plants for which no room could be found in the larger building. Here were also shown the collections of Ferns gathered in Dumfriesshire—a very interesting exhibit. The 1st prize fell to a lot of eighteen. The 2d group was one of twenty; but in the 1st the plants were considered better grown.

The vegetables were on the whole meritorious. The collections in both gardeners' and amateurs' classes showed care in cultivation. These were staged on the centre table, where were also Onions, Beans, &c. The collections of Potatoes, which were remarkably fine, and Cabbages, Leeks, &c., were on the side tables—the professional classes on the left, and the amateurs on the right. Leeks, Celery, and Onions were grown to a great size; and the pots of Parsley, both in the gardeners' and amateurs' class, reflected great credit on their exhibitors. Condensed from the "*Dumfries Standard*."

PAISLEY HORTICULTURAL SHOW: September 2 and 3.

THE grand autumn exhibition was held in the Clark Town Hall, which, with the minor hall and the picture gallery, were filled by the exhibits. The centre of the hall was largely occupied by four huge tables, three of which contained the exhibits of Mr. Stewart, gr. to Mr. Kilsnede (gr. Mr. Allan Henderson); Mr. Arch. Coats, Woodside (gr. Mr. James Beve-

ridge); and Mrs. Coats, Ferguslie (gr. Mr. Duncan McDonald). The fourth table was taken up by competitors' exhibits.

The table of exhibits from Woodside was centred by a fine *Kentia Forsteriana*, with a pair of *Cocos Weddelliana*, and bottomed with two magnificent *Gleichenias*, springing from the centre of which was a fine *Lilium auratum*, fringed with a magnificent *Nepenthes Rafflesiana*; also two very fine *Mar-nockiana* Heaths, and a mixture of miscellaneous flowering and foliage plants, not the least conspicuous of which were *Nepenthes Lawrenceana* and *sanguinea*, the whole being fringed with a fringe of *Clab mosses* and Russian grasses.

The Kilsnede table was centred by a spacious *Latania borbonica*, flanked with two nice *Arecas*, with a splendid *Ixora* and two beautiful specimen *Pancratiums*, with their white flowers relieved by a dark *Dracaena*, and fringed by a large collection of Heaths, among which were *retorta* major, Turn, bullie, *Irbiana*, and *Mar-nockiana*; these, again, were fringed by a choice assortment of Orchids, among which were noticeable some fine *Odontoglossum Alexandræ* and *grande*, and a very good *Cattleya Gaskelliana*, fringed with an assortment of Maidenhair Ferns, the tasselled *Pacottii* being prominent.

The table with the exhibits from Ferguslie was centred by two very fine *Asplasia australis*, relieved by grandly flowered Japanese Lilies and a feathery *Coccom*, giving a variety of colour which was exceedingly pleasing. *Celosias* and Crotons in variety, and *Dracaenas* interspersed with *Valloets*, and scarlet *Pelargoniums* with a parti-coloured *Acalypha* and numerous Maidenhair Ferns, making a very pretty and pleasing effect. The fourth table comprised many fine competitive exhibits.

The four house plants, the 1st prize for which, was taken by Mr. James Maxwell (gr. to Mrs. Arthur Barshaw), were very good, comprising *Anthurium Scherzerianum*, a fine specimen *Liparoglossa*, and well-flowered Heaths, the best of which was *Altonia Turn-bullii*. The 2d prize contained a good *Eucharis amazonica*.

The 1st prize for two house plants was gained by Mr. Alexander Johnstone, gr. to Mr. W. Oak-shaw, and comprised a beautifully grown *Erica Mar-nockiana* and *Statice profusa*.

The *Pelargoniums* in the different classes were a good exhibition, as fine as is generally found in any exhibition in the country, being well grown and profusely flowered. The 1st prize *Gladioli* (Mr. Matthew Smith, Prestwick) were exceedingly fine. Both single and double Dahlias formed very meritorious exhibits. Orchids were small, but very nicely flowered. British Ferns were a particularly fine exhibition, as also were Club mosses.

FRUIT AND VEGETABLES

were very good. Mr. James Walls, gr. Southbar, taking 1st prize for a collection of fruit with an exceedingly good basket. The same gentleman also took 1st prize for the collection of vegetables. The Grapes as a whole were creditable, and Apples and Pears were very good indeed. Peaches, Melons, and Plums, were a scant exhibition. The table plants in the gardeners' class were shown in the loggia along with the fruit, and were both select and varied. The bouquets were beautiful in point of colour and arrangement, but rather formal.

The exhibits from the different local nurserymen lent additional interest to the exhibition. Mr. William Dickson had a good table of miscellaneous plants, flowering and foliage, suitable for greenhouse and table decoration. Messrs. A. Pattison & Son had a mixed assortment of useful decorative plants. Messrs. William Paul & Son, Crosshall Nursery, had a very fine lot of Palms, Lilies, and decorative plants. Messrs. Wm. Thomson & Son, Clovenfords, Galashiels, sent a very nice lot of Grapes.

Obituary.

MR. WILLIAM STEWART. — With regret we have to record the sudden death of Mr. W. Stewart, the head of the firm of John Stewart & Sons, nurserymen and seedsmen, Dundee and Broughty Ferry. This business was established in 1809 by Mr. John Stewart, since whose death it has been conducted by his sons. The deceased, who was the principal partner, carried on the nursery department with energy and success, and through his exertions the firm extended its operations to England, starting a nursery at Ferndown, Dorsetshire. Mr. William Stewart retired three years ago from the active management of the firm, and since then he had lived in the South of England, and latterly in Greenock. Mr. Stewart was seized with an affection of the heart on the Friday, and died the following Sunday, the 12th inst. He was in his sixty-first year, and has left a widow and family.

"COX, OF REDLEAF."—A fine old gardener passed away from us in this parish on August 30, and was buried in the country churchyard of Brading on September 2. A few words in memory of one who was so devoted to horticulture will be welcome to his many friends.

John Cox was born in the village of Buckland, in Berkshire, in November, 1814. His father was principal foreman in the gardens of Sir John Throckmorton. From thence he went to Cornbury Park, in Oxfordshire, at which place he spent the remainder of his life. The son here entered fully into all the details of his business, and besides learning the mysteries of land measurement, geometrical drawing, and such-like things, he became familiar with the management of kitchen gardens, the rotation of crops, &c., and he studied with interest the cultivation of wall fruit trees, in which he afterwards excelled. In 1836 the late Bishop Spencer, who came to Cornbury Park on a visit, took John Cox to his cottage *en route* on the edge of the Derbyshire moors, and he had to battle there with a very inclement climate for several years. His own words about this matter are:—"On arriving at my destination everything looked so desolate that I thought I had made a great mistake, but after a time I became reconciled to the adverse climate, where Green Gages might possibly ripen once in five years, where Keen's Seedling Strawberries were magnificent in August, where Oak trees became tolerably green by the end of June, where common Laurels were either killed outright or were cut down every year by frosts—all so different from the sunny south." But the discipline was invaluable, and Mr. Cox here made the acquaintance of the late Sir Joseph Paxton, from whom he received many kindnesses. From thence he came southwards, and was engaged by Messrs. Knight and Perry, but the great achievements of his life were at Redleaf, in Kent, where he stayed till the year 1884, and where there are still many memorials of his skill in all that pertains to a garden. Trees and shrubs here by thousands speak of him—so to say—still, and splendid Conifers and fine rock-work have made these grounds the admiration of everybody who has been able to visit them. Perhaps in point of rare and beautiful shrubs, alpine and herbaceous plants the gardens at Redleaf, near Penshurst, have few to surpass them. Mr. Cox wrote frequently in different periodicals on the cultivation of fruit. He was a frequent contributor to the pages of the *Gardeners' Chronicle*, the *Journal of Horticulture*, and other gardening papers. As a landscape gardener he had abilities of a very high order. His services were also in request as a judge at the large International and other flower and fruit shows held at South Kensington, the Botanic Gardens, Regent's Park, and the Crystal Palace. He was a Fellow of the Royal Horticultural Society, and for many years he served on the Fruit Committee, and in connection therewith he was one of the Associate Commissioners for the Horticultural Department in the Paris Exhibition in the year 1867.

Mr. Cox's health for several years had not been very robust, but in the summer of 1881 he had a sun-stroke, and after this it visibly failed. He came to reside at The Firs, in St. John's parish, near Ryde, and latterly he has been quite incapacitated for all occupation. He leaves behind him a widow, a son, and two daughters. His son is the much respected teacher of drawing at the School of Art in Ryde, which is in connection with South Kensington. Horticulture may perhaps lose votaries who are more widely known than the subject of these few remarks, but there scarcely can be any who has given to it more untiringly the devotion of a life, and who followed out its leadings with more devotion to the end. *H. E., St. John's, Ryde.*

[We are in such thorough sympathy with the spirit and expression of this tribute that we have little to add and nothing to alter in it. Gratitude to one of our oldest contributors on whose knowledge and judgment we could always rely, and respect for a man of high, though unobtrusive character, and great professional ability induce us, however, to point to John Cox as a model worthy of closest imitation by the young race of gardeners. The respectful sympathy of all who knew him will be with the survivors; while those who only knew him by repute will experience a feeling of pride at the record of one who in his allotted career knew his work and did it. A portrait of the late Mr. Cox appeared in our number for September 11, 1875, where may be read a full and very interesting account of his career. Ed.]

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPTEMBER 15, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DEVIATIONS FROM GLAISHER'S TABLES 5th Edition.		WIND.	RAINFALL.
	Mean.	Reduced to 32° Fahr.	Highest.	Lowest.	Range.	Mean for Month.	Departure of Mean from Average of 50 years.	Dew Point.		
Sept. 9.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
9	30.76	—0.14	69.5	59.5	10.0	63.5	+5.4	59.7	87	S.W. 0.04
10	30.62	—0.28	65.5	50.0	15.5	57.0	—1.0	55.6	61	S.W. 0.44
11	30.86	—0.04	67.3	49.5	17.8	57.5	—0.3	49.0	75	Var. 0.00
12	30.87	—0.03	67.3	51.3	16.0	59.5	—1.0	57.1	92	S.S.W. 0.00
13	30.91	+0.03	74.5	60.0	14.5	66.3	+8.0	60.5	70	S.W. 0.00
14	30.95	+0.07	75.0	55.0	20.0	65.1	+7.0	56.5	74	Var. 0.00
15	30.19	+0.37	65.0	48.5	16.5	55.4	—0.6	46.8	70	N.E. 0.00
Mean	30.88	—0.01	69.2	53.5	15.7	60.8	+0.3	54.1	81	S.W. 0.48

Sept. 9.—Cloudy; rain till 10 A.M.; fine afterwards.
10.—Morning fine but dull, then heavy rain till the evening; lowest temperature at night.
11.—A fine day.
12.—A fine day, frequently dull, occasionally bright.
13.—A very fine warm day.
14.—A very fine warm day.
15.—Fine morning, afterwards dull and cold; minimum temperature at night.

LONDON: Atmospheric Pressure.—During the week ending September 11, the reading of the barometer at the level of the sea decreased from 30.03 inches at the beginning of the week, to 29.95 inches by the afternoon of the 5th, increased to 30.07 inches by 5 P.M. on the 6th, decreased to 29.76 inches by 9 A.M. on the 10th, increased to 30.05 inches by the morning of the 11th, and was 30.01 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.98 inches, being 0.09 inch lower than last week, and 0.11 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 73°.5 on the 5th; the highest on the 11th was 67°.3. The mean of the seven high day temperatures was 69°.

The lowest temperature in the week was 49°.5 on the 11th; the lowest on the 9th was 59°.5. The mean of the seven low night temperatures was 55°.6.

The greatest range of temperature in one day was 17°.8 on the 11th; the smallest was 10° on the 9th. The mean of the seven daily ranges was 13°.3.

The mean daily temperatures were, 64°.1 on the 5th; 63°.3 on the 6th; 61°.2 on the 7th; 60°.6 on the 8th; 63°.5 on the 9th; 59° on the 10th; and 57°.7 on the 11th. These were all above their averages with the exception of the 11th, which was 0°.3 below; by 5°.5, 4°.9, 2°.8, 2°.3, 5°.4, and 1° respectively.

The mean temperature of the week was 61°.3, being 5°.8 lower than last week, and 3°.1 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 124° on the 6th. The mean of the seven high readings was 114°.1.

ENGLAND: Temperature.—During the week ending September 11, the highest temperatures were 76° at Cambridge, 75° at Leeds, and 74°.2 at Nottingham; the highest at Plymouth and Sunderland was 67°, and at Bradford was 67°.8. The general mean was 70°.4.

The lowest temperatures were at Wolverhampton 39°.1, and at Truro and Sheffield 42°; the lowest at Liverpool was 49°.6, at Blackheath, 49°.5, and at Bradford, Sunderland, Preston and Newcastle 48°. The general mean was 45°.7.

The greatest ranges were at Cambridge 33°.3, at Nottingham 30°, and at Wolverhampton 29°.2; the least ranges were at Sunderland 19°, at Bradford 19°.8, and at Newcastle 20°. The general mean was 24°.8.

The mean of the seven high day temperatures was

highest at Cambridge 72°.6, at Leeds 70°.4, and at Blackheath 69°; and lowest at Sunderland 62°.7, at Plymouth, 64°.9, and at Wolverhampton, 65°.2. The general mean was 66°.9.

The mean of the seven low night temperatures was highest at Blackheath 55°.6, at Plymouth 52°.8; and at Bradford 52°.5, and was lowest at Wolverhampton 46°.7, at Truro 49°.7, and at Sunderland, 50°.4. The general mean was 51°.5.

The mean daily range was greatest at Cambridge 20°.6, at Leeds 18°.7, and at Wolverhampton 18°.5, and was least at Plymouth 12°.1, at Sunderland 12°.3, and at Blackheath and Bradford 13°.3. The general mean was 15°.4.

The mean temperature was highest at Blackheath 61°.5, at Cambridge 60°.9, and at Leeds 59°.7; and was lowest at Wolverhampton 54°.5, at Sunderland 55°.1, and at Newcastle 57°.1. The general mean was 57°.8.

Rain fell on every day at Nottingham, on five or six days at most places, but on two only at Cambridge.

The largest falls were 2.74 inches at Preston, 1.95 inch at Liverpool, and 1.16 inch at Bristol. The smallest falls were 0.42 inch at Nottingham, and 0.45 inch at Cambridge and Leeds. The general mean fall was 0.95 inch.

SCOTLAND: Temperature.—During the week ending September 11th, the highest temperature was 70°.2, at Greenock; the highest at Aberdeen and Paisley was 63°.3. The general mean was 66°.0.

The lowest temperature in the week was 43°.1 at Aberdeen; the lowest at Leith was 47°. The general mean was 45°.4.

The mean temperature was highest at Edinburgh 56°.9; and lowest at Aberdeen 54°.8. The general mean was 55°.8.

Rain.—The largest falls were 3.73 inches at Greenock, and 2.84 inches at Glasgow; and the smallest fall was 0.52 inch at Aberdeen. The general mean was 1.64 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

"He that questioneth much shall learn much."—BACON.

EDIBLE FUNGUS OF NEW ZEALAND.—T. V. wishes to know of any book wherein he may find a chemical analysis of the New Zealand edible fungus, and where he could procure a specimen. T. V. is not very definite as to the particular fungus he means. Does he mean the Australian *Cyatharia*, or the so-called Tasmanian "Native Bread" or what?

SNOWFLOWER CULTURE IN EGYPT.—A correspondent is desirous of information as to the best method of cultivating this plant in Egypt, in a locality where there is abundant rainfall from November to March, and an average temperature of 66°. For the rest of the year the temperature averages 78° Fahr. and irrigation is easy. Any correspondent with practical experience would oblige with suggestions.

Answers to Correspondents.

AZALIAS: F. W. B. It is well known that these plants yield a gum, but we are not aware whether it has been turned to any useful purpose.

BOOKS: *Ignoramus. A Year's Work in Garden and Greenhouse* (Chatter & Winslow).—R. P. *How to Lay out a Garden*, by E. Kemp, published by Messrs. Bradbury, Agnew, & Co., Bouvierie Street, London, E.C., is the work best suited to your requirements. As to the estimating, we do not know of any work dealing with the subject.

PERNS IN OLD MUSHROOM-BED SOIL: *Ignoramus*. The plants will not live long in such material. Get a little loam, peat, and sand; or, failing those, plant in garden-soil manured with leaf-mould and lightened with sand, if that be needed.

GRAPES DECAYING: F. Orchard. Your Grapes were almost completely decayed when received. We can only attribute the mischief to the close humid weather. Give more air, and apply fire-heat to make the atmosphere more bracing.

HOW TO LEVEL A LAWN: X. The rods are the simplest system of levelling; two rods can be placed on the old ground, and with the third the level can be easily determined at the extreme corner of the new ground. When this has been fixed, a stout pole can be driven into the ground outside the level-peg, and a line, stretched tautly from the old field round this pole, will enable the intermediate pegs to be fixed with sufficient accuracy. It will be better to work in sections of say 20 feet, commencing at the side next the old ground and working outwards. Remove the turf from No. 1 section, and carry it outside the ground to be levelled. If the material to be used in raising the level be old clinkers, odd rubbish, or sub-soil, 9 inches or a foot of the top should be reserved

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"I remain, your obedient servant.

"JOS. MILLARD,
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"I remain, yours truly, "JOHN GEE.

"Messrs. Warner & Sons."

"Oxford, January 15, 1886.

"Dear Sirs,—You will be glad to learn that the Ram you came down to advise about for Shottover has been fixed, and so far answers the purpose admirably.

"Yours truly, "J. S. BROWNING.

"Newton, Stockfield-on-Tyne, August 20, 1885.

"Dear Sirs,—The Ram I had from you a short time ago is giving every satisfaction. Please send the duplicate valves for it, and oblige, yours, &c., "JOSEPH SYMM."

"138, Widdemere Street, Harford, September 1, 1885.

"Dear Sirs,—The Rams you supplied to me last year give every satisfaction. I have not heard of their stopping since they were fixed.—Yours faithfully,

"ROBERT BAMFORD."

"Kelvedon, Essex, January 13, 1886.

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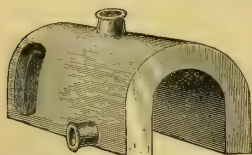
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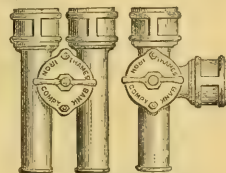
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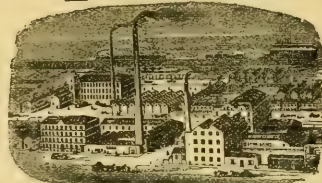
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WANTED, a WORKING PARTNER (Florist), with some capital who thoroughly understands Growing for Market—700 feet run of Glass besides Pits.—H. B. *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, by one who has had good general experience in both branches, a **WORKING PARTNERSHIP**, in an Old-established Nursery and Seed Series, For full particulars apply to A. Townsend's Nurseries, Fordham, Soham.

To Nurserymen's Assistants.
WANTED, a steady industrious Young MAN, with full knowledge of Fruit and Plantation Trees and Gardening, to join advertiser in starting a Nurseryman's Business at Bridgewater, on mutual terms. See *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Borough of Sunderland.
HEAD GARDENER.
WANTED, by the Corporation of Sunderland, and a thoroughly Scientific and Practical Man, as **HEAD GARDENER**, to take entire charge of the Public Parks in the Town, which are about 35 acres in extent, and include large Conservatory or Winter Garden, and other Glass Houses.

Salary £45 per week, and free house, rates, gas, firing, &c.
Applications, in applicant's own handwriting, stating experience, age, number of family (if any), and name and address of last present employer (if any may be), together with three testimonials of recent date, must be forwarded to the Town Clerk's Office, 25, Fawcett Street, Sunderland, not later than 1 o'clock at noon on FRIDAY, the 24th September instant, endorsed "Head Gardener."

By order. FRAS. M. BOWEN, Town Clerk.
Sunderland, September, 1886.

WANTED, a HEAD WORKING GARDENER, where four men are kept. Must thoroughly understand Vices. Married man, without family, preferred. Wages, 20s. per week, with house and coal. — W. Z. RATCLIFFE, 35, Castle Street, Liverpool.

Gardener.
WANTED, on a Gentleman's Estate, in Oxfordshire, a good practical WORKING GARDENER, married, must write well, keep simple accounts, and willing to make himself useful. Good cottage and vegetables free. Wages 18s. a week.—Write to J. EVANS, Esq., Woodfield, Bicester.

Gardener.
WANTED, a Man and his Wife, without family, as GARDENER and LAUNDERER. He must have knowledge of Hot-house and Greenhouse Work, as well as Kitchen Garden, and she must be a thoroughly good Launderess. Good wages. Comfortable dwelling. Coals and Apply by letter to W. M. REDPATH, Chemist, Tulse Hill, Lower Norwood, S.E.

WANTED, a GARDENER, near London, where a Second Gardener is kept. Must be thoroughly practical in all branches, and have a first-class character. Abstemious preferred. Wages 8s. —Address C., at Horncastle's Central Advertisement Office, Cheap, London, E.C.

WANTED, a FOREMAN; an energetic man to take Charge of the Plant Department. Must be thoroughly experienced in the Cultivation of Store and Greenhouse Plants.—Applicants to state age, experience, and wages expected, with full particulars, to S. D. A. Messrs. Nutting & Sons, 107, Southwark Street, London, S.E.

WANTED, an experienced energetic PROPAGATOR and GROWER of Roses under glass. Preference given to a man who in addition can Grow Eucharis, &c., for a Cut Flower Trade.—Apply, stating age, experience, wages, and full particulars, to S. D. A. Messrs. Nutting & Sons, 107, Southwark Street, London, S.E.

To Trade Growers.

WANTED, for a Nursery near London, an energetic Man as GROWER and PROPAGATOR, experienced in producing Cut Bloom in quantities.—Apply, stating age and experience, to HORTUS, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

MESSRS. W. CUTBUSH AND SON REQUIRE for their Jobbing and Landscape Department, a thoroughly competent energetic MAN. One who is able to give Plans, Specifications, Estimates, &c. Only those who have filled a similar situation and whose characters will bear strict investigation, need apply.—Highgate, London, N.

WANTED, an active young MAN, who understands Growing Flowers for Market. Must have been employed in Market Nursery. He will be required to Call on Shoppers. Must be able to Drive in Town.—10, Cumberland Park, Willesden Junction, W.

ORCHID IMPROVER WANTED.

Apply, J. R. W., 345, Gray's Inn Road, King's Cross, N.
WANTED, a MAN, to take Charge of Glass Department (such as stove), Assist with Wall Trees, &c.—FREDK. HUGHES, The Gardens, Overbury Court, Tewkesbury.

Working Superintendent.

THE BURIAL BOARD for the Parish of St. Margaret, Barking, intend to ELECT a **WORKING SUPERINTENDENT** for the Ground at Ripplestone, Barking. Applicants must state age, nature of last employment, and number of family (if any). The salary will be £4 per week, with lodge and 10s. in subject to a week's notice. The duties will commence from October 1, next, and will be those generally devolving upon a Working Superintendent. Particulars of the duties may be obtained upon application at the Burial Board Office, East Street, Barking. Applicants, accompanied by Copies of testimonials, to be sent to the undersigned, on or before the 20th inst., and such copies will not be returned. No applicant need attend personally unless he receives a notice so to do. C. H. MILLS, Clerk to the Board. Barking, Essex.—September 10, 1886.

WANTED, by a General Florist, Nursery, and Seedsmen, a smart SALESMAN, well up in the profession. (Herbaraceous Plants a specialty.)—ENTERPRISE, T. W. Hannaford, 73, Ludgate Hill, London, E.C.

WANTED, a CARPENTER, on a Gentleman's Place, one that can do Painting and Glazing perfectly.—J. B. FOWERMAN, The Gardens, Hackwood Park, Basingstoke, Hants.

WANT PLACES.

POSTAL ORDERS.—To Advertisers, Subscribers, and Others.—It is very important in Remitting by Postal Order that it should be filled in payable at No. 42, DRURY LANE, to W. RICHARDS, as, unless the Number of a Postal Order is known, and it has been made payable at a particular office, and to a particular person, it is impossible to prevent any person into whose hands it may fall from negotiating it.
N.B.—The best and safest means of Remitting is by POST-OFFICE ORDER.

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NOTICE TO ADVERTISERS.—In many instances Remittances in Payment of Repeat Advertisements are received without name, address, or anything beyond the postmark on envelope by which to identify the sender; this will cause a very great deal of trouble, and frequently the sender cannot be identified at all.

Advertisers are requested when Remitting to give their Names and Addresses, and also a Reference to the Advertisement which they wish Repeated.

B. S. WILLIAMS begs to intimate that he has as his present in the Nursery and upon his Register some excellent Men competent to fill the situation of **HEAD GARDENER, BAILEIFF, FOREMAN, or JOURNEYMAN.** Ladies and Gentlemen requiring any of the above will please send full particulars when they select for the different capacities will be made.—Holloway, N.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners, seeking situations, and that they will be glad to supply any Lady or Gentleman with particulars, &c.—St. John's Nursery, Worcester.

SCOTCH GARDENERS.

—JOHN DOWNIE, Seedman, 44, Princess Street, Edinburgh, has at present on his List a number of **SCOTCH GARDENERS**, waiting re-engagements. He will be pleased to supply full particulars to any Lady, Nobleman, or Gentleman requiring a trustworthy and competent Gardener.

Gardeners, Under Gardeners, Bailiffs, &c.

W. M. CUTBUSH AND SON have at the present time on their list Men and Boys who will bear the strict investigation, and such as from their personal knowledge can recommend as to abilities, &c.—Ladies and Gentlemen requiring either of the above can be suited with reliable first-class men by applying and stating full particulars to **W. M. CUTBUSH AND SON**, Highgate Nurseries, London, N.

Gardeners.

THOMAS KENNEDY AND CO. have on their Register a number of first-class **GARDENERS, FORESTERS, &c.**, wishing engagement, and will be glad to furnish particulars to any one in want of same.—**THOMAS KENNEDY AND CO.**, 108, High Street, DUMFRIES, N.B.

To Gentlemen and Market Growers.

MANAGER, to Grow Grapes, Peaches, Strawberries, Tomatoes, Roses, Gardenias, &c., and all the requirements of a first-class cut flower trade.—Twenty years' experience. Good references.—**HORTUS**, Mr. Unwin The Piazzas, Covent Garden, W.C.

GARDENER (HEAD).—Age 40, married; thoroughly experienced in all branches. Eight years in last situation, three-and-a-half previous. Highest testimonials and references.—**W. J.**, Belmont Terrace, Chislehurst.

GARDENER (HEAD), where others are kept.—First-class in all branches. Excellent character. Active and industrious.—**A. B. CHAMBERLAIN**, Baker, Twickenham.

GARDENER (HEAD).—Age 35, family small; good practical experience both inside and Out. Can be thoroughly recommended. Three years in present situation.—Particulars from **STEPHEN CASTLE**, West Lynn Vineyard, Norfolk.

GARDENER (HEAD); age 29.—T. OSMAN, Ottershaw Park, Chertsey, Surrey, can with confidence recommend his Establishment as a first-class Gentleman requiring the services of a good practical man. Two years in present situation.—For further particulars please address as above.

GARDENER (HEAD).—£5 Bonus will be paid to anyone who shall be the means of procuring Advertiser a good Head Gardener's situation. First-class and references.—**E. E.**, 5, Mouldfield Road, Poole Park, Fulham.

GARDENER (HEAD); age 29.—Mr. GREENFIELD, The Priory Gardens, Warwick, can highly recommend a steady, industrious man, as a good Gardener, to any Lady or Gentleman requiring the services of one. Fourteen years practical experience; particularly well versed in the cultivation of Orchids. Excellent testimonials.

GARDENER (HEAD).—A Lady who has broken up her establishment, wishes to recommend her Head Gardener, who thoroughly understands Stone Plants, Orchids, Flowering, &c.—Wishes to engage a first-class servant. Wages expected, £30.—**Mrs. G. K. CHIB**, Perrystone, Ross, Herefordshire.

GARDENER (HEAD).—Age 38, married, no family; thoroughly practical in all branches. Good Manager of men, &c., and accustomed to take entire Charge of a good Garden Establishment. Highly recommended in every respect.—**GEORGE MORRIS**, Chapel Square, Kimbolton, St. Neots, Hunts.

GARDENER (HEAD); age 40, no family.—**MR. CLARKE**, Head Gardener to Earl of Londesdale, Lough Castle, Penrith, can with confidence recommend a thoroughly practical, competent, and reliable man, with excellent character. Abstainer. Place of trust in a good family desired.

GARDENER (HEAD); age 31, married, total abstainer.—**WALTER EDWARDS**, Gardener to A. H. C. Esq., High Street, Waltham Abbey, Essex, has had good experience in Rock Building with Herbaceous Plant Culture and the general routine of good Gardens eighteen years—is now open to an engagement.

GARDENER (HEAD); age 36, single.—R. G. WATERMAN, seven and a half years Gardener to A. Tate, Esq., is at liberty to engage with any Nobleman or Gentleman requiring the services of a thoroughly practical man. Twenty years' experience in all branches of the profession. First-class references from present and past employers.—**Roseleigh**, Woolton, Liverpool.

GARDENER (HEAD); age 37.—N. GERMAN, for the past six years Gardener to the late T. B. CUTTS, Esq., Malvern House, and previously four years with C. O. Hill, Esq., of Nottingham, is at liberty to engage with any Lady or Gentleman in want of Gardener or Orchard Grower. Characters from boyhood.—**N. GERMAN**, Malvern House, Nottingham.

GARDENER (HEAD).—C. T. E. C., Haverholme Priory Gardens, Sleaford, is open to engage with any Nobleman or Gentleman. Thoroughly practical in all branches of Fruit, Plant and Vegetable Culture. Over three and a half years Gardener to present employer, the Hon. M. E. G. Finch-Hatton, M.P., who would thoroughly recommend him as an efficient Gardener. Several previous years' good character.

GARDENER (HEAD WORKING).—Age 29, married; well experienced in the Culture of Pines, Peaches, Melons, and general routine of Gardening and can be highly recommended as such.—**B. B.**, 5, Coppleston Place, Garrat Lane, Tooting, Surrey, S.W.

GARDENER (HEAD WORKING).—Married, no family; thoroughly experienced in Growing Fruits and Flowers, and in the Management of Flower and Kitchen Garden. Thirty years' experience. Good character.—**A. B.**, Mrs. Cann, Burnt Ash Hole, Lee, Kent, S.E.

GARDENER (HEAD WORKING).—Age 35, married; thoroughly experienced in Forcing, Vines, Peaches, Strawberries, Melons, Cucumbers, Squash, and Greenhouse Plants, &c., and the general routine of a Large Garden.—**J. DUNSTER**, Rose Cottage, Lamberhurst, Kent.

GARDENER (HEAD WORKING, or good SINGLE-HANDED).—Age 37, married; experienced in all branches: Land and Stock. Could Grow for Market. Good reference.—**W. H.**, Wood Cottage, Bredgar, Sittingbourne.

GARDENER (HEAD, or SINGLE-HANDED).—Age 34, married; eighteen years' experience in Fruit, Flowers, and Vegetables. Five years' character with testimonials.—**G. S.**, 133, Mayall Road, Heme Hill, Dulwich, S.E.

GARDENER.—Age 31, married; thoroughly practical. First-class testimonials and references.—**HORTUS**, Willow Cottage, Bishop's Cleeve, Gloucestershire.

GARDENER.—Two children (ages 7 and 9); twenty-two years' experience in Fruit, Vegetables, and Flowers, both for family use and for market. Three years in present place as head.—Good reference from present and past employers.—**GARDENER**, Mr. Sampson, 125, High Street, Poole, Dorset.

GARDENER, good Kitchen and Flower, or otherwise.—Age 30, married, one child; good characters from previous and three years in present situation.—**H.**, The Gardens, Forest Lodge, Farnborough, Hants.

GARDENER (SINGLE-HANDED), or where another is kept.—Thoroughly understands every department. Good references.—**W. A.**, 36, London Road, Malden, Essex.

GARDENER (SINGLE-HANDED, or good SECOND).—Age 24, single; 15 years' character. Good experience under Glass, and Out.—**E. SNOW**, Merlebank, Caterham Valley, Surrey.

GARDENER (SINGLE-HANDED, or good SECOND).—Age 24, married. Ten years' experience Indoors and Out. Excellent references.—**H. F.**, 13, Park Shot, Kew Road, Richmond, Surrey.

GARDENER (SINGLE-HANDED or SECOND).—Age 25, single; understands Vines, Peaches, Melons, Cucumbers, Flowering Kitchen Gardening. Good character.—**G. H.**, 1, Lewis Road, Coldharbour Lane, Camberwell, S.E.

GARDENER (SECOND).—Age 25; eleven years' experience in Stone, Vines, Orchard, and other House, also Outdoor Gardening. Highest character from last and previous employers.—**P. MARTIN**, Walton, near Lutworth.

GARDENER (SECOND).—Age 25, single; understands the Cultivation of Vines, Peaches, Melons, and Stove and Greenhouse Plants. Two years' good character from present situation. Twelve years' practical experience in all branches.—**C. FITKIN**, The Gardens, Knowle Hill, Cobham, Surrey.

GARDENER (UNDER).—Age 21, steady and respectable. Good reference. Can be highly recommended.—**S. THATCHER**, Gardens, River Mead, Sunbury.

GARDENER (UNDER).—A young man who has lost his place owing to reduction of establishment. More than two years' good character.—Apply for reference to **E. W. CRACKFORD**, Esq., Hackthorn Hall, Lincoln.

GARDENER (UNDER) either Indoor or Out.—Age 29, single; five years' experience. Good references.—**T. STUBBS**, 35, Faulkner Street, Bishop's Fields, Hoole, Chester.

GARDENER (UNDER), to work in the Houses preferred.—Age 21; five years' good character.—**GEORGE BOSWORTH**, The Gardens, Elmton Hall, near Birmingham.

FOREMAN, in the Houses.—Age 25; ten years' experience in all branches.—**A. McLEOD**, 3, Lime Tree Villas, Albert Road, South Norwood, S.E.

FOREMAN, in the Houses or otherwise, in a good Establishment.—Age 29; well experienced in good Plants, and all branches of the profession and abilities.—**G. A.**, 13, Backhouse Street, Groves, York.

FOREMAN.—Age 30; thoroughly experienced in all departments. Unexceptionable testimonials from last and previous employers.—**HORTUS**, 37, Ursula St., Battersea Park, S.W.

FOREMAN, in the Houses, in a good establishment.—Age 23; nine and a half years' experience. Good references from present and previous employers.—**A. SMITH**, The Gardens, Brambley, East Grinstead.

FOREMAN, Inside; age 25.—E. SMITH is open to an engagement as above. Ten years' experience. Can be well recommended.—**E. J. SMITH**, Much-Dewchurch, Hereford.

FOREMAN, in the Houses.—Age 28; twelve years' experience in Early and Late Forcing, Stone and Greenhouse Plants, Kitchen and Flower Garden Work. Highly recommended.—**H. GILBERT**, Gardens, Southwick Park, Fareham, Hants.

FOREMAN.—Mr. HOSKINS, Stansted Park Gardens, Emsworth, Hants, will be pleased to recommend his Foreman, G. Dicker, as above. Has been with him two years. Twelve years' experience. Previously at Mentmore, Eridge Castle, Enville, &c.

To Nurserymen.

FOREMAN (GENERAL), or GROUND FOREMAN (WORKING).—Age 35; twenty years' experience in the whole routine of the business. Unexceptionable reference as to character and ability.—**FOREMAN**, *Gardener's Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOREMAN, or good SECOND, in a Nobleman's or Gentleman's Establishment.—Can be highly recommended. Eight years and six months' experience in good places.—**F. B.**, 51, Lankar Villas, Maida Vale, London, W.

PROPAGATOR and GROWER for Market Nursery.—Well up in Stove, Cold House, and Outdoor Plants. Ten years in the Trade. Good recommendation from employers.—**SCHMITZ**, Petersham, Surrey.

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JOURNEYMAN, in the Houses; age 18.—
The Head Gardener, Shepton Hall, Nuneaton, can recommend a young man as above. Five years in present situation; steady and obliging.

JOURNEYMAN, in a good Establishment.—
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Age 20; has had four years and three months' experience under Glass and out. Can be highly recommended.—**H. CHANDLER**, Post-office, Bromyard.

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IMPROVER, in the Houses in a Gentleman's Garden, where all branches of Gardening are carried on.—Age 20; four years' character.—**W. L.**, Long Cross House, Chertsey.

IMPROVER; age 18.—MR. MITCHELL, Head Gardener to Sir G. Elliot, Bart, M.P., Abernham Park, Borelde, can with confidence recommend a young man as above.

IMPROVER, under a Gardener in Gentleman's Establishment or Nursery, to assist in the Houses.—Age 20; three years' character.—**W. S.**, 39, Campbourne Road, Hornsey, N.

TO NURSERYMEN, &c.—Wanted, a situation in Nursery. Well up in Palms, Ferns, Soft-wooded Stuff, and Propagating.—Age 27. Eight years' experience.—**C. J.**, 12, Kate Street, Balham, S.W.

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A young man (age 23) desires a re-engagement. Well up in Bouquets, Wreaths, Crosses, &c. Good references. Four years to present situation.—**G. B.**, Spark Hill Nurseries, Birmingham.

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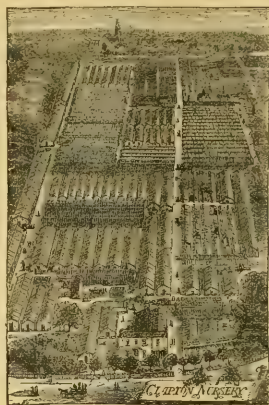
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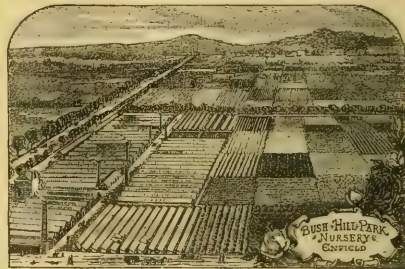
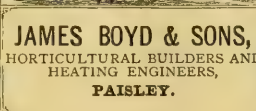
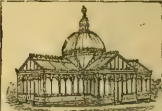
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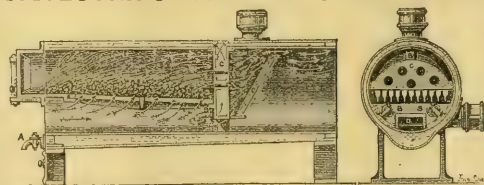
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CEDRUS ATLANTICA GLAUCUS, 3 to 6 feet. [from seed.
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" PICEA CONCOLOR, 3 to 5 feet.
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PINUS AUSTRIACA, 3 to 3½ and 4 feet, well furnished and transplanted October, 1885, thousands.
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" SEMPER AUREA, 2½ to 3 feet.
YEW, Common, 3, 4, and 5 feet, thousands.
" Common, 6 to 10 feet.
" Golden, of all sizes up to 10 feet.

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AZALEAS, Hardy, the finest varieties known, 2, 3, 4, and 5 feet, thousands.

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" Weeping, New Golden, a large quantity of beautiful plants.

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ACACIA BESSONIANA, 6 to 10 feet.
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ACER DASYCARPUM, 10 to 16 feet.
" WIERII LACINIATA, 10 feet.
" NEGUNDO VARIEGATA, Standards, 8 to 10 feet.
" LEOPOLDI, 10 to 14 feet.
" REITENBACHII, 8 to 10 feet.
" SCHWEDLERII, 12 to 16 feet.
" WORLEYII, Standards, 12 to 14 feet.
ASH, Mountain, 10 to 14 feet.
BEECH, Common, 10 to 12 feet.
" Purple, Pyramids and Standards, 9 to 16 feet.
BIRCH, Purple, 12 to 15 feet.
" Silver, 12 to 15 feet.
CHESTNUT, Horse, 14 to 16 feet.
" Double White, 10 to 12 feet.
" Scarlet, 12 to 16 feet.
" Spanish, 12 feet.
ELMS, English, 10 to 12 feet.
" Guernsey, 12 feet.
LIMES, 10 to 16 feet.
" EUCHLORA or DASYSTILA, 10 feet.
" Silver-leaved, 10 to 14 feet.
LIQUIDAMBAR, 6 to 8 feet.
MAPLE, Norway, 14 to 16 feet.
OAK, English, 10 to 12 feet.
" Scarlet American, 12 to 14 feet.
PLANES, English, 10 to 12 feet.
" POPLAR, HOLLEANA, 10 to 16 feet.
" CANADENSIS NOVA (the true variety), 12 to 16 feet.
SYCAMORE, Common, 14 to 16 feet.
" Purple, 14 to 16 feet.
THORN, Double Scarlet, 8 to 10 feet.
" White, 8 to 10 feet.
" Single White, 8 to 10 feet.
WALNUTS, Common, 10 to 12 feet.

WEEDING TREES.
BEECH, Weeping, Pyramids and Standards, 8 to 12 feet.
" Purple, Pyramids and Standards, 7 to 12 feet.
BIRCH, Young's Weeping, Pyramids and Standards, 8 to 14 ft.
ELMS, Weeping, Pyramids and Standards, 7 to 14 feet.
LARCH, Weeping, Pyramids, 6 to 10 feet.
OAK, Weeping English, Standards, 10 to 12 feet.
POPLAR, Weeping, Pyramids and Standards, 10 to 12 feet.
SOPHORA JAPONICA PENDULA, Standards, 8 to 9 feet.
Waddenden Manor, Baron F. DE ROTHSCHILD, and Elythorp, Miss ALICE DE ROTHSCHILD—together the most extensive, successful, and best planted places in the history of England—were supplied principally from the Knap Hill Nursery.
Intending planters are invited to inspect the Plants growing; no one interested in such matters will regret the trouble. Catalogues convey but a very inadequate idea of such a stock.

A DESCRIPTIVE CATALOGUE will be sent on application.

Knap Hill Nursery, Woking, Surrey.



THE
Gardeners' Chronicle.

SATURDAY, SEPTEMBER 25, 1886.

DOWNSHIRE HOUSE.

THIS is one of those old-fashioned places that are to be met with round London, where there has been little attempt at modernising the grounds, a process which, unless carried out with judgment, generally results in an incongruous association of old and new ideas, the latter of which often go far to destroy the character of the place without introducing anything that can be set down as a compensation for the loss.

The estate, which is situate in the still rural district of Roehampton, at one time belonged to the Marchioness of Downshire, but has been in the possession of Mr. Chapman for more than forty years. The garden front of the house overlooks a park-like scene, with undulating sward, fine sweeps of lawn, noble trees, and suggestive distance, conveying a delicious sense of quiet beauty and repose, almost the only sign of human presence visible being the distant spire of a church at Richmond.

Scattered about the lawn are a number of old trees, including Sweet Chestnuts, Oak, Elm, Beech, Larch, Turkey Oak, Lebanon Cedar, and Mulberry. Evergreens, consisting of most of the ordinary kinds, thrive luxuriantly, Hollies and Rhododendrons especially: of the former, standing out on the lawn, there is one of the most perfect specimens we have met with of Waterer's golden variety—it forms a pyramid 10 feet high, and 15 feet through at the base, its lower branches lying flat on the turf. Although so dense that a sparrow could scarcely find its way between the leaves, there is a pleasing irregularity in the surface, which has not been subjected to the terrible trimming process which specimen evergreens sometimes undergo.

Southwards from the lawn the ground slopes quickly: here is a flower garden arranged in the usual geometrical style. This flower garden is one of many, full to overflow with gay flowers, and bordered by low banks of Clematis and Roses. The planting is nicely done, the colours are bright and effective. A couple of beds filled with seedling tuberous Begonias of various colours, with an edging of Alternantheras and Echeverias, had a pretty effect. There is here a good specimen of the Maiden-hair tree, Salisburia adiantifolia. The site for this flower garden has been well chosen, as it is sufficiently below the level of the lawn for the blaze of colour not to intrude between the eye and the view of the surrounding country; this, though highly objectionable, particularly in an old-fashioned place, often appears not to be sufficiently understood. About 10,000 plants are used for bedding, all of which are grown on the premises. The grounds extend considerably southwards, ending in a dell, which is nicely laid out with evergreen and deciduous shrubs and trees. Amongst the latter is an example of Salix babylonica, with its trunk clothed with Ivy. In this direction also the Rhododendrons are a prominent feature, thriving luxuriantly, large clumps of them growing to a height of 10 or 12 feet. A few beds here are filled with tropical

plants that are appropriate to the situation, which affords them the requisite shelter from strong winds. In the centre of this cool spot there is a small basin planted with water Lilies, and in whose glassy surface the surrounding trees, a bright clump of Phloxes, and the cheerful foliage of the variegated Negundo, are mirrored. An arbour, from which in hot weather can be enjoyed the refreshing sound of the trickling water as it escapes from a miniature pond, recently made, completes the arrangement of this sheltered nook. From this a return walk, overhanging in places by tall trees, bounded by dense banks of evergreen shrubs, leads back to the higher ground in the direction of the house. Here is a temple brought from Athens by Lord Duncannon. It is exquisitely proportioned, and from it a nice view over the undulating country toward Coombe Wood is obtained.

The kitchen garden, which is situated on the southern side of the flower garden, is enclosed by walls, and lies well to the sun. Across the northern end is a straight walk, with a mixed border right and left, filled with standard and bush Roses, Hollyhocks, kept in the ground all the winter; Delphiniums and Phloxes at the back, with low-growing herbaceous plants in front, mixed with annuals and summer bedders, some or other of which keep on blooming from early spring to autumn, and furnish a wonderful variety and profusion of bloom. The wall running parallel with this walk is covered with Peaches and Nectarines, mostly young trees in excellent bearing condition; in fact, if there is fault to be found with them, it is the enormous crops they are allowed to carry, and which nothing but the attention that is given in supplying them with an abundance of water at the roots and overhead, and keeping them free from insects, admits of their bringing to maturity. A sewage-tank contributes its share to the nutriment of the trees. The sorts consist of Early Alfred, Early Louise, Early Rivers, Stirling Castle, Bellegarde, Royal George, Alexandra Noblesse, Grosse Mignonne, and Diamond Peaches; Pine-apple and Lord Napier Nectarines. All the trees were bearing an immense crop of splendidly coloured fruit, that, in addition, had a brightness about it that is peculiar to fruit that is cultivated under glass, and not usually met with in that which is grown on open walls. The other aspects of walls are occupied by Pears and Plums; of the latter a beautiful crop was ripe, including such varieties as Coe's Golden Drop, Kirke's, and others. Standard trees were also bearing well. Apples, though many are on the Paradise, as elsewhere, were mostly thin. Of Pears some sorts were a fair crop, others thin. Culinary vegetables in their several kinds are very well managed, both as regards the winter crops and the summer. There is another kitchen garden, of about 2 acres, at a short distance away, where bush and other fruits are grown.

In the glass department, devoted to fruit culture there are two Peach-houses, each about 40 feet long; in the earliest house the crop had been cleared some time. A large tree of Noblesse Peach planted thirty-eight years, and which shows signs of dying off, is being replaced by one of Mr. Rivers' seedlings—Condor, a large bright coloured variety, not much known, but which is recommended as a good early forcer, but which requires setting. The second house is timed to come in so as to get the fruit cleared when Peaches from the open walls come in; the crop was about over. Lord Napier is considered the best Nectarine. The best Plums are Rivers' Early Prolific, Jefferson's, and Coe's Golden Drop. The trees in both houses are full of good healthy wood, the foliage clean and in a condition that promises well for another season. Two lean-to-houses are occupied by Vines that bear plenty of fruit, but from the houses being filled all the year round with Ferns and other water-loving plants the Grapes do not colour well. Amongst other things a nice lot of seedling Gloxinias were in flower in one of these vineries.

In the plant stove there are some large examples of *Eucharis amazonica*, vigorous and blooming well, being free from the destructive little mite that has wrought such havoc in many places with this fine flowering plant. In large growing fine-leaved subjects are good specimens of *Anturium Warocqueanum* and *A. crystallinum*, but the greater portion of the occupants of the house are small stock suitable for room and table decoration. These include some

of the smaller growing Palms, Crotons, Dracenas, *Pandanus Veitchii*, and others of like character which are collectively remarkably well grown, and bright in colour. In the Cucurbit-house adjoining was a nice lot of *Euphorbia jacquiniæiflora*, strong and in good condition. This, which is amongst the brightest of bright blooming winter plants, seems not to be now so much grown as it used to be; many fail with it through giving too much pot-room and over-watering it when little growth is going on, both of which the plant has a dislike to.

A lofty lean-to conservatory, with an iron roof, was gay with *Lilium auratum*, tuberous Begonias, *Achimenes*, the early white-flowered *Chrysanthemum Madame Desgrange*, and *Petunias*, intermixed with Palms, Ferns, Coleus, and other foliage plants. With them was a good pair of specimens of *Rhynchospermum jasmimoides* grown in pots. Against the back wall, planted out, are some large examples of *Plumbago capensis*, *Heliotrope*, &c.

The pits and frames are occupied by a healthy stock of *Primulas*, *Cinerarias*, and *Calceolarias*, which are very well done, as also *Poinsettias* and *Bouvardias*, the last named planted out in a pit, where they are allowed to flower, heat as required being turned on. Out-of-doors were stood a number of *Camellias* that occupy the conservatory in winter. With them also were a quantity of *Azaleas*, varying in size from large bushes to the pretty little standards, which the Belgian growers cultivate in such numbers; they were in beautiful condition, full of free growth, and profusely set with bloom-buds—their leaves as free from any trace of thrips or red-spider as if these pests were non-existent.

Chrysanthemums, of which some 450 are grown, and of which Mr. Sullivan, the gardener, is a successful exhibitor, were in fine order. The cultivation is directed to the production of large, fully developed flowers; no trained specimens are grown; each plant is confined to a single stem, which is stopped once and allowed to form three branches, the buds on each of which are thinned to a single flower. The stems were as ripe, and almost as hard in the wood as a walking-stick, though carrying their leaves fresh and green to the bottom—a condition that promises well for the production of fine blooms. Notwithstanding the somewhat formal character of the flowers of many of the varieties of *Chrysanthemum*, and the sameness which an assemblage of them presents, there is nothing in the way of late autumn flowering plants that give such a bright, cheerful looking mass of colour as this at a time when there are comparatively few things to choose from. The garden and grounds collectively are well kept, clean, and justify the confidence and satisfaction which the owner feels with regard to his gardener.

becoming, just beneath the tube, of a dusky purplish-grey, or dark slate colour. The tube of the spathe is $\frac{1}{4}$ inch long, $\frac{3}{4}$ inch thick, ellipsoidal, green, mottled and suffused with red-brown. The limb of the spathe is 5 inches long, by 2 inches broad, oblong obtuse, with a short convolute apiculus, concave, with revolute margins; the inner surface is transversely rugulose, white, more or less suffused with a very pale carmine wash, giving it a faint pinkish tinge; outside it is shining white, densely covered with pale carmine lines. The spadix is as long as the spathe; the female part is cylindric $\frac{1}{2}$ inch long, with densely crowded, somewhat compressed-globose, light yellowish-green ovaries, with white stigmas and containing about five or six erect basal ovules; the neuter or staminoidal part is about $\frac{1}{4}$ inch long, cream-coloured or pale ochreous; the male part is $\frac{1}{2}$ inch long, white; and the appendix is 4– $\frac{1}{2}$ inches long, stout, cylindric, acute, pale ochreous. *N. E. Brown, Herbarium, Kew.*

ZINGIBER BREVIFOLIUM, N. E. Brown, n. sp.

This is a dwarf Ginger, whose chief merit resides in the colour of the bracts of the flower-spike. It has been introduced from the Philippines by Mr. W. Bull, of Chelsea.

The plant is entirely glabrous and about a foot high. Stem destitute of leaves below, but with three to four obtuse, dull reddish sheaths on the basal part, leavy above the middle. Leaves few, three to five (or perhaps more in strong plants), with green stem, clasping or free sheaths, and sessile, oblong-lanceolate, or elliptic, acute blades 2– $\frac{1}{2}$ inches long, $\frac{1}{4}$ – $\frac{1}{2}$ inch broad, base rounded, sometimes subacute, upper surface dark green, under surface greyish-green. Flower-spike sessile, terminal, fusiform, 2–3 inches long, 7–8 lines broad. Bracts adpressed, oblong, retuse, with a small lanceolate rudimentary blade arising from the notch, or the upper ones simply acute, orange-yellow striped with red, two-flowered; inner bracts oblong-lanceolate, acute, three quarters of an inch long, 3–4 lines broad, membranous. Calyx membranous, spathaceous, three-quarters to 1 inch long. Flowers yellow, corolla tube $\frac{1}{2}$ inch long, exserted, slender, curved above; petals linear-lanceolate acuminate, 8–9 lines long, the two lower ones connate to nearly half way up; lip 7–8 lines long, 3-lobed; lateral lobes falcate-oblong, obtuse; middle lobe lanceolate acute, twice as long as the lateral lobes. Anther with a curved beak 4 lines long.—A native of the Philippine Islands. *N. E. Brown, Herbarium, Kew.*

RENOVATING IMPOVERISHED CONIFERS.

NOTWITHSTANDING how greatly large specimen Conifers are prized by their owners, as well as by those in charge of the grounds in which they are planted, it is quite surprising that steps are not more frequently taken to preserve healthy trees in a vigorous growing condition, as likewise to reinvigorate others that show from their meagre appearance unmistakable signs of requiring it.

When we consider the case of specimen coniferous trees on the lawn as compared with that of trees planted in groups, the differences are great indeed—far greater than one would at first be inclined to believe.

In the first instance—that of single specimen trees—they are at once deprived of all the natural aids of enriching the ground in their immediate vicinity, such as are afforded by the decay of their leaves and fallen branches, accumulations of bird droppings, &c., all being swept clean away, while the very grass which impoverishes the soil beneath their shade is mown over closely, perhaps two or three times each season, and carried off wholesale.

Another disadvantage single trees have to contend with arises from their density of foliage causing even the heaviest showers to be thrown off almost beyond the reach of their rootlets, thus causing the soil beneath their shade to become dry, hard, and almost impenetrable, but more particularly is this the case with specimens growing in sheltered situations. On the other hand trees planted in groups have, in the majority of cases, the ground immediately around them annually enriched by the fallen *litter*—dead twigs, branches, leaves, and underwood, all of which are allowed to remain unmolested, while the interlacing of their branches enables them to convey water almost direct to each other's boles.

New Garden Plants.

ALOCASIA GRANDIS, N. E. Brown, n. sp.

THIS is a very fine species, quite as ornamental as *A. Thibautii*, and more striking as to its inflorescence, the contrast between the blackish petioles and the large, handsome, white spathe being very effective. It has been recently introduced by Mr. W. Bull from one of the East Indian islands.

The whole plant is entirely glabrous. The petioles are 3–3 $\frac{1}{2}$ feet long, proportionately stout, terete, and of a very dark blackish-green, or blackish-purple colour; as seen at a little distance they appear distinctly blackish, shining. The blade of the leaf is 20–24 inches long by about a foot broad, ovate-sagittate in outline, shortly cuspidate-acute at the apex; the basal lobes are about 6 inches long, broadly rhomboid ovate, very obtuse, and more or less overlapping, including a narrow acute sinus between them; the margin is slightly sinuate and undulate; the upper surface is of a uniform bright dark green, the under surface is blackish-green with purple midrib and nerves, which are slightly prominent and slightly convex above, very prominent and rounded beneath; the front lobe has about six distant, nearly straight, very spreading primary nerves on each side of the midrib; and each of the basal lobes have 2–3 stout nerves arising from the upper edge, and three finer nerves arising from the lower edge of the postical branch of the midrib, which is only very shortly denuded in the sinus. The scape is terete, about 10 inches long, and four lines thick, of a light reddish-purple below,

Placed at such a disadvantage it will be seen that single specimen trees must eventually suffer from one or other, perhaps both, of the above causes; and as it takes many years for the majority of Conifers to attain a size calculated to make them objects of interest, the best means of renovating impoverished specimens will now be briefly considered. Too frequently, perhaps, it happens that specimen Conifers are planted in well prepared holes of just sufficient size to contain the roots, the soil outside this confined space being hard, and, in many cases, poor and clayey, so that when the roots have exhausted their limited food supply, and begin to penetrate the hard and poorer outer crust, a check is instantly received that either induces an almost total suspension of growth or causes the annual development to be of the poorest and most meagre description.

TOP-DRESSING.

Under such circumstances timely top-dressings or the cutting of trenches around the trees, and substituting fresh loam for that taken out will set matters right and bring about that fresh healthy appearance that is so desirable a feature in specimen trees on the lawn, and other parts of the estate. Where top-dressing is to be resorted to, the best way is to remove the surface turf, and with a pick to gently ease the top soil for say 6 inches in depth, and in a circle around the stem equalling the spread of branches, substituting in its stead a compost of decayed vegetable refuse, well rotted manure, and good fibrous loam in equal proportions, this being raised to about 6 inches above the general level of the surrounding ground, or in all about 12 inches in depth, and laid over with the turf previously removed. In removing the old soil great care is necessary to avoid injuring the roots, and for this reason we have found that a fork (four-pronged) is preferable to the spade, and causes less damage in the furtherance of the work. A good watering should next be administered, and the turf beat firmly down with the back of a spade. To prevent the lower branches getting damaged or coming in the way of the workmen they may be tied up while work is going on, and released when finished.

We have examined the top-dressings given to coniferous trees in the above fashion after two years, and found the soil a complete network of rootlets even to within a few inches of the surface, thus showing the need they were in of such an application, and clearly pointing out the immense benefit of supplying the adequate amount of food for maintaining the trees in a healthy growing condition.

TRENCHING.

Trenches cut just outside the spread of branches and filled with fresh strong loam or the compost above recommended are, we find, even better and more immediate in effect, as well as lasting in their resources of food supply than top-dressings, probably owing to the greater depth at which they can be administered, as well as larger quantity that can be applied at a time. Dig the trench 30 inches wide and 2 feet deep, all roots touched upon being preserved as much as possible, and carefully relaid in the introduced compost with which the trench is completely filled. The compost used must, of course, depend upon circumstances, but should invariably be fairly rich and adapted to the special requirements of the trees operated upon. With very marked success we have used leaf-mould, road scrapings, and thoroughly decomposed manure in about like quantities, but either this or the compost above recommended will be found well fitted for the end in view. In five years after the first trench is taken out dig another immediately outside it, and substitute a similar mixture to that already described in lieu of the soil taken out. This may be thought as overdoing the work, but not so, for those who value their trees will certainly not begrudge this little outlay, particularly after they have once experienced the invigorating effects of such a course of treatment on poor, half-starved specimen Conifers. At what distance from the stem the trench or trenches should be cut must, to a great extent, depend on the size and species of trees to be operated upon. For close short-branched specimens, such as the Wellingtonia, Abies Nordmanniana, A. Pindrow, Cupressus Lawsoniana, C. torulosa, C. sempervirens, Araucaria imbricata, Cryptomeria japonica, C. elegans, Pinus Cembra, &c., the trench should be cut well outside the spread of branches; but in the case of those with wide spreading branches, like the Lebanon and Indian Cedars,

Cupressus Lambertiana, various species of Pinus, particularly P. excelsa, P. Strobus, and P. austriaca, Abies Douglasii, A. cephalonica, A. Webbiana, and several others, it may be made within the circle circumscribed by the branches.

It must be borne in mind we are here referring directly to trees that through poorness of the soil have become stunted in growth and meagre in appearance through an undue loss of foliage, for there are many soils and situations that suit these well and where neither top-dressings nor trench cuttings will have to be resorted to.

DRAINAGE.

In conjunction with the application of rich compost to impoverished Conifers there is another trifling matter that is often neglected and to which we feel inclined just now to draw attention, that is, to the thorough drainage of pinetums, as likewise in the case of singly planted lawn specimens, and that particularly where the surface soil is largely composed of stiff unctuous clays. These surface drains should be shallow and wide, say 2 feet deep by 2 feet wide at top, and narrowed at bottom with a good outlet. If neatly formed they need not mar the appearance of even well-kept grounds, although, when such work is executed close to the mansion buildings, it will be wise policy, and to the forester's own credit, to have tiles laid in the bottom, a few stones placed atop, and the remainder of the drain filled up with the previously removed soil, neatly turfed over.

By paying attention to the above important operations, and having them attended to in time, fewer, indeed, would be the ill-favoured, miserable-looking specimens of Coniferous trees with which one is so frequently confronted, even in what are considered well-managed pinetums. A. D. Webster, *Pearbryn Castle, North Wales.*

FLORICULTURE IN THE UNITED STATES.*

LIKE nearly everything else in this fast age of the world, floriculture has made an astonishing advance in the past forty years, and when we look back we wonder why our operations in many things were so primitive and crude.

HEATING.

Forty years ago I doubt if on the whole continent there was in use for commercial purposes a greenhouse having a fixed roof; at least I have no remembrance of ever having seen one until about 1857, when the system was advocated by Peter B. Mead, in the *New York Horticulturist*. Previous to that time all greenhouse structures for commercial purposes were formed of portable sashes, and nearly all were constructed as "lean-to's," with high back walls, and none were connected—all were separate and detached—placed at all angles, without system or plan. Then the heating was nearly all done by horizontal smoke-flues, although here and there some private individuals, for their own use, made a crude attempt to heat by hot water as early as 1835; but the first use of heating by hot-water on anything like a large scale was done in 1839, by Hitchings & Co., who heated a large conservatory for Mr. William Niblo, of New York; and from that time until nearly twenty years after heating by hot-water was almost exclusively confined to greenhouses and graperies on private places, as few professional gardeners in those days could afford to indulge in such luxuries. All the work had to be done by smoke-flues, which, together with the greenhouse structures, were usually the work of their own hands.

Heating greenhouses by steam, to the best of my information, was unheard of in the United States at that date, though I am informed by Mr. Isaac Buchanan, of New York, that when he was employed in the Botanic Gardens of Edinburgh, Scotland, as early as 1830, the greenhouses there, which consisted of some 15,000 square feet of glass, were successfully heated by steam, but that later, for some reason, this method had been abandoned and hot water had been substituted. So it would appear the use of steam-heating with us to-day is, like many other things in human progress, but the revival of a lost art.

To give an instance of how excellent methods long in use have been abandoned and forgotten, I may mention that some fifteen years ago, when on a visit to Philadelphia, I called on my friend, W. K. Harris, who showed me where, with one fire, he successfully

heated a greenhouse, 20 x 100 feet, by the excellent plan of returning the flue so that the chimney was placed on top of the furnace. It was no doubt original with Mr. Harris, and I gave him the credit of the invention, which I described in the *American Agriculturist* of that date. But it had no sooner been printed than a gentleman in Salem, Mass., wrote me, saying that if I would refer to the *Transactions* of the London Horticultural Society for 1822 I should find the same plan there described; but, like many other valuable things, it had been lost sight of and forgotten, for there were few books and fewer magazines obtainable by the gardeners in those days.

In this country heating greenhouses by steam for commercial purposes was, I believe, first successfully practised by E. H. Bochman, in Pittsburgh, about 1875, but it is only in the past five years that its merits have been so fully proved.

Progress is slow in many things, mainly for the reason that publicity is not given to new ideas; hence the great value of such an Association as ours. It is somewhat singular that few, if any, of the large greenhouse establishments in England yet use steam; and it may be that we are yet to show them that it is not only much cheaper, but, I believe, also the best method of heating any greenhouse structure having 5000 square feet of glass.

PROPAGATION.

Not only has a great advance been made in the structure of greenhouses and their heating, but methods of propagating and growing plants have also been much improved upon. The propagator, forty years ago, for the few large establishments in the country, was generally imported from England, and was usually a most important personage—often full of mystery and overweening conceit, who guarded his knowledge, of which he had often not a very large stock, with a miser's hand. One of these gentlemen was a sort of autocrat in the greenhouse establishment of the late Robert Buist, when I worked there in 1844. He not only refused to impart any knowledge that he possessed on the subject, but actually locked the door of the propagating-house against all his employees; and he was sadly put out one day when a sarcastic wag tacked to the door the following transposition of Goldsmith's famous couplet:—

"And still we gaze, and still the wonder grows,
How one small head can carry all he knows."

We are glad to know that few of that ilk can get a foothold here to-day. The knowledge of propagating has now been so diffused by books and magazines devoted to floriculture, and the rules laid down are so simple, that all the mystery that was thrown around it in those early days has been dispelled. But every now and then, even now, we find some fellow arrogating to himself some "special secret" in our trade. There are no secrets in horticulture. The laws that govern the germination of a seed, the rooting of a cutting, or the taking of a bud or graft are the same now as they were a thousand years ago, and any one pretending to a "special" knowledge (unknown to others) in the matter is either an ignoramus or an impostor. Of course, experience or special advantages give a knowledge that the want of such cannot give. But the underlying principles never change, though undoubtedly in the methods of making them available we have made vast strides in this country, particularly in the matter of propagating, in the past twenty years. Whether we have made much advance in the classes of plants grown now, from what were grown forty years ago, there may be some question. Certain it is that there were many fine varieties of plants then grown which we fail to find to-day, particularly in the hard-wooded or non-Holland section, such as *Heaths*, *Eperis*, *Correas*, *Pimeleas*, &c. Mr. Buist, of Philadelphia, and Mr. Hogg, of New York, over half a century ago, both had collections rich in these classes, together with nearly everything desirable in stove and greenhouse plants, but they gradually became diminished, as it was found that their culture was attended with special care in our hot and dry summers. Sales diminished in consequence, and their collections were allowed to run down, to be replaced by such plants as were found to be better adapted to our tropical summers.

CUT-FLOWERS.

But the most wonderful advance in floriculture has been in the arrangement of cut-flowers into bouquets

* "Floriculture in the United States during the past Forty Years," a paper read before the Society of American Florists, at the Annual Convention, held in Philadelphia, Pa., August 28, 19, and 30.

and other designs. Forty years ago, in New York, in constructing a simple hand bouquet, some of us did not know enough to use a thread to keep each flower in place as the construction went on, and it was some years later that the centre stick was used to steady the structure. The wire design man did not put in an appearance until nearly twenty years later, and when a cross or wreath of flowers had to be made, the cross was usually constructed with pieces of lath, on which the flowers were tied, and the floral wreath had the groundwork of a piece of old barrel hoop or a Willow twig. The bouquet was usually a one-sided affair, the groundwork being a flat bunch of Arbor-vitæ, through which the flowers were drawn. Occasionally a round bouquet was attempted by some artist of local fame, but with a result that must have done violence to the feelings of the poor flowers that were used in the structure.

The character of the flowers used for cut-flower purposes has also been radically changed. Forty years ago Camellia flowers were freely retailed at 1 dol. each, and Philadelphia used to send thousands to New York florists at the holidays, getting 50 dols. per 1000; while Roses were then going at a-begging at one-tenth of that sum. Now the Rose is queen indeed, and the poor Camellia finds none so poor as to do her homage. The culture of Tuberoses came a little later. I find, from an old schedule of prices, that in 1865 Tuberoses were quoted in November at 8 dols. per 100, and a reference to my own books shows that in that year my receipts from a house (10 x 100 feet) of Tuberoses were 1500 dols. in November; now they are rarely sold at all in New York, unless to the poorest class—Dame Fashion has stamped them out, as she, twenty years before, stamped out Camellia flowers; and just here comes the question, May there not be danger of a rebound in the Rose "boom"? May there not be danger ahead in placing so many eggs in one basket, fascinating though the basket be?

SALES.

The increase in the sales of all products of floriculture in the past forty years has certainly kept pace with most other industries, and has probably exceeded many. In January of 1844 I was employed by a New York florist, who did nearly the whole business of the city at that time. His sales of cut flowers for New Year's Day of that year footed up the sum of 200 dols. I have but little doubt that the aggregate sales of cut flowers in the city of New York on January 1, 1886, were not less than 100,000 dols., and the aggregate for the past year cannot be short of 3,000,000 dols., which is probably twice that of any European city of its size. An equal advance has been made in the output of plants. We have good reason to believe that Mr. William Elliott, the well-known horticultural auctioneer, of New York city, often sells more plants in two hours from his warehouses than were sold during a whole season by the florists of New York in 1844. I know that he repeatedly sells at one sale 50,000 plants; but it is exceedingly doubtful if that number was sold in New York during the whole year of 1844. The past season there were probably shipped and sold in the market and at auction not less than 50,000,000 of flowering and ornamental plants, of which perhaps one-tenth was sold at auction. The aggregate value of the sales can only be approximated, but I should think it safe to say that the average would be quite 5 cents apiece, or 2,500,000 dols. E. L. Taplin, a most careful writer, in an article in the January number of the *Floral Cabinet* for 1885, says:—

"According to the best information, there are over 8000 florists established in business in this country, who, with their workpeople, make a considerable showing in the population. The number of Americans engaging in the business increases yearly, for though England contributes the largest quota to the trade, with Germany and France following closely, Americans are now waking up to the possibilities of the business. Allowing 400 feet of glass-covered surface to each florist—a low estimate—this would give a total of 3,200,000 feet, or 630 acres of glass surface. Last year the trade sold 24,000,000 cut Roses and 120,000,000 Carnation flowers."

If the business increases in the same ratio for the next forty years rest assured the now somewhat humble florist will have a place in the community; that the increase will be even greater there is good reason to believe. In the early days of floriculture nearly all the men engaging in the business were old-countrymen who had been private gardeners, often

lacking in education and intelligence, and utterly untrained, from the nature of their occupation, in business habits. Now hundreds of young men, with better opportunities of education, are training direct for the business in all sections of the country; and I think it safe to predict that the leading florists forty years hence will be far better business men than even the most prominent among us now. And it may be that, when the Society of American Florists meets again in this good old city four decades hence, some other veteran, now a stripling here to-day, will tell, as I have done, of the primitive ways of the craft as practised "forty years ago," Peter Henderson, in "*The Ladies' Floral Cabinet*."

CONSERVATORY AND BALL-ROOM AT SANDRINGHAM.

The accompanying illustration (fig. 77) represents a structure erected last year for H. R. H. the Prince of Wales, at Sandringham House, Norfolk, by Messrs. Boulton & Paul, Norwich. Designed as a flower court, it forms a valuable addition to the large ball-room, and affords a means of communication between several of the principal rooms. The whole is carried out in a first-class manner. The heating apparatus is arranged under the iron gratings.

Orchid Notes and Cleanings.

ODONTOGLOSSUM ODORATUM, Lindl.

MR. SANDER has observed that he has received from the late Arnold a Columbian plant, which by its slender virgulate panicles is well distinct from the southern *Odontoglossum odoratum* with very conferrimate dense branches, which sometimes form a nearly contiguous mass of flowers. It happens, however, that this fresh plant is the typical *Odontoglossum odoratum* itself, gathered at the very spot where the original plant was met with: Dr. Lindley's herbarium gives evidence of it. H. G. Rehb. f.

VANDA DENISONIANA HEBRAICA,

which forms an evergreen tuft, is quite new, having been introduced by us [B. S. Williams] a few years ago, and flowered for the first time this year. It resembles its parent, *V. Denisoniana*, in its growth, and attains the height of 3 feet, with perfect foliage, and when well grown is an unique plant. The spikes of its fragrant flowers are produced on each side of the stem from the axils of its copious leaves; the sepals and petals are sulphur-coloured on both sides, but darker within, where they are covered with numerous streaks and short transverse bars, forming marks somewhat resembling Hebrew characters; the spur is orange-coloured inside, and the front part of the blade of the lip pale sulphur-yellow. The blossoms are produced during the summer months, and continue in perfection for some time. We received it from Burnah.

We have grown this distinct variety in the East India Orchid-house with other Vandas, and find it succeeds well grown in pots with live sphagnum moss and good drainage, filling the pots three-parts full of broken pots, and placing the moss on the top, above which the plant is elevated about 3 inches. A few broken crocks mixed with the moss will be beneficial to the roots, as they help to keep the material open so that the superabundant water can pass away, for stagnant moisture is detrimental to these plants. They require, indeed, to be kept moist at the roots during the time of vigorous growth, which comes after the flowering season, but they are growing more or less during the whole year, even during winter, and at this time the moss should be kept rather moist, which prevents them from losing their bottom leaves, a misfortune which frequently occurs if the plants are kept dry, as they have no thick fleshy bulbs from which to draw support.

These Vandas are of easy cultivation if they get the treatment they require. We find no difficulty about this, as we always treat them alike, and grow them in the same house. They require shading from the hottest sun, but this should be done with very thin shading, as the plants like all the light possible. For this reason the blinds should never be kept down when the sun is on the decline, or during dull weather.

These plants are propagated by the young growths which spring from the base and sides of the stems; these should be left on until they make roots, and then be taken off with great care and potted in the same kind of material as recommended above for the parent plants. "*Orchid Album*," August.

TRICHOPILOIA MARGINATA, Hentfrey.

The original record of this distinct plant was confirmed by Professor Reichenbach last week from a specimen which flowered in the collection of R. J. Measures, Esq., at Cambridge Lodge, Camberwell, and thus the general impression in works of reference and in gardens, that it is identical with *Trichopilia coccinea*, is set aside. The plant was recently exhibited by Mr. Measures at the Royal Horticultural Society, and those who saw it will remember that in habit of growth and flower it seemed exactly intermediate between *T. tortilis* and *T. coccinea*, having the twisted green sepals and petals with reddish middle band and spots, and the lip much more expanded than that of *T. coccinea*; white with red blotches in the throat. The pseudobulbs and leaves are much shorter and stouter than those of *T. coccinea*, and more like those of *T. tortilis*. The species are very pretty and distinct, and need never be confounded with *T. coccinea* by those who know it. They must, however, take care not to confuse it with *T. crispata marginata*, which it resembles perhaps more than it does *T. coccinea*. James O'Brien.

CÆLOGYNE DAYANA

is a plant of evergreen habit, and is furnished with long narrow—almost cylindrical—pseudobulbs, which bear dark green foliage. It produces its long pendulous inflorescence from the base of the pseudobulb, and bears about twenty-four flowers on each of its somewhat loose racemes. The sepals and petals are of a very light ochre-yellow, the lateral lobes of the lip being marked with numerous collateral longitudinal broad dark-coloured and white stripes, and the front lobe on the same light-coloured ground, bearing a crescent-shaped half ring of dark brown. This Bornean species blooms during summer and flowers in succession, all down the spike.

This species will thrive with the same treatment as *C. Massangeana*, that is, it may be grown either in a pot or in a basket suspended from the roof of the Orchid-house, using as a compost rough fibrous peat and sphagnum moss, and being careful to secure good drainage. A liberal supply of water must be given during the period of vigorous growth, and a smaller quantity during the season of rest. The plants are free in blooming if they are well cultivated and receive proper attention, which is simply to expose them to plenty of light, and to furnish them with good sweet material to grow in. They will do either in the East India-house or in the warmest part of the Cattleya-house, with a slight shading during the time the sun is powerful. The foliage frequently gets spoiled through having too much sun; a little of the early morning sun will not harm it, neither will it suffer after 4 o'clock in the afternoon, when the heat is on the decline; but the hot mid-day sun is more than it can bear. *Orchid Album*.

PERISTERIA BARKERII.

This species was sold at Messrs. Protheroe & Morris' rooms in July last year under the name of *Acinetia* species. I bought a plant which produced strong flower-spikes last month, and on comparing it with the plate in *Bot. Mag.*, t. 4203, I find it is the same plant that Mr. Ross sent to Mr. Barker, of Birmingham from Xalapa in Mexico. It is interesting to watch the development of the flower-spikes during a period of seven months, but when the great pendulous spike of rich yellow flowers are developed it is disappointing to find they last in beauty but three days only. J. D.

"LINDENIA."

The following species and varieties are figured in the last number:—

Angulosa Ruckeri, var. *media*, Rehb. f., t. 53.—One of the globular flowered Orchids, with flowers of the size of a medium sized Apple, segments yellow, thickly sprinkled with red dots, and with a red lip. Culture is easy, growth begins in February or March, when water should be freely supplied. After flowering the plants should be repotted, taking special care not to break the roots. The plants should be shaded. In potting the plants should be well raised on peat mixed with lumps of wood charcoal.

Spathoglottis plicata, t. 54.—Flowers racemose,

flat, five-rayed; segments ovate, rosy-lilac; lip smaller than the segments. The *Compagnie Continentale* has succeeded in raising some hybrids between *S. augustorum* fertilised by *S. plicata* and by *Calanthe vestita*.

Cattleya Mendelii, t. 55.—The Editors consider this, with reason, as a variety of *C. Trianae*.

Vanda Lindenii, Rchb. f., t. 56.—A native of New Guinea, nearly allied to *V. hastifera*. *Vandas* grow throughout the year, and having no pseudobulbs, require proportionately a more constant supply of moisture and a high temperature.

AERIDES ROHANIANA.

At p. 206 in the *Gardeners' Chronicle*, n.s., vol. xxi., Reichenbach truly describes this as a grand *Aerides*, although under the circumstances probably he was unable to detect all its properties. A fine specimen has been flowering for some time back in the East Indian-house at Kew, and proves to be not

with the same potting material and the same cultural treatment accorded other East Indian and Asiatic species. *J. R.*

ORCHIDS IN FLOWER AT MESSRS. LOW'S, CLAPTON.

Of *Oncidium bicolor* there is a very large importation, the plants as well as the flowers reminding one of *O. bifolium*. A few of them are in flower, and very lovely they are—the lip of a clear yellow on the upper surface. We shall be glad of a good supply of this species, as it is evidently September flowering. There is an excellent plate of it in the *Botanical Register*, t. 66. Dr. Lindley there wrote of it as "This charming species of *Oncidium*, one of the rarest of its genus, was obtained by Messrs. Loddiges from the Spanish Main. It flowered with them in September, 1842." *O. bicallosum* is also in flower; it is of the *O. Cavendishianum* type, but is quite distinct from it, and ranks as a species. It was sent

yet, although there is a pretty spike of *P. Esmeralda*; *P. Sanderiana* and *P. violacea* are also in flower. The plants in this house are remarkable for their vigorous growth. The *Ladies' Slippers* are represented by *Cypripedium Spicarianum*, and the *Cœlogynes* by the lovely little *C. ocellata*; its pure white flowers with orange-coloured spots on the lip are very striking, and cannot fail to please. *J. D.*

CATTELEYA BICOLOR WRIGLEYANA.

This beautiful form is at the present time flowering very freely with us here. Though it cannot be compared with the larger and more showy flowers of the *Mossie* and *labiata* sections, it nevertheless has a special and peculiar beauty of its own.

I forward a spike of seven flowers, which I have just cut. This number is the highest we have reached, and as we have several of this number out of fifty spikes now in flower we are anxious you should have an idea what this variety is when at its



FIG. 77.—FLOWER COURT ERECTED AT SANDRINGHAM FOR H.R.H. THE PRINCE OF WALES, BY MESSRS. BOULTON AND PAUL. (SEE P. 392.)

only distinct and handsome, but deliciously fragrant when in full flower and before it is too far gone. The odour resembles as nearly as possible that of dried Cinnamon bark, and few people would dislike it. It is another of the many instances of the great variety of odours within the limits of a single genus. The densely flowered and thick cylindrical inflorescence droops or is suspended in a graceful manner from the end of the horizontal peduncle. The distinctness in colour lies in the delicate blending of various hues, none of which are dark or exhibit any glaring contrast. Although little stress is laid upon colour for botanical distinction yet from a horticultural point of view it is a matter of the greatest importance, and at the hands of the gardener receives the first consideration. The sepals and petals are delicate rosy-lilac on a white ground, or, as elsewhere described, rose-mauve with a white border; while the lateral segments of the labellum are pale yellow, with a few faint purple spots towards the base, and the middle segment white, or nearly so, with a few faint purple spots towards the apex. The spur is greenish-yellow, mottled with purple. It seems to be perfectly at home in a basket hung up near the light,

in the first place from Guatemala by the late Mr. Skinner. Mr. Bateman flowered it in 1842 from which it was figured in the *Botanical Register*. It is also figured in the *Botanical Magazine*, t. 4143. There are evidently two varieties, one with more of an orange colour in the sepals and petals, and the other paler, as in the *Botanical Magazine*. Both varieties are in flower at Messrs. Low's. It is much superior to *O. Cavendishianum*, the flowers being much larger. *Cattleya Harrisoniana* forms a nice flowering group in one house; some varieties are much paler than others; the darkest have rosy-purple sepals and petals, the lip creamy, with an orange band in the centre. *Lelia Dayana* and *Cattleya Gaskelliana* are in flower; the first named should be in every collection, its rich maroon-purple reflexed lip is very striking; it does well near the glass in a basket. *C. Gaskelliana* has quite usurped the position so long held by the autumn-flowering *C. labiata*. The finest form of it I have seen is now in flower here; the sepals and petals are a lovely rose colour, with a richly coloured lip like *C. Warneri*; usually the lip is very pale.

In the *Phalenopsis*-house the time of flowers is not

best. It is a great advance in size and colour upon the original form—the sepals and petals being a pale green, with a yellow shade, this latter colour more distinct along the edges. The lip is of an intense rosy-purple, the column of the variety sent being pure white. The plants are grown in pots in peat, with just a bit of moss, plenty of charcoal being used in the crocking. We have new growths 2 feet to 2 feet 6 inches long this season, in many instances longer than the imported bulbs. The plants have had much more light and heat than is usually given to *Cattleyas*. *W. Swan, The Gardens, Howick House, Preston.*

HYBRID PLUMS.—M. Carrière has been experimenting by crossing *Prunus japonica* and *P. auschubiana*, the latter a form of *P. pumila*. Among other results he has obtained a curious form, which he calls *P. hybrida reptans*, characterised by the production of long loosely arranged branches spreading on the surface of the ground. The flowers are small, white, and produced in May. The singular habit of this plant should render it desirable for large rockeries. M. Carrière suggests that it should be propagated by layers.

MARKET PLANTS.

ONE of the leading market nurseries, of which there are now so many round London, has recently been purchased by Mr. Sweet at Whetstone. It consists of some 17 acres, with a large extent of glass devoted to the growth of Camellias, Grapes, Tomatoes, Cucumbers, and several of the kinds of plants that are in demand in Covent Garden Market.

The stock of Camellias is very large, filling several houses. One house, span-roofed, is 100 feet long by 24 wide; two rows occupy the space; they are big dense bushes, all planted out. Much the greater portion of the stock consists of the old double white variety, of which there is probably twenty times as many sold in the market as of all the other kinds put together. The largest plant of this variety has a house to itself, which it fills, and will shortly have to be made bigger, as the plant has reached the top, and the branches have extended so that there is insufficient room to get round it. The diameter of the plant is 18 feet, the height nearly as much. Eight or ten years ago account was taken of the number of flowers gathered from it in one season, which was 7000; since then the number has reached as much as 10,000, after a still greater quantity have been thinned from it. The largest house devoted to Camellias is composed of three spans some 63 feet long by 60 wide. The plants here again are all large and are turned out in spaces enclosed with 4½ inches of brickwork.

The vineries now in bearing consist of a number of large houses, mostly span-roofed; one of these, 185 feet long by 23 wide, is filled with Black Alicante carrying a very fine crop of medium sized bunches, the berries larger than usually met with. The Vines are planted on both sides of the house, and are confined to one rod each. By the side of this is another house, similar in size, occupied by Lady Downe's, like the last planted on both sides. On one side the crop is all that could be desired, on the other there has been some scalding. Another long span, similar to those described but with a division in the middle, contains Black Hamburgs. In one division the crop is a very good one, in the other the bunches are smaller.

Here may be seen the danger of using paraffin. Mr. Sweet finding that the Vines in this division were affected with mealy-bug had them dressed with Gishurst and Fir-tree oil added to the usual mixture of soft-sap, sulphur, and clay. Soon after they came into flower it was seen that the buds were not all killed on the old wood, which was then dressed with equal parts of paraffin and sperm oil, which had no apparent effect on the growth, except that the young wood seemed to swell faster than usual, and that the bunches were smaller, though the berries have swollen, and are ripening right. The wood is in a most singular condition, the lower part of the shoots, and for some length above, being quite green, and without any sign of its ripening, whilst above from where the bunches hang it is brown and ripe. This is a state the like of which I have not seen or heard of before. It will be interesting to see how these Vines behave next year, and whether they will show a crop from this green-looking wood.

Two spans, each 185 feet long by 25 feet wide, that Mr. Sweet has rebuilt and planted with Gros Colmar Vines, are now filled with Tomatoes. These are in rows right and left across the houses, leaving a passage down the middle. The arrangement of the planting that is found to give the most fruit is to have four rows 18 inches apart, and then a space of 2 feet so as to be able to get amongst the plants to thin and water them, and to gather the fruit. Another span-roofed vinery, 200 feet long and 25 feet wide, is principally occupied by Black Hamburgs, carrying a fine crop of well finished bunches, black, and nicely covered with bloom. Near this are two more span-houses, each 120 feet long, both filled with Gros Colmar, carrying a full crop of moderate sized bunches, which the market buyers like much better than large ones. They were colouring with every prospect of their finishing up well. These and the various houses of Black Alicante and Lady Downe's will be kept for sale in winter.

Another long house that has been recently planted with Black Hamburgs is filled with Tomatoes. Still another house, a lean-to of considerable length, is occupied by Tomatoes, the latest crop; the plants are remarkably strong, and promise to keep on bearing late. As much as 3000 lb. of Tomatoes per week have been sold. Italian Red and Trophy

are the varieties grown; the first-named does best early in the season, but the last answers better later on, and being smoother and of a more equal size is in more favour with buyers. Some long beds out-of-doors have done remarkably well this season, and were still full of fine fruit ripening fast when I saw them at the beginning of September. Tomatoes seem to be less affected by competition with foreign produce than other things; those of foreign growth are not only flavourless through being gathered so long before they are ripe, but they contain such quantities of seed that few of those who have compared them with good home-grown Tomatoes care to have them, however tempting the price may be.

Another vinery contains Gros Colmar, somewhat earlier than those already named. The next vinery in bearing is a span about 100 feet long by 24 feet wide—all Lady Downe's, carrying plenty of bunches, but the crop has suffered a good deal through scalding, although there was no deficiency of air kept on during the critical time when this variety is so liable to be affected in this way. A roomy, hip-roofed house, standing at the northern extremity of the nursery, contains Gros Colmar planted about three years, and now carrying an even lot of bunches. Two more span-roofed houses in front of this have been planted this season with Black Alicante, which is a favourite with Mr. Sweet, and deservedly so, for as a winter Grape taking into account its fine appearance, and the immense weight of fruit which it is capable of finishing up perfect in colour, there are not many kinds that will beat it for marketing. Cucumbers in very large quantities are grown in the early part of the season.

A number of long houses are filled with plants of various kinds, including Cinerarias, which are grown in quantity, and also double white Primulas, with Pelargoniums of the usual free early flowering varieties. Of the berry-bearing Solanums there are also large numbers. A stick is being got up of the double yellow Marguerite (*Chrysanthemum frutescens*), which at one time buyers would not look at, but now it seems to be much in favour.

Winter flowering Heaths are very well done, quantities of these standing out-of-doors were beautifully set with bloom and in excellent condition every way. A batch of E. Cavendishii have made good growth, and promise to flower well. This beautiful Heath has only recently been brought into requisition as a market plant, but managed as it is now is by a few of the growers, in small pots; the plants covered from the tops of the shoots down to the pots with their bright yellow flowers, it is very attractive. Not the least of the merits it possesses is that it keeps fresh so long in flower.

Celosia pyramidalis is another plant done well here; it is grown, like most things that are intended for market, in small pots. The strain is a remarkably good one; the plants are stout and bushy, and the colours bright and vivid, ranging from the deepest crimson to pale pink and yellow.

Something like an acre of *Chrysanthemums* are grown in pots for the production of cut flowers; they are strong, bushy plants, calculated to yield an immense quantity of bloom. They go to fill the various houses that are cleared from Cucumbers and the earlier crops of Tomatoes. The varieties grown are the usual kinds that keep up a supply from autumn to the beginning of the new year. A large extent of ground is covered with bush fruits and Plums, the latter of which this year, here as in other places, are unfortunately scarcely worth gathering.

In the numerous houses that Mr. Sweet has rebuilt Payne's patent ventilating gear is used. It is the best of the many contrivances that I have met with, inasmuch as it is simple, and there is no strain on the ironwork or the lights and shutters it is employed in opening. This may be understood from the fact that the hinged roof lights in houses 200 or 300 feet long can be opened at once the entire length. Ordinary 1-inch or 1½-inch gas piping is used for the bar running the length of the roof, and on which the eccentric levers that raise the lights are attached. All wrenching and straining is avoided by the use of weighted rods attached at intervals to the opening bar on the same principle that the railway signals are weighted. These are so arranged that they nearly balance the lights to be raised. The simplicity of this is such that a child can work it.

In one of the long span-roofed houses here there is an example of one of the number of what may be

termed curiosities in glazing that was to have superseded the use of putty, and which not a few of those wanting in experience or caution have been led to try with the usual result, that the mistake is discovered when enough time to test the system has elapsed. The house in question is to be reglazed, and putty, that has so often by some been supposed about to be done away with, used.

Mr. Sweet still keeps on his other place at Leytonstone, where, amongst other things, Grape growing on an extensive scale has been long and successfully carried out. T. B.

The Rosery.

ROSE MADAME GABRIEL LUIZET.

THERE has been a good deal of contention over this Rose, as to whether it deserves to be called a hybrid perpetual or not. All along I have maintained that it is so, but even this year I have met rosarians of far more experience than myself who maintained that it must be classed amongst summer Roses. I have, therefore, been unusually gratified to find that the bushes which have been most covered with bloom in my small Rose garden have been those of this very charming variety. Every shoot has three or four buds upon it, and although these have to be thinned out in order to get larger blooms, yet I can safely say they are as full of bloom as they were in the height of the Rose season. This is very satisfactory, for when I have praised the flower for the exquisite beauty of its colour the reply has generally been—"Oh! yes, very pretty, but it is a pity that it is not a perpetual bloomer." There are Roses which at once by their habit of growth proclaim their unperpetual character. I have one of last year's which showed this at once, but where it is not the case, and the wood gives promise of its being of a perpetual character, it is well not to pronounce a verdict upon it for a couple of seasons. How many, for instance, of those Roses which are usually considered hybrids have not given a bloom this autumn, notwithstanding that it has been a good season as far as my experience goes—a very good one for second blooming. I therefore hope that the slur which has been cast on the fair fame of this lovely matron may be removed, and that she may be considered "good in autumn."

The hot weather we have experienced in the early part of the month (September) has been very favourable for the autumn flowering of Roses where mildew has not been excessive, but this has in some cases been very bad, the great alternations of temperature being very favourable to its development. We have found out in this our Hops, a large quantity of which have been affected by mould, so that the fruit has been undeveloped and the bines not worth picking. The same effect is produced amongst Roses; the buds become mildewed, and, if they open at all, are poor, and quite out of character; good blooms are, however, to be found now, and especially amongst those where there is a preponderance of Tea blood. Captain Christy, La France, and such-like Roses, are pretty sure to be good autumnal bloomers, so is Baroness Rothschild, while many are uncertain, and only treat us now and then to a good bloom.

But, after all, the Tea Roses are the most satisfactory of all for this purpose, and I am not at all surprised at their increasing popularity. What lovely blooms of Anna Olivier, Marie Van Houtte, Madame Lombard, Rubens, and many others one can get all through this month, where anything like care has been bestowed upon them; what vigorous shoots they throw up from the ground where they are either budded low or on their own roots. Some of the later varieties are deeper in colour, and will be appreciated by those who do not think that they interfere with the delicate form, the elegance and refinement of the Tea Rose. Such flowers as Madame Cusin and Madame de Watteville are sufficiently delicate in their colouring, but Souvenir de Thérèse Levet is by far the highest coloured of them all. Then, to those who wish for such flowers, there are the hybrid Teas, such as Cheshunt Hybrid, Reine Marie Henriette, and, if we may believe a report, especially American Beauty. This, which was raised in the garden of Mr. Bancroft, the historian, is said to be as large as Paul Neron, combining the ever-blooming qualities of the Tea Rose with the fragrance

of the damask; colour rosy-red—so says Mr. Boyson, of Caen.

Madame Gabriel Luizet has led me into a diverging path, but I could not resist writing a few words about these favourite flowers. *Wild Rose*.

NOVA SCOTIA APPLES.

THE Apple crop, which is one of growing importance, promises to be very satisfactory. The two counties chiefly devoted to this industry for the supply of the English market, are King's and Annapolis. In the former there will be nearly an average crop; but in Annapolis there is appearance of an unusually full crop of fine quality—the most promising market sorts being apparently Baldwin, Northern Spy, Gravenstein, Nonpareil, Golden Russet, Rhode Island Greening, and Ribston Pippin. In those two counties there has not been so much extension of the orchard area as in some former years, but more attention is paid to culture, so as to produce the best possible quality of fruit. In some others, however, not hitherto recognised as fruit counties, the formation of orchards is progressing in a vigorous manner.

It is well known to fruit growers that certain varieties bear full crops only every alternate year; other circumstances affect the crop, so that, even in a favourable year there may be a small crop of some kinds and a large crop of others. The indications of the following returns are, that there will be a rather poor showing of Yellow Bellefleur, which, of late years, has been on the decline; that King of Tomkin's County is also decidedly under average; that the Baldwin and Northern Spy will give over an average crop of fine quality; Gravenstein and Nonpareil abundant crops of exceptionally fine quality; Golden Russet decidedly good; Rhode Island Greening above average, and Ribston Pippin a fair average.

EARLY AUTUMN FRUIT SENT TO COLONIAL AND INDIAN EXHIBITION.

Arrangements having been made to supplement, by fresh samples, the permanent exhibit of Nova Scotian fruit at the Colonial and Indian Exhibition, a first shipment for this purpose was made at Halifax, per s.s. *Ulunda*, for London, on August 14. It consisted of the following varieties:—

Apples.	
Early Harvest	Transvaal of Oldenburg
Sutton's Early	Transvaal Moscow
Early Pough	Williams' Early
Red Red Margaret	Alison's Red
Red Astrachan	Gravenstein
Early Joe	Alexander
Petsky	Chesbaco Beauty
Plums.	
Nectarine Plum	Early Cris
Hamilton	
Peaches, Grown in the Open Air.	
Alexander	
Pears.	
Clapp's Favourite	Osband's Summer
Maria	Russier
Jargonelle	Doyenne d'Été
Hellbink	

A second shipment of Nova Scotian fruit to the London Exhibition was made at Halifax on August 30, per s.s. *Nova Scotia*, for Liverpool. It consisted of the following kinds, and will be followed by other shipments as the later varieties ripen:—

Apples.	
Early Williams	Black Doctor
Early Joe	Chesbaco Beauty
Red Astrachan	Alison's Red
Early Pough	Ohio Nonpareil
Primrose	De Roca
Duchess of Oldenburg	Drap d'Or
Chenango Strawberry	Gravenstein
Early Red Margaret	Maiden's Blush
Sutton's Early	Calkin's Pippin
Fourth of July	Poter
Allison's Early Red	Early River
Washington Strawberry	Musson's Sweet
White Astrachan or Transvaal of Moscow	Perry's White
Fall Gnetting	Baskin's Sweet
Early Calkin	Eve
St. Lawrence	Sweet Russet
Plums.	
M. ore's Arctic	Green Gage
Clementine Damsen	Yellow Gage
Smith's Orleans	Jefferson
Washington	Columbian Gage
Prince of Wales	Imperial Gage
Hamilton	
Pears.	
Clapp's Favourite	Bartlett
Maria	Osband's Summer
Neveuse du Congrès	Burbridge
Italo-gedon	Rosdawn
Brandyvine	Byrne's Early

George Lawson, Office for Agriculture, Halifax, Government of Nova Scotia, September.

BOTANIC GARDEN, CAMBRIDGE.

PERHAPS the most interesting plant now in flower is *Capparis spinosa*, which yields the Caper of commerce. The dark green roundish leaves combine with large white-petalled flowers to produce a pretty effect, of which few know the plant to be capable. It requires rather a special treatment, a brief account of which, with an illustration, will shortly be given. A specimen of *Gunnera manicata*, planted on the margin of the pond, has this year reached magnificent proportions, which much exceed those given by Mr. Baker in his account published in your issue of July 3, where he describes Sir George Macleay's specimen as having leaf-blades 4 feet in diameter, and quotes Libon's statement that the leaf attains a circumference of 5 metres. The largest leaf is 6½ feet in diameter, while the circumference given by Libon would indicate a diameter of about 5 feet 2½ inches. This specimen has twenty leaves, and is 13 feet 6 inches across. It is planted about 15 inches above the level of the water, and appears to enjoy the position. Under similar conditions, in the bog garden, *Saxifraga peltata* is also very large. It is 6 feet across, and the leaves, which are very numerous, are about 15 inches in diameter. On the borders two uncommon annuals have for some time been very pretty. The one is *Heliophila pilosa*, a Crucifer, rather less than a foot high, with flowers bright blue, tending, perhaps, a little towards violet. It is a charming plant. The other annual referred to is *Chrysanthemum multicaule*, of very compact habit, a foot high, producing innumerable golden flower-heads rather more than an inch over. It blooms profusely for a long time, and has been spoken of as suitable for bedding purposes.

In the houses *Nelumbium luteum* has again flowered in about the same strength as before. *Vitis perfoliata* (V. gongyloides) is now flowering freely, and the mistake of supposing the petals to fall cohering in a cap is clearly evident. They invariably reflex for some time before falling off. As the aerial tubers of this species are so remarkable, some have been kept quite dry for the purpose of observing how long they would retain their vitality, with the result that they are found to grow for three years keeping, failing the fourth year. *Eichornia azaræ*, now well known as a handsome stove aquatic, has lately flowered effectively in a tub—the only means here of growing such a plant; it was figured in these columns, p. 17, January 2, of this year. The magnificent North American Hibiscuses, *H. Moscheutos* and *H. roseus*, which, though hardy, do not flower out-of-doors, have this season flowered in a house of about intermediate temperature, where they have been so effective as to indicate considerable value for conservatory decoration. These species flower the second year from seed, and as they are rarely seen, attention may well be directed to them. Both have rose-coloured flowers of immense size. The Mahogany tree (*Swietenia Mahogany*) it may be well to note, has flowered this year, as in cultivation it is not supposed to do so. It may be the result of starving, which was tried to induce the production of flowers. They are so small as to be quite inconspicuous, and being green are not easily seen among the leaves. *R. from Lynch*.

TREES AND SHRUBS.

BERBERIS VULGARIS.

THIS is a most attractive shrub at this season of the year, being literally covered with its sprays of pink fruit. It is alike suitable as a single specimen on turf in a shrubbery, or amongst a collection of other shrubs; but being of a drooping habit, it shows to better advantage as a single specimen on turf where space can be afforded it.

COTONEASTER FRIGIDA.

THIS is also another very useful berry-bearing shrub, which is now in its full beauty, being loaded with its large scarlet berries. I do not think it is so generally cultivated as it deserves to be, as it is seldom met with. *E. Ward, Howell Gardens, Bromsgrove.*

THE MYROBALAN OR CHERRY PLUM AS A FENCING PLANT.

About forty years ago the late Mr. J. W. Ewing, of Norwich, introduced into Norfolk and advocated it

use of *Prunus Myrobalana* as a plant with which to form fences. It is claimed for it that it will grow in almost all soils, but especially those of a light sandy or dry stony nature, where *Whitethorn* will barely exist, and for filling up gaps in old *Whitethorn* fences when the soil has become exhausted for the growth of *Whitethorn*; and it also grows well in boggy soils. But it is necessary to protect it from cattle for the first two or three years of its growth; and it should be kept clear of weeds.

GRAPES.

SEVERAL kinds of Grapes were shown at recent exhibitions at the Royal Horticultural Society, and at the Crystal Palace, in remarkably good condition, the best of both black and white being well represented. Among blacks, the finest bloom and finish was apparent in the Alnwick Seedlings as staged by several growers; this Grape has been abused, but will, we think, hold its own for years to come, being, when well ripened, a worthy successor to the late Black Hamburgs. It requires severely thinning when the bunches have set well, the advantage in respect of which was obvious in the 2d prize lot at Kensington in comparison with those which gained the 1st prize, the latter being much packed although very handsome bunches with a dense bloom. It succeeds well in either the Muscat-house or with Lady Downe's in the late vinery. Gros Maroc has come well to the front of late; it was hardly so well finished this year as last, but still grand in berry, and some fine bunches too were staged. This is a free setting kind, also requiring to be thinned very freely in order to allow its berries room for development. Small bunches (to all appearance) of this Grape, when in its earlier stages, grow up and form handsome clusters. It does well with Hamburgs, and forms a good succession thereto, but wants as much room as Muscats to develop its foliage.

Gros Colmar is not seen at autumn shows so much as it was a few years back. Unless grown with Muscats it cannot be ripened in time, being, in fact, a winter Grape, at its best from Christmas onwards throughout January, and does not compare favourably with either of the aforementioned kinds for autumn use.

Madresfield Court was not represented by such good examples at either show as we have seen; the finest bunches shown required another good thinning to show up the proper character of the Grape, which was far more apparent in neat bunches that did not obtain recognition. When the thinning of this Grape is finished the best way is to go over the bunches and thin them again, never fearing its peculiarity of cracking. This failing we have always found to be either entirely prevented or reduced to a minimum by free ventilation when commencing to colour. The most limited collection should include at least one Vine of this finely flavoured and handsome Grape.

Alicante, a deservedly popular kind, easily managed, and invariably finished well, was again shown in first-rate order. It seems, however, a pity to see such fine bunches cut so soon in the autumn, whilst Black Hamburgs and Madresfield Courts are in good condition, and the Alicante itself, with few exceptions not having attained to its peculiar flavour.

Black Hamburgs were seen better earlier in the season than shown at either exhibition; still some good examples were staged. It is frequently remarked that Hamburgs are not shown of good colour. Some allowance must, however, be made in this case when any comparison is made between this and other black kinds that carry such an intense bloom, beyond that attained with rare exceptions by the Hamburgs. Then, again, since the introduction of newer kinds, in many cases without doubt the Hamburgs have been subjected to a higher temperature than is safe for them wherein to finish well. For some weeks to come it should be the most sought after of any black kind for consumption.

Lady Downe's Seedling was shown in splendid order at the Kensington exhibition, indeed it was one of the most attractive classes on the whole of any individual kind, and the majority well finished. As in the case of Alicantes, it seemed a pity to see such fine fruit cut now, when three months more, at the least, should be allowed to elapse before they are included in any dessert.

The condition in which Mrs. Pince was shown did not speak highly for the kind, only one or two lots

being presentable; neither can much be said for Gros Guillaume or Black Prince, in fact it is doubtful if the two latter kinds are worth the room they occupy in any vinery.

Want of finish was the prevailing characteristic of Muscat Hamburgs; this somewhat fickle kind, although of fine flavour, does not appear to get just the treatment it needs to bring it out in first-rate condition.

We did not notice that finely flavoured autumn Grape, West's St. Peter's. It is worth a place in any late vinery, even if only for the use of invalids, by reason of its refreshing and melting character. It is the "invalid's Grape" after the Black Hamburgs are used up.

Of white Grapes Muscat of Alexandria is pre-eminently the best of its class. Shown we think on the whole even better than usual this season, there seemed to be an absence of loose bunches with traces

coloured examples were, however, the most attractive on the whole, and more in character with the kind.

Duke of Buccleuch was shown by its raiser with berries of enormous size and presented a grand appearance. In its class, however, its cultivation does not seem to be better understood than a few years back; the North Country growers seem to succeed better with it than we do in the South. Neither White Tokay nor Trebbiano are worth the room they take up when compared with the aforementioned kinds, having only size of bunch to recommend them.

Golden Queen, when well-finished, is a handsome Grape, but this rarely is the case. The better use to make of it, where it is still being grown, is as a stock for a better kind, it is a robust grower, and as such is well fitted for this purpose. Compared with Foster's Seedling it is beaten for early work, whilst for later use it is simply nowhere.

We would, in conclusion, like to inquire if there is

Paris, under the personal supervision of Mr. André, in whose office our young countryman is now studying.

The site of the park, which occupies 100 acres, is in the best quarter of a large town, and the land surrounding it on two sides, Mr. Jackman has judiciously marked out in suitable sized plots for gentlemen's residences. On another side a terrace and crescent is marked out for good houses, with a public garden in front of each, which will be planted with flowering plants and shrubs and choice Conifers.

The whole of the park is surrounded by wide avenues, and the park entrances are placed in the most convenient positions for easy access from the streets, with an ornamental lodge to each (25), which gives a pleasing and useful appearance to the park.

The style which Mr. Jackman has adopted is a natural undulating surface, as being the most picturesque, and also harmonising best with the surrounding country, and when carried out gives a much

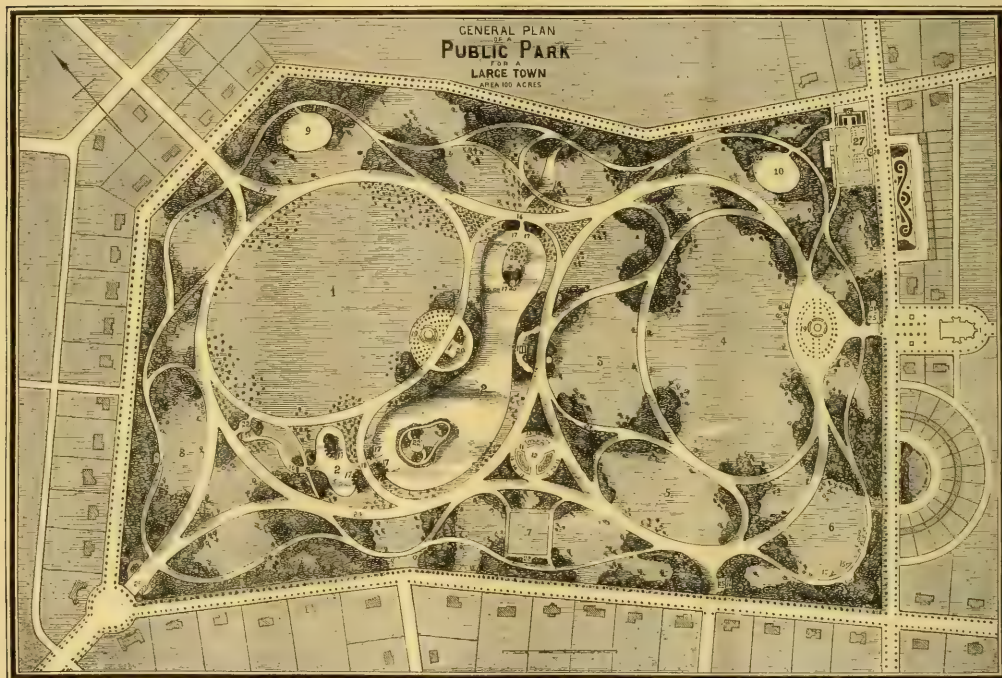


FIG. 78.—PLAN OF A PUBLIC PARK.

of imperfect fertilisation. Solid and lumpy bunches were staged at both shows, and of that rich amber colour so much sought after yet not attained unto even by good growers in some instances. A few green examples were seen, but they were the exception. When will exhibitors of Grapes learn to leave their produce at home when not of good colour for the respective kind?

Next in point of place we would name Foster's Seedling, some remarkably clean and clear examples being shown. It may fairly be termed every one's white Grape, by reason of its hardy constitution and good bearing qualities.

Buckland Sweetwater did not come to the front so strongly in our opinion as the former kind. It is very taking when well done, but more often than not it is shown in a condition far past its best.

Mrs. Pearson is a white Grape worthy of more extended cultivation, its fine appearance and rich Frontignan flavour should recommend it. The large ungainly bunches at Kensington seemed to find most favour with the judges; the smaller and more highly

any difference between Gros Maroc and Cooper's Black. They appear to be one and the same thing; if so, the sooner the latter name is dropped the better. *Vitis.*

LANDSCAPE GARDENING.

THOSE who visited the great provincial show at Liverpool must have noticed among other exhibits a plan for laying out a public park of 100 acres (fig. 78), designed by Mr. A. G. Jackman, landscape gardener, of Woking, which obtained the highest award.

The design contains many high qualities, and displays throughout that good taste which Mr. Jackman has acquired during the time he studied the profession at the establishment of Mr. Shaw at Manchester, Mr. Pynaert at Ghent, and Mr. André at Paris, the latter gentleman being well known in England as the designer of Sefton Park, Liverpool, and other large gardens.

The plan was elaborated by Mr. A. G. Jackman in

more varied appearance to the park or garden than any other style, and makes them also seem much larger than they are.

The site chosen for the park is undulating, and consists principally of meadows and grass fields, except on the west side, where there is a wood with a stream rising out of it, and flowing down through the grounds, which Mr. Jackman has taken advantage of, and converted into two ornamental lakes, which form the most important feature in the park.

The large lake (2) for boating and skating is fine, with its two well planted islands, and the pavilions and summer-houses placed in the most prominent places for obtaining views over the different parts of the park. The smaller lake (2) for birds, &c., is also very beautiful, with its waterfalls and rockwork (17, 18) in different parts, on which several varieties of alpine and aquatic plants can be grown. Both lakes are fed by a constant supply of water from the stream, at the head of which is a magnificent cascade (16), which, being in the wood, gives it a very natural appearance. A few walks with rustic bridges (18) across the stream have been made so as to get good views of the waterfalls, rockwork, and other scenery round the lakes.

The wood Mr. Jackman has retained, but he has also improved it by opening a few large spaces to obtain vistas, which spaces he intends to be used for archery or other amusements.

Several small plantations of Firs and forest trees have been made in different places of the park, so as to harmonise with the above mentioned part, and to vary the scenery. All the shrubberies are raised, and are so arranged as not to interfere with the views.

Another feature is the large open grass spaces (1, 3, 4, 5, 6, 8,) for cricket and football, which may also be used for exhibitions and for volunteer grounds. The raised band pavilion (19), and also the refreshment pavilion (20), are conveniently placed, with large trees planted round them, with seats (24) underneath for shade and shelter, and to enable people to enjoy the music and games, and take refreshments. The other spaces for lawn-tennis, croquet, &c., are well designed, and are distributed over the whole of the park. A fine bowling-green (7), is also formed, and is placed in a suitable position, with every convenience. The boys' and girls' playgrounds (9, 10) or gymnasia are also a good introduction.

The flower garden (11), with large fountain in the centre (12), and statuary placed in different parts, is very pretty, and should be one of the most interesting

neighbourhood. When the cutting was obtained the girl made a hole in the ground with a poker, and in it the slip was planted. The soil is very rich about the district, and Roses are generally to be seen on the Manx cottage walls at Christmas time. *Geo. P.*

THE SEED HARVEST.

So far as returns have come to hand, relating both to actual and probable realisations, it would appear that the seed harvest all round will be a decidedly good one, but much will depend upon the character of the weather during the next fortnight. That the present season has so far proved favourable to the maturation and harvesting of the seed crops there can be no doubt; and growers are earnestly hoping that the prevailing bright sunny weather with a drying atmosphere may continue, so that the late crops (owing to a retarding spring, later in ripening than usual) may be harvested in as good condition as the early ones.

Peas, generally, are well secured, and are reported to be of excellent quality, with only a few exceptions,

Lettuce, and Leek, also require a continuance of drying, ripening weather to ensure good growing quality in the seeds; and growers have to be constantly on the watch to reap at the right time, or much that is promising might be destroyed.

It will thus be seen how much depends upon a fine dry autumn, and especially after so a late spring. The grower and seedsman alike have their anxieties; and both are anxious their customers should have the best they can supply—seeds plump, of good growing power, and, as far as human means can compass this end—of the highest quality. But very much depends upon Nature being in a mood to yield to man in the highest form "the kindly fruits of earth."

Pitum.

FRUIT NOTES.

PEACHES: ALEXANDER AND AMSDEN.

It is just possible that Mr. Markham may not have the above true, and that only one variety has been



FIG. 79.—A FUCHSIA IN THE ISLE OF MAN.

features in the park. Flower beds are also placed in several parts of the park, and give it a very bright appearance, and help to liven the shrubberies up greatly.

As no park can be considered complete without the usual means of propagating, storing, and growing plants, a large garden has been formed with greenhouses, gardener's house, sheds, &c. (27).

From an announcement in another column it will be seen that Mr. Jackman was placed third out of eighteen competitors for his plan of the public park to be constructed at Poole. In addition to the references cited in the text, we may add that on the plan (13) indicates the position of statuary, (14) Rhododendrons, (15) that of flower-beds, (19) the bandstand, (21) boat-house, (22) summer-houses, (23) aquatic birds, (26) retiring-rooms, (28) gardener's house, (29) greenhouses, (30) sheds.

FUCHSIA TREE AT BALLME HOUSE, RAMSEY, ISLE OF MAN.

We illustrate above (fig. 79) a large Fuchsia, *F. magellanica* (coccinea), which is 15 feet high, and has a girth of 80 feet. This tree was planted either in the year 1834 or 1836 by a girl at that time in the service of a Miss Judith Christian, the then owner of the Ballme estate, Fuchsias being at that time somewhat rare in the

where local showers did some damage, but these are decided exceptions to the general rule. The yield of Peas is above the average, and more especially is this true in relation to the wrinkled varieties; prices will rule extremely moderate in consequence compared with some dear years, with the probable result that the wrinkled Peas which have already done much in the way of thrusting the old round kinds out of cultivation, will be now more extensively grown. The stocks of Peas already received are of excellent sample, and it is believed that the quality of the colonial grown Peas, always high, will be quite equalled by those grown in this country.

Samples of Broad Beans that have come to hand are remarkably good for colour and condition—they have rarely ever been surpassed.

Turnip seeds of various kinds have been well harvested, and it is reported there is generally a fair average crop.

Onion seed, that promised well in the early part of the season, is much weakened owing to mildew having largely attacked the stems in some localities, and if another week's fine weather continues the crop will be fully ripened: so on the other hand rain would have a most disastrous effect upon it.

Late crops, such as Beet, Carrot, Radish, Parsley,

sent to him. I admit that the fruit has a considerable resemblance when ripe, but I never considered that they were identical. They are both described very fully by Dr. Hogg, in the *Fruit Manual*. The leaves of the variety Alexander have round glands, and those of Amsden are kidney-shaped. We grow both of them in pots, but if there is room for one only I would plant Alexander in preference. I have not grown Waterloo, but I believe it ripens with Alexander, bears freely, and the fruit is also larger. It was raised at Waterloo, New York, and is also well described in the last edition of the *Fruit Manual*. I never found any difficulty in setting the blossoms of Prince of Wales Peach; we have always had a full crop, and I have grown it since the first year it was sent out. "Vagabond" omits the three best Peaches in cultivation from his list, viz., Bellegarde, Grosse Mignonne, and Royal George.

The true Early Grosse Mignonne is a most excellent early Peach; in our orchard-house at Loxford Hall it was quite ten days earlier than Grosse Mignonne, although not quite equal in quality to that fine variety. There have been many mid-season Peaches introduced during the last few years, but were I confined to two varieties, they would be Grosse Mignonne and Bellegarde.

AUTUMN COMPOTE PLUM.

I should like to say a few words in favour of this variety. I do not say it is the best Plum for preserving or for any other culinary purpose, but it is as good as any known to me, and we have Cox's Emperor, Victoria, and Pond's Seedling growing with it. Its great value is in the fact of the fruit ripening about the end of September, when most of the large Plums are over. The fruit is of large size, and rather paler than that of Victoria. It succeeds Cox's Emperor. *J. Douglas.*

Florists' Flowers.

THE AURICULA.

I HAVE just finished the second repotting of the Auriculas. Those repotted early have been attacked by aphids. There is no better cure than taking the plants out of the pots, forking off the aphides with a pointed stick, and repotting. In some collections of stove plants a very similar parasite attaches itself to the roots, sometimes entirely covering them with a white stuff. It can only be destroyed by constantly repotting the plants, after removing as much as possible from the roots. I have never seen an Auricula injured by the woolly aphids, whereas the ordinary greenfly that attacks the leaves would, if undisturbed, kill the plants in a few weeks. The hot weather up to the first week in September has been very trying to show Auriculas. The plants have been kept tolerably dry at the roots to prevent their blooming, which they will do notwithstanding all precautions. Seedlings from seeds sown last autumn or in the spring of the present year may be potted on as they require it. The alpine out-of-doors have passed through the warm weather admirably; they are deep green in the foliage, and have lost few leaves. Caterpillars and the leather-coated grub are troublesome at this season; but their destruction is one of the incidents of everyday experience.

THE CARNATION AND PICOTEE.

These seem to appreciate dry hot weather with heavy night dews; the layers have made exceedingly good and healthy growth in our garden; and they will be quite ready to be taken off the last week in this month; but if the operation is delayed until October it will not make any difference. The plants are best out-of-doors, although we have a considerable number under glass, left there to protect the seed-pots from wet. As the seed-pots ripen and are removed the plants are at once turned outside; they are in an open position, exposed to sun and wind. The soil is prepared now, by carefully looking over the loam and manure to pick out from it all grubs and wireworms. The loam used to pot the layers in is much finer than that for potting them in to bloom; less decayed manure is used, more leaf-mould, and a larger proportion of coarse sand. When repotted place the plants in a cold frame, the lights of which must be kept rather close by day, but in calm nights they are drawn off to expose the plants to the cool night air, and to allow them to be saturated with dew. Push the lights on again in the morning before the leaves are quite dried by the sun; tilt the lights a little, and shade for a few hours during hot sunshine. The old stools, on which there are sure to be a few unrooted layers, may be planted out in the open garden, or be given away to friends or neighbours, who may have room in their gardens for them. *J. Douglas.*

The Rockery.

ALTHOUGH the rockery does not wear the bright aspect it did some few weeks since, yet there is still much to attract the attention, as the autumn *Ericas* are now in full bloom, of which I give the names:—*Erica vulgaris*, *E. Serotina*, *E. carnea*, *E. vagans*, and *E. multiflora alba*. *Coneaster microphylla* is also covered with its bright scarlet berries: planted on the high part of the rockery, and allowed to hang down, it is very effective. *Smilax aspera* is very attractive with its bright foliage, but it does not often

fruit with us. The various varieties of Ferns are now assuming their bright autumn tints, but especially noticeable is the Beech Fern, *Polypodium phegopteris*: this, after changing to a bright golden colour, remains for some time like this, so that large clumps of it, as growing here, are very effective. By keeping the rockery all picked over, and removing all Fern fronds as they get unsightly, this department will be kept attractive for some few weeks yet to come. *Edward Ward, Hewell Gardens, Bromsgrove.*

The Flower Garden.

PROPAGATION.

VERBENAS and other soft-wooded plants may still be propagated, where the stock is deemed insufficient, but a gentle bottom-heat will now be necessary to secure success with them, and they will require very careful treatment to winter them successfully, when propagation is so long deferred. Those struck in July and the beginning of August, and treated on the cool principle may be successfully wintered in cold pits with a covering of straw or mats to exclude frost although a few degrees will do them little injury. In order to accomplish this good drainage is the first essential, say 6 or 8 inches of clinkers surfaced over with coal-ashes. The pots should be stood on boards as close to the glass as possible, and these should be elevated on flower-pots to allow of a free circulation of air beneath the pots. The points of the shoots should be within 2 or 3 inches of the glass. The sashes should be tilted every cool day, and removed every fine day. When water is necessary, sufficient should be given to moisten the whole soil in the pots, choosing the earliest opportunity on a sunny day, when the sashes can be left off so that the superabundant moisture may be dried up as far as possible before it is necessary to close the pits for the night. Should the nights be mild, a little air being allowed will serve to prevent mildew. Cuttings of *Gazania splendens* may now be put in to strike. A treatment similar to that for *Violas* will be found to answer for these, as the plants are all but hardy. An old sash and a little straw, or an old mat or two, will afford all the protection necessary in the severest weather. Bedding *Pelargoniums* may still be struck from cuttings, but they will be better under the protection of glass sashes than standing out-of-doors, as the weather is not to be depended on for a single day now.

CALCEOLARIAS.

Towards the end of the month it will be necessary to secure a stock of *Calceolaria* cuttings for next year. This had better be deferred as long as possible, but it should be attended to before frosts set in, as the cuttings are more subject to mould if they have sustained any injury to the foliage. The best place to strike them is behind a wall, facing the south; the less sun the plants receive during the rooting process the better. Make a good hard bottom of ashes and let it be firmly beaten down. On this place the frame, then in this put some rough leaf-mould, to the depth of 1½ inch, then some finer leaf soil, with a slight addition of river or sharp pit sand, finishing off with about 1 inch of pure sand. Prick in the cuttings from 2 to 3 inches apart each way, give a good soaking of water to consolidate the whole, shutting up the sashes and keeping them constantly closed. They will require no more till they are rooted. If the sun is prevented from striking the glass (which it cannot do if thus situated) during severe frosts they will require to be protected with mats or straw. In dry seasons *Calceolarias* are very unreliable unless they be liberally treated, and receive due attention at the proper time. *Aplexicaulis* is a good old sort, but different localities have their most suitable kinds to depend upon. What suits one district may prove a failure in another.

PLANTING EVERGREEN SHRUBS AND TREES.

This may now be satisfactorily proceeded with. The heat in the soil at this season of the year will assist in the formation of fresh roots before the winter sets in, and the plants will be in a much better condition to meet the parching winds of March than those which are planted during winter. Where the

soil is cold, and general stagnation prevails, avoid slushing the roots with water, as this will retard rather than assist root-action, but rather dew the plants frequently with the syringe or garden-engine. Previous to planting let the soil be well trenched or the pits made twice orthrice as large as requisite; no plant will thrive in a thimble. In lifting the plants preserve as many of the roots as possible, and secure as much ball as will hang to the roots with each. The planting of deciduous trees and shrubs had better be deferred till the bulk of the leaves have dropped off and the growth of the present season matured.

LAWNS.

In order to maintain a neat appearance the mowing machine will require to be kept going and the edge clippers should be freely used. Do not use the edging iron at this late season if it can be avoided, else the edges will crumble down with the frost. Edgings should only be cut to preserve uniformity of width. Turfing may now be undertaken, and all Plantains and other weeds may be removed from lawns as opportunity offers. *W. M. Baillie, Luton Hoe Gardens, Luton.*

THE ORCHID HOUSES.

ORCHIDS IN COOL HOUSES.

REPOTTING.—During this last fortnight we have been overhauling our specimens of *Odontoglossum crispum*, dipping and cleaning the plants, washing the pots, and removing overgrown moss. I do not advise clipping of the latter with shears, but to tear it away rather deeply, rather than to pinch off the green heads. My reasons for doing the cleaning first is because it is of more importance than the potting, and should be finished as quickly as possible, or the insects might spread from the plants not cleaned to those already done.

There are now so many recipes for Orchid-dipping mixtures, and almost every grower has his own favourite one, but none are so infallible as to prevent the insects spreading to the plants again. Very few insecticides that are used cold will injure the plants, if not left on too long before thoroughly washing off with rain-water. After the cleaning is done the potting should be commenced, as I still think the autumn the best time for this operation. If those plants that were shaken clean out last season and then replaced into much smaller pots have made plenty of roots, and appear too large for their pots, they may be shifted into larger ones, disturbing the roots as little as possible, keeping the weaker bulbs of the plant closer to the side so as to place the leading growths near the centre. Those plants that require to be freed thoroughly from the old potting material should have all their dead roots cut away.

In selecting a pot I never provide against the plants growing over the sides, as I believe many are made unhealthy through over-potting, but take one just large enough to hold the roots comfortably, draining it with clean crocks for about two-thirds its depth, then place a layer of sphagnum moss, above that a few lumps of good fibrous peat, afterwards using about two-thirds moss to one-third peat. Fill the pots nearly to the rim before placing the plants on it, then spread the roots around, putting a few lumps of compost under the plant to raise it to the desired height. After the potting is finished clip the surface over, and then set a few live heads of sphagnum about over it. The potting should be done very lightly, only pressing the compost firm enough to steady the plants. We shake a little very coarse sand on the surface, which gets washed in when watering. From the time of potting until the spring the surface and the pots should be kept damp, using a fine rose syringe, after which time the watering-pot can be used. Give the plants as much light as possible without letting the sun actually shine on them.

MASDEVALLIAS.

The month of September is a good time to break up and re-pot *M. Harryana* and its varieties, *M. Lindenii*, *M. Veitchii*, or any that are not coming into flower. Here the plants are treated much the same as the *Odontoglossums*. In potting they require less drainage; we fill the pot one-third with crocks, mixing a few with the potting material, the peat is broken up rather smaller than for *Odonto-*

glossums, and more of the earthy matter is retained. A compost might be mixed before commencing potting, of equal parts moss and peat, which can be used about the roots of the plants, but finishing the surface with larger pieces of peat and sphagnum moss not mixed beforehand. I have used for Masdevallias of late years some half-rotten Oak leaves rubbed through a sieve; this, I believe, benefits the plants, but still there is the risk of getting fungus in the pots. We also use a little coarse sand, as for Odontoglossums. When turning out a Masdevallia to pot, my practice is to divide the plants into smaller pieces without the use of a knife; after cutting away dead roots, tie a small stake to some if not all the pieces, keeping the crowns a little above the rim of the pot; select the longest leaves for the centre, and as the plant is put together place some moss and peat between each piece, keeping them all firm. If we have a plant of an extra large size that requires a pan—say, over 2 feet diameter—I adopt the practice of placing the pieces a few inches apart. After potting take care not to let water touch the young growths, for during the period of small rootation they soon rot if wetted. Give them moisture in the same manner as recommended for Odontoglossums. Masdevallias should never be allowed to get dry at the root at any time. Before potting the plants they should be all dipped and cleansed from insects, so that there shall be no need to disturb them some time after. The cool houses will now be closed at night, and the shadings should not be used more than is really necessary; we have taken it off the Dendrobium-houses and the north sides of warm houses. *C. Woolford, Devonshire.*

PLANTS AND THEIR CULTURE.

CONSERVATORY.

THE removal of stove and intermediate plants to their proper quarters divests this structure of its chief ornaments. Fine-foliage and flowering plants of a more hardy character should now be put in their places; these include *Dracenas*, *Palms*, *Grevilleas*, *Ferns*, *Celosias*, *Fuchsias*, *Salvias*, *Tuberoses*, *Godetias*, *zonal Pelargoniums*, *Begonias*, *Mignonette*, *Petunias*, &c.; when these are arranged with taste, they make a nice display. If any stove plants are still in this house, they must be treated with great care as regards watering; if this is reduced, and the ventilators opposite to where they are staged be kept closed, they will not be hurt for a few days. Go over trailers and creepers: thin out the shoots, stop the laterals, and pick off the dead foliage. If these plants be left alone, they very soon shut out the light from the occupants below, which soon suffer in consequence.

FERNS.

These will now be gradually getting to a quiet state of growth, and will require less watering, but they should not be allowed to become very dry. Place all plants of *Gymnogramma* and *Cheilanthes* in a dry atmosphere, or they will soon turn rusty; all deciduous kinds, whether stove or intermediate, should be placed in the coolest part of the house, but on no account let them get dry, or they will be found to be very weakly in the spring. Any plants of *Gleichenias* that have been in cool houses will require to be placed in warmer quarters for the winter, and such species as are subject to thrips, which include *Lomarias*, *Woodwardias*, and a few others, should be closely watched in order that they may not get disfigured, which they soon do should the pests once get a lodgment on them. The quickest and most effectual way to get rid of thrips is to dip the plants in rather strong tobacco-water, but in no case should this be done unless the fronds are matured. *A. Evans, Lythe Hill, Haslemere.*

HARDY FRUIT GARDEN.

GENERAL WORK.

THE bright sunny weather experienced for the past week has been most favourable for the ripening of late fruits, and the change which has occurred in the colour of the wood on wall Peaches, &c., under its influence shows clearly that it has done a vast amount of good in this direction. Morello Cherry and Peach

trees, &c., from which the fruits are now cleared, should occasionally receive a thorough washing with the garden engine so long as the bright weather lasts, and this should take place early enough in the day to allow the trees to get dry ere nightfall. All newly made growths, especially on choice Peaches, Peaches, Nectarines, &c., should be kept persistently pinched out, in order that every available ray of sun may reach the fruiting wood. Any Peach trees, &c., which seem to have made too much fruiting wood, and more than is really required for next year's service, should have part of it cut away at once. It is very rarely we see the wood of outdoor Peach trees trained out so thinly as it ought to be. In the case of fruit trees which have been unfruitful during the past season, and in which the result may be attributed to an over-vigorous growth, this is the time, before the soil gets into too wet a condition, to proceed with root-pruning. No hard and fast rule can be laid down for the execution of this kind of work, but the case of each tree must be studied and treated according to the number and quality of its roots and the size of the tree. The proper way to proceed with root-pruning has been many times detailed in these columns, and there remains but little to add; however, I may say when carrying out the work make certain that all gross roots taking a downward course immediately beneath the ball are severed, otherwise all the labour of excavating the soil round the ball may have been undertaken in vain. The workman must have a good wide trench round the outside of the ball, and of sufficient depth to enable him to work his spade well under the ball of soil containing the roots to be pruned. It is better to err on the safe side, and root-prune a tree two years in succession, than to overdo it, thereby causing a sudden check, such as the tree would not sufficiently recover from to enable it to carry fine fruit for several years afterwards. Any old worn-out trees on walls should be grubbed up as soon as the fruit, if any, is gathered, and fresh soil procured at once in readiness for planting new ones. The state of the old soil and other circumstances will indicate whether the drainage already present is sufficient or otherwise. When planting young trees in old worn-out soil excavate at least a cartload of it, and replace with good virgin loam if possible. Before planting the young trees the re-pointing of the wall should be done, if necessary, not only in order to destroy all harbours for insects, but to preserve the wall in a good state.

GATHERING FRUIT.

Fruits of late Peaches, Figs, Plums, &c., when gathered, should be placed in a warm dry house for several days before being sent up for dessert. Continue to gather Apples and Pears as the different varieties become ready, being careful not to place too many fruits together when conveying them to the fruit-room. All fruits which are the least pecked by birds should be kept apart for immediate use. Hard Pears in this condition are adaptable for stewing purposes, whether they are stewing varieties or not; keep the fruit-room as cool as possible, by the aid of shutters partly closed either inside or outside the windows. In the absence of these, mats may be hung up, which will answer the purpose well. If the fruit-room is not damp, no air will be required. *G. H. Richards, Somerley, Ringwood.*

The Kitchen Garden.

LETTUCE AND ENDIVE.

SOME portion of the latest sown plants can be drawn from the seed beds and pricked out singly on to raised beds in sheltered positions; into cold frames or underneath the shade of walls, where, if necessary, some protection can be afforded them during severe frosts in winter.

Towards the middle of next month Lettuce fit for use should be lifted with good balls attached to them, and planted into cold frames near the glass, and as thickly together as possible without touching each other. After receiving sufficient water to settle the plants in their new positions, all the air possible should be given by removing the lights entirely, as often as possible, closing them only during rain or frost. Where frame accommodation is limited or wanting, a temporary bed of ashes spread in a sheltered corner, or against a south wall, with some provision to throw off heavy rains and exclude

frosts, will suffice for the planting and storing of full grown Lettuces, and considerably prolong the supply. Full grown curled Endive should also be lifted and treated in a similar manner to Lettuce, and when stored on ash beds a portion can be tied up and plunged deep enough to bleach. Batavian Endive, being more liable to decay, should if possible have frames placed over the most forward plants where they have been grown, or have flower-pots placed over them, which, in the event of frost, can be protected by bracken or straw litter. Whenever Endive or Lettuce is covered or tied up for bleaching purposes, it is most essential that both should be in a dry condition at the time, and also that all frames containing the same should be kept well aired, and all decayed leaves removed at once.

CAULIFLOWER.

Provision should also be made for these by pricking out into good soil, in frames near the glass, young plants of Early London, Walcheren, and Veitch's Autumn Giant, to stand through the winter: a portion also may be transplanted on to beds, where they can when necessary be hooped over and matted; hand-lights being available for the purpose, should be placed in position at a distance from each other sufficient to allow of the easy removal of the lights for giving air, &c. On a piece of ground which has been well manured from six to eight plants may be allotted to a light until spring, when finally four only should be allowed to remain, the surplus ones being used for filling up blanks and additional plantings. After the plants have recovered the check of moving, and during the winter, they should be exposed as much as possible whenever the state of the weather will permit, to render them firm and hardy; an occasional dusting of soot or lime followed by a surface stirring between the plants with a hand-fork, will tend to keep slugs in check, and the soil in a healthy and sweet condition.

FRENCH BEANS.

Another good sowing in pots should now be made. A cold frame will suffice at present and until the seeds germinate, when they can be removed into a warmer temperature. Those sown as advised in a former Calendar should now be top-dressed and put under glass. Late sowings on outside borders, and which are now coming into bearing, can be easily protected from early frosts and the supply prolonged by forming a rough trellis with stakes sufficiently high and strong to bear a light covering of tiffany or mats at night.

CUCUMBERS.

Encourage the plants intended for winter fruiting to cover the trellis allotted them by maintaining a brisk growing temperature, and by the addition of fresh soil at the roots. Avoid overcrowding of the foliage, allowing sufficient space for each leaf to fully develop itself. Air should be given gradually and freely during bright sunny days, care being taken in doing so to prevent the plants from drooping; a little air can also be given on mild nights through the top ventilators, unless the fruits are required. Keep the blooms removed as fast as they appear. Plants fruiting in dung frames will require additional linings, and should be closely matted at night. *John Austen.*

PLANT PORTRAITS.

ANDROSACE LANUGINOSA, *Garden*, July 31.

BRASSAVOLA DIGBYANA, *Orchid Album*, t. 241.

CATTLEYA TRIANÆ MASSANGIANA, *Orchid Album*, t. 242.

CRASSULA SCHMIDTII, *Regel, Gartenflora*, t. 1225.—Leaves linear, succulent; flowers small, red. South Africa.

GARDENIA CITRIODORA, *Reine Horticole*, August 1. IRIS ROSENBAKHIANA, *Regel, Gartenflora*, t. 1227.—The prettiest Iris of the Nippon section; discovered by Albert Regel, in Turkistan. Two varieties, one blue the other violet, are figured.

LELIA SUBERIENSIS, *Orchid Album*, t. 244; *Reine Horticole*, July 16.

MASDEVALLIA REZLII SUPERBUM, *Orchid Album*, t. 243.

RHODODENDRON SMIRNOVI, *Gartenflora*, t. 1226.—Flowers small, funnel-shaped, red. Caucasus.

RHODODENDRON UNGERNI, *Gartenflora*, t. 1226.—Flowers white. Caucasus.

SAXIFRAGA STRACHEYI VAR. ALBA, *Gartenflora*, August, t. 1228.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Sept. 27	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
WEDNESDAY,	Sept. 29	Sale of Dutch Bulbs at Stevens' Rooms.
THURSDAY,	Sept. 30	Sale of Imported Orchids from Mr. F. Sander, at Stevens' Rooms.
FRIDAY,	Oct. 1	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
SATURDAY,	Oct. 2	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.

THE harvest of the TOBACCO at Forest Hill was commenced by MESSRS. JAMES CARTER & CO. on the 18th inst. The two or three cold nights previously, with rumours that 3° or 4° of frost had been registered in the neighbourhood, induced Mr. C. H. SHARMAN—who from the very first has taken a deep interest in the results of the Tobacco trial—to commence cutting the crop. A beginning was not made until past 4 o'clock, owing to Mr. SHARMAN having been detained in London, but a band of a dozen labourers soon laid nearly one-fourth of the crop low. Mats were laid upon the soil, and then, by the use of a strong knife, the stalk was cut through close to the roots after the plant had been bent a little on one side by the left hand; the plants were then laid carefully on their sides on the mats in a line, and a further layer of mats placed over them. The remainder of the crop was cut on Monday, and the plants got under cover on that and the next day. So far the weather has favoured the proper ingathering of the crop, and the leaves were rapidly beginning to take on a tint of greenish-gold, which is said to indicate the proper time to harvest.

A commodious barn close by has been engaged for the "curing" process. This is undertaken by an expert, and the result will be watched with great interest, especially in the immediate locality, where the culture of such an unusual crop in this country may prove to be an event of the highest importance. A light wooden framework is fitted up in the barn, and when the plants are taken there they will be fastened to stakes 5 feet or so in length, as many as can be conveniently attached, the base upwards, so that the leaves can hang downwards; and these stakes will be placed on the framework so that they can be supported at each end, and here the leaves will gradually dry. It is said that artificial heat will have to be introduced for three or four days at least, to ensure that the drying process is complete. How long the process of "curing" will occupy remains to be seen; probably much will depend upon the character of the weather in the next two months. The proper curing of the leaves is undoubtedly the most important point—on that will depend the commercial value of the experiment. Various sorts of Tobacco have been grown in this country for years past for garden ornament: we have yet to learn whether it can be made a profitable crop in this country for manufacturing purposes.

As a matter of course, Tobacco being an article subject to excisable duties, the requirements of the Excise officer have to be considered and obeyed in all stages. So far this official appears to be acting in perfect harmony with Mr. SHARMAN, and there is little fear of any official restrictions interfering with the perfect harvesting of the crop.

Presuming that the curing process is carried out in a satisfactory manner Mr. SHARMAN is hopeful that the yield will average at least a ton per acre. This must of necessity be a rough guess, and it is to be hoped it will not be much below the quantity hoped for. When the curing process is complete the crop will pass into the hands of a Liverpool firm for manufacturing purposes.

Altogether seventeen varieties of Tobacco were tried, and to make the experiments as complete as possible the very best varieties were obtained from the most reliable sources.

The names of the varieties are Big Frederick, Can-seed Leaf, Connecticut, Florida, Glasner, Havannah, Hester Virginia, Island Broadleaf, Kentucky, Maryland Broadleaf, One Sucker, Pennsylvania, Virginian, White Burleigh, White Stem, Yellow Orinoco, and Yellow Prior. The seeds were sown in heat, the plants grown on into size and planted out in rows, being about 2 to 2½ feet apart each way. A good dressing of manure was given to each plant when placed in the ground, but though they grew very strongly, they appear to have assimilated only a portion of it; and each plant was helped by having a small mound of earth drawn up about the roots. At a certain stage the flowering stalks were cut away, leaving the plants to develop and mature on an average nine large basal leaves each. In point of



FIG. 80.—SPIRANTHES ROMANZOVIANA: THE EVICTED ORCHID.

height of growth there was but little perceptible difference, and the sameness of character applies equally to the blossoms.

The group of seventeen varieties could be divided into two distinct types—one with dark, somewhat pendent, and distinctly corrugated leaves, especially on the margins; the other with paler, smoother, and semi-erect leaves, quite hiding the stalk from view. The last type resembles in growth the prickly Comfrey. The varieties composing it are Glasner, Island Broadleaf, Kentucky, Pennsylvania, and White Burleigh. A few of the finest for gardening ornamentation are found in Big Frederick, Glasner, Island Broadleaf, Kentucky, White Burleigh; the two last-named greatly resemble each other, they have white midribs to the leaves, and appear to be both early in maturing; and Yellow Prior. Altogether there were sixty-four rows of plants, and about sixty plants in a row.

The piece of ground planted appeared to include three different kinds of soil: at the upper portion was a gravelly soil, next came a good and rather dark loam; and the lowest portion (for the plot of ground fell away from the south-west to the north-east) was bog, and rather moister than the rest. But as each row passed athwart the ground, some of the plants of each variety were growing in each character of soil; but the difference of development was only slightly perceptible, the strongest and best developed generally were in the loam.

THE announcement of the possible destruction of one of the very rare and most interesting of British plants (*Spiranthes Romanzoviana*) made in one of our recent issues, is, unfortunately, a matter little likely to interest Home Rulers or peasant proprietors; but the Irish division of the British nation—still more, the Irish nation—might well take measures to prevent the eviction of so distinguished a citizen, and one in whose protection and perpetuation the Irish might be expected to take special pride. The plant is one little likely to interest the Floral Committee of the Royal Horticultural Society, and the Scientific Committee, who naturally would feel more keenly on the subject, could only protest. The authorities at Kew, who were invoked to come to the rescue, could hardly interfere to better avail. Meantime we place a practical proposal from the other side of Europe at the disposal of those concerned in the honour and scientific welfare of Ireland. M. NAUDIN, the accomplished head of the rich botanic garden at Antibes, thus writes:—

"I read in the *Gardeners' Chronicle* for September 11, p. 340, the regret expressed concerning the destruction of this very rare Orchid in the only station in which it grows in Europe. It is plainly to the interest of science to protect rare species of plants and animals against vandalism, and botanical and horticultural societies, as well as amateurs, should acknowledge this responsibility. We need not, however, altogether despair of again seeing the plant which is the object of this regret. It is probable that the labourer who disturbed the ground where it was found to plant his Potatoes has not altogether destroyed the tubers of the *Spiranthes*, and that some day the plants will reappear if cultivation be discontinued, the Potatoes rooted up, the ground levelled and allowed to remain a waste as formerly; if the tubers of the *Spiranthes* still exist the plant will certainly reappear. A good way of preserving rare species like this would be to plant them in private grounds, where no one would disturb them. They should be planted in situations and in soils like those in which it usually grows. Here is an example. There is at Collonge a locality—the only one in France—where the beautiful North African *Scolymus grandiflorus* is found. This locality is less than a hectare in extent, and it is very likely that one day or other it may be cleared and planted with Vines, consequently *Scolymus grandiflorus* will disappear. Foreseeing this occurrence I have sown some seeds of this pretty plant in the waste spots which surround the Villa Thuret, and the experiment has succeeded perfectly. I saw to-day among the brushwood of these places superb specimens of *Scolymus*, which flower in May. I showed several to M. THOMAS HANBURY one day when he visited me at the Villa Thuret."

As so much interest is felt in this plant, we reproduce our illustration (fig. 80) from our number for October 8, 1881, p. 465, where also will be found a brief summary of the history of the plant, and of the interesting speculations to which it gives rise. The specimen figured was grown by Mr. BURBIDGE in the Trinity College Botanic Garden, Dublin, the plant having been originally collected in its native locality by Professor PERCEVAL WRIGHT. Let us hope Mr. BURBIDGE has contrived that the plant shall increase and multiply. The head-quarters of the species are in the United States.

— CATTLEYA MOSSIE: A FINE SPECIMEN.— Fifty years' experience of this noble Orchid has but served to confirm and strengthen the good opinion of

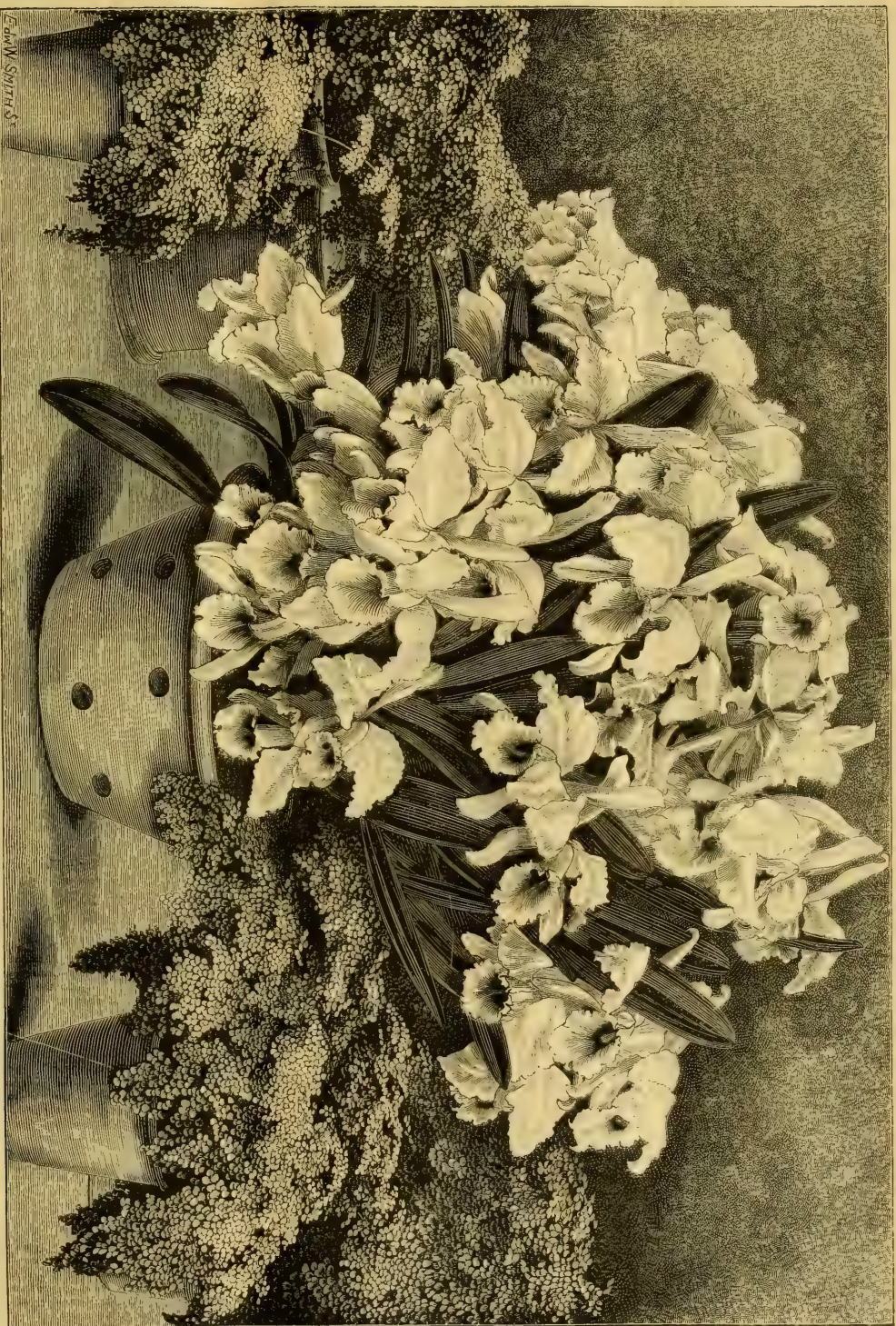


FIG. 81.—*CATTELIA MOSSIAE*, GROWN IN THE GARDENS OF E. A. LENTHAM, ESQ., M.P. (SEE P. 400.)

it formed by the lovers of Orchids at the time of its introduction, and it is still regarded as one of the very finest and most lasting of early summer-flowering Orchids. A glance at our illustration (fig. 81) will serve to show to what perfection the plant may be brought by good cultivation. The figure was prepared from a photograph of a plant grown by Mr. F. EXELL, gardener to E. A. LEATHAM, Esq., M.P., Misarden Park, Cirencester. The plant in question produced this year from thirty-six flower-sheaths over ninety flowers, each 8 inches across. The variety is a very fine one, the sepals and petals being of a bright rosy-magenta, and the rich crimson and yellow labellum is very beautifully fringed. Mr. EXELL is a great advocate for plenty of light and air for Cattleyas, with rather a cooler temperature than many give them, and in his comfortable and well-arranged intermediate-house he further demonstrates his belief in reasonably cool treatment by growing to perfection with his Cattleyas some very fine *Phalenopsis*, *Vandas*, *Aerides*, and *Dendrobies*. Many of his plants of *Cattleya Trianae* were very heavily flowered last season, some of them just approaching in excellence the plant of C. Mossie here illustrated.

—“MALPIGHIA.”—The second part of this new Italian botanical journal contains an article on Sicilian amber, which differs chemically from that of the Baltic, and in which, up to the present time, few vegetable remains have been found.

—NEW RHODODENDRONS.—M. FRANCHET has lately described in the *Bulletin* of the Botanical Society of France, some new *Rhododendrons* from Tibet and Yun-nan. Among these *R. calophytum* has long leathery leaves, and trusses of large spottless white flowers. *R. rotundifolium* has leaves like those of a *Limnathemum*; *R. Davidi*, belonging to the Caucasian group, has leaves of a golden yellow on the under surface; *R. Delavayi* has trusses of cherry-red coloured flowers surrounded by leaves which are glaucous above, reddish-brown beneath. *R. dendrocharis*, a small species which covers the trunks of trees with its purplish flowers; and sundry others. We may hope that seeds of these will be forthcoming in due time. M. FRANCHET alludes to the value of studying the hairs on the leaves as points of distinction between species, but always in association with other characteristics. Some species have no hairs, others are provided with scale or shieldlike hairs, others with an investment of felted hairs, and so on.

—ANOTHER NEW POTATO.—According to the *Revue Horticole* M. SACC has discovered a new form of the Potato in Bolivia, where it is said to be very productive, yielding four crops a year [!], and where its tubers weigh from 100–250 grammes. Analysis of these tubers shows that they contain 20 per cent. of starch and 72 per cent. of water.

—HELP ACKNOWLEDGED.—“G. B.” writes to us from 12, Penge Road, Norwood, to say, that having been out of work for eleven months, and having a large family dependent upon him, he has been driven to great straits. Some of his brother gardeners, bearing of his case, have helped him so far as they could, and it is to them he desires to make his acknowledgments. Further assistance is, however, greatly needed. “G. B.” had the management of a large garden establishment at Southampton for six years, but his services were no longer required, the garden being devoted to other purposes, and the proprietor having gone abroad. On enquiry, we learn that the statement is correct, and “G. B.’s” late employer gives him a good character for industry, sobriety, and good conduct.

—NEW ZEALAND EDIBLE FUNGUS.—For the benefit of a correspondent who made enquiries of us lately we extract the following from the current number of that excellent periodical, the *Pharmaceutical Journal*.—“An edible fungus, which is shown in the New Zealand department of the Colonial Exhibition (*Hirneola polychroma*) forms an article of considerable export to China, where it is used largely as an ingredient in soups, &c., and also as a dye for silks. It is imported from New Zealand to the extent of about 100 tons per annum. This fact suggests that other objects of Chinese commerce might be worthy of cultivation in the colonies, such as the true *Ginseng*. A full account of this fungus may be found in a previous volume of this journal ([3], xii., p. 866).

It bears considerable resemblance to the Jew’s-ear fungus of this country, which is common on Elder trees in damp shady places.” Our own columns contain an article on this subject (see p. 464, October 8, 1881).

—BOTANY IN MEDICAL EDUCATION.—We had occasion recently to mention incidentally the fact that the authorities had determined to remove botany from the curriculum of medical education, and we expressed our opinion that, whatever changes in the mode of teaching be required, the exclusion of botany from medical education is a serious mistake. We are glad to find similar views expressed at a recent meeting of the British Pharmaceutical Conference by Professor HILLHOUSE. “The collective wisdom,” says he, “of the conjoint Colleges of Physicians and Surgeons has ordained that a branch of knowledge which most ordinary people would consider to be dependent on prior chemical and botanical training, shall henceforth, while retaining its chemical, be deprived of its botanical basis.” At the same time therapeutics, or the proper use of drugs, has to be taught during the first year of the student’s career:—

“But underlying this matter there is a grave principle at stake. Is it, or is it not, true that from the vegetable kingdom the physician draws, and will probably continue to draw, his most potent drugs, his most certain remedies, his own specifics? Is it, or is it not, true that the most valuable amplifications of medical knowledge, in the way of new modes of treatment, and of the ability to grapple with hitherto omnipotent forms of disease, have been, and are increasingly, most closely associated with a knowledge, a practical knowledge, of the phenomena of plant life? If this be true, is it not mortgaging the highest possibilities of the future for a mess of pottage to risk in even the smallest degree the powers of a grand profession for the sake of some fifty or sixty hours gained by excluding the subject of botany from the medical student’s curriculum? Or, at least, let the medical authorities be consistent, and, by excluding equally the subjects of chemistry, botany, and physiology, the conjoint basis of medicine, send their students out armed with power of life and death, but without even the shadow of a preliminary scientific training.”

—LANDSCAPE GARDENING.—The Town Council of Poole having offered prizes for the best plans for laying out a recreation ground given to the town by Lord WIMBOURNE, has awarded the 1st prize to Messrs. R. Veitch & Son, of Exeter; and the 2d to Mr. R. Upcher, of Scole, Norfolk. It appears that eighteen plans were sent in, of which four were selected for further consideration, the four comprising, as we are informed, those of Messrs. R. Veitch and of Mr. R. Upcher, as above-mentioned; Mr. George Jackman, jun., of Woking; and Messrs. J. Veitch & Sons, of Chelsea. Other plans, as we learn from the *Poole and Bournemouth Herald*, were sent in by Messrs. Lovegrove, Usill, Backhouse of York, J. R. Reid, Barron & Son of Borrowash, G. B. Simpson, J. Kingsnorth, Little & Ballantyne, Cheal & Sons, S. J. Marshall, J. Anderson of Meadowbank, Golding (query Goldring), Ponton, and W. H. de Caple, Cardiff. The journal from which we quote gives details as to most of the plans, but as these have reference mostly to strictly local requirements we do not extract them.

—EDUCATION.—A very celebrated surgeon of our acquaintance, in higher repute as an operator than as a lecturer, was wont to tell his class when lecturing on surgical diseases—“you must treat them, gentlemen, on general principles,” but he did not devote much attention to explaining what those principles were, being evidently much more expert in the use of his hands than of his brain. The consequence was, that little reliance comparatively, was placed on the opinion of the surgeon, but very much on his operative skill. We are reminded of this circumstance by the discussion on education now taking place. To use the power of thought and reasoning, says Prof. HILLHOUSE, “this is a prime factor in true education, and I would rather have a man who thinks wrongly than one who does not think at all. There is hope for the one, none for the other. Once get principles and reasons well grounded, and facts marshal themselves. Facts without reasons are like a fleet of vessels without crews, capable of no concerted and intelligent action, but nevertheless, readily capable of mutual destruction.”

—ROOTS.—Another illustration of the wonderful faculties with which roots are endowed has lately been made known by Messrs. VAN TIEGHEM and

DOULIOT. Botanists have long known that in the great majority of cases the roots originate in the interior of the axis, and find their way outside by, as was supposed, pressure of the growing tip of the root on the surrounding tissues. The two botanists whose names we have mentioned show, however, that the rootlets, buried at first in the substance of the main root, make their way out by secreting a fluid which destroys the neighbouring cells, converting them first into jelly, and then dissolving and perhaps absorbing them. The action of the rootlet, then, in the tissues of the root from which it originates, is similar to that by means of which it attacks the particles of soil and derives food-material from it. The action is also the same as that by means of which an embryo plant—say, of Wheat or of the Cocoa-nut—destroys the albumen surrounding it, and appropriates it for food.

—MYOPORINEOUS PLANTS.—Some time since, we had occasion to publish a woodcut, representing what we knew as a greenhouse shrub as a tree of no slight magnitude. For the photograph we were indebted to Baron F. V. MUELLER. That unwearied labourer has now issued a quarto volume of seventy-six lithographic plates, representing all the species of this order, the members of which are distributed throughout Australia, attaining their highest development in the hottest and most arid regions. As many of these plants run a risk of extinction by fire and pasturage of animals, it is desirable to place on record descriptions and figures of these plants, many of which are very suitable for conservatory decoration in this country, their bright flowers being produced nearly throughout the year. The drawings have been made by Mr. GRAFF.

—HORTICULTURAL SOCIETY OF GHENT.—At a meeting held on September 13 the following awards were made:—First-class Certificates: To Mr. James Bray, for *Vanda Sanderiana*; to MM. Jacob Makoy & Co., for *Curmeria Kegeliani*, and for *Davallia tenuifolia Veitchii*; and to M. Linden, Director of the Compagnie Continentale d’Horticulture, for *Alcaecia Lindeni*, *Cupania denticulata*, and for *Apheleandra macedonia*. Cultural Certificates: To M. Aug. Van Geert fils, for *Alcaecia Van Houttei*, and for *Spherothyne imperialis*; to M. Desmet-Davivier, for *Milonea Clowesi*; and to MM. Vervae & Co., for *Cypripedium Parishii*. Commendations: for novelty, to MM. Jacob Makoy & Co., Liege, for *Finanga spectabilis*, and for *Adiantum Weigandii*; to M. Aug. Van Geert fils, for *Croton Alieii*; and to M. Linden, for *Ardisia velutina*. For good forms, to MM. Vervae & Co., for *Lelia euphathia*, *Bollea pulvinaris*, and *Cattleya Dowiana*; and to M. Linden, for *Cattleya Eldorado*. For culture, to M. Bern-Spae, for *Asplenium dimorphum*.

—CARRIAGE OF FRUIT.—The importance of this matter to our fruit growers induces us to publish the following letter, which originally appeared in the *Manchester Guardian*:—

“I noticed in the *Daily Telegraph* yesterday a letter from Mr. MARK SANDFORD, the Pond Farm, East Peckham, in which he said—‘I sent to Bath this week about 35 lb. of Plums, worth in London possibly 2s. This morning I received a telegram that the consignee refuses to receive them in consequence of the railway charges, 5s. 9d. A similar lot may come from America, I am told, for 8d. It is possible for English fruit growers to compete with such unfair, one-sided competition.’

“Without adopting Mr. SANDFORD’S conclusions as to the responsible cause the facts themselves surely do call for immediate and united action in a matter of so much moment in these days when the problem of agricultural depression is so constantly before the public mind, and when the subject of food for the people is one which is forcing itself with hungry clamour upon the public ear with a terrible persistence. Our dietetic errors and the thriftless habits of a large proportion of our pauperised population carry doubtless a fearful responsibility, but surely there should be some plan by which home-grown produce could be placed in the markets of towns within a few scores of miles of the fruit-growing centres at something less than eight times the cost of conveyance of similar produce—brought, I presume, miles across country—over the Atlantic and on to the home markets to which such consignments may be made. English fruit-growing, as applied to hardy British fruits, ought to have a grand future, but it must not be subjected to ridiculous conditions. There should be persistent education and determined organisation to secure results commensurate with the importance

of this subject, as affecting the future welfare of the nation and its peoples.

"The population ought to be better instructed as to the dietetic value of fruits. In many houses the advent of the fruit basket is regarded as a prelude to cholera morbus. Combined action ought to be taken in the matter of cost of transit and facilities for rapid delivery. Organised effort should be persistently directed towards the establishment of centres of sale, whereby growers might ensure some more profitable return and purchasers be placed upon more favourable terms than present arrangements seem to permit.

"There are many other points of detail that suggest themselves, but your space, I fear has already been too far encroached upon.
EDMUND J. BAILLIE.
"Chester, September 15, 1886."

— **PRACTICAL LESSONS IN GARDENING.**—Our recent leading article on this subject has brought us the following letter, which we print in the hope of stimulating some competent gardener to undertake the task. This is a matter that some of our prize essayists might be competent to undertake for a fitting remuneration:—

"The following is an extract from a letter received from a gentleman who has recently joined our Association:—

"This is a great village for gardens, and I think the suggestion made in the *Gardener's Chronicle*, of lectures on gardening, good. If you could guarantee a thoroughly good man to lecture, I would try and see what could be done to organise a circuit in this neighbourhood."

"The writer is the Rev. F. A. WODEHOUS, of Gotham Rectory, Kegworth, Derby. Do you know of anybody used to this kind of work? and, if so, would you put us in communication? Edward Owen Greening, Managing Director, Agricultural and Horticultural Association, Limited, 3, Abchurch Lane, Strand, London, W.C."

— **SEEDLING FIGS.**—The discussion on this subject has elicited the fact, that seedling Figs do come up in this country, but in the majority of cases they are derived from imported Figs. One or two cases have been recorded wherein it was very probable that the seedlings originated from English-grown Figs, but so far only two cases have been recorded where there was direct positive evidence that this was the case. A well known botanist and cultivator sends us seeds which look as though they were perfect, but on cutting them open the embryo is seen to be shrivelled and abortive. So far, then, Count SOLMS and Mr. HEMSLY are amply justified in their statements, but both are too good botanists not to admit that exceptional instances may occur, just as Cucumber flowers occasionally occur, with stamens and pistils in the same flower.

— **FLOWER SHOW ARRANGEMENTS.**—Messrs. ROBERT VEITCH & SON, of Exeter, obligingly send us photographs showing the manner in which their plants were staged at the late exhibition of the Devon and Exeter Horticultural Society. We shall probably publish one or more of these illustrations at a future time. Meantime we congratulate Messrs. VEITCH on the success of their arrangement, which must indeed have been a delightful change from the wearisome monotony of ordinary flower shows. Instead of showing them in tiers in the conventional mode, they built an imitation rockwork, introducing, in miniature, grottoes and caverns with mirror pools. By this means they were able to exhibit, in a natural-looking position, many trailing plants and creepers, and aquatic plants which are seldom seen at a horticultural exhibition. Suspended here and there from jutting rocklets and boughs were ornamental lanterns, which, when lighted up at night, gave a charming and picturesque effect.

— **NORTH OF SCOTLAND HORTICULTURAL ASSOCIATION.**—The annual meeting of this Association was held on the evening of Friday, the 17th inst., in the Christian Institute Hall, Aberdeen. The President, Mr. PETER HARPER (Duthie Public Park), occupied the chair. There was a large attendance of members. The annual reports from the Secretary and Treasurer were submitted, and showed a satisfactory and prosperous state of affairs. During the past year it appeared that twenty yearly members and one life member had been added to the membership of the Society; three First-class Certificates and ten Cultural Certificates had been awarded, and twenty-one papers treating of horticultural and scientific subjects had been read. The financial statement showed a balance

in favour of the Association of £32 9s. 10d. Mr. A. ROBSON, Market Street, Aberdeen, was elected President, in the room of Mr. HARPER; and Mr. A. GRIGOR Vice-President for the ensuing year. Mr. WILLIAM REID, 8, Hadden Street, Aberdeen, was reappointed Secretary; and Mr. WILLIAM WYLLIE, Market Street, Treasurer. Committees were formed, and other formal business transacted. A cordial vote of thanks to the retiring President ended the proceedings.

— **AGRICULTURAL LECTURES.**—A course of lectures on agriculture will be given at the City of London College, White Street, Moorfields, E.C., on Tuesday evenings, at 7 P.M., by Mr. BERNARD DYER, F.C.S., F.I.C., Consulting Chemist to the Essex Agricultural Society, Devon County Agricultural Association, Notts Chamber of Agriculture, &c. The course of lectures will treat of:—

1. *Soils.*—Their formation and variations in character—Distribution—Classification—Chemical constituents—Causes of fertility.

2. *Plant Life.*—Its influences—Sources from which crops get their food—Plant food in the soil—Active and dormant matters in soils—Composition of farm crops—Influence of the mechanical condition of the soil on plant life.

3. *Manures.*—Farmyard manure, its production, its fermentation, its composition and character—Good and bad management—Action of manures in the soil—Artificial manures: salt, lime, chalk, &c.—Their mode of use and special properties.

4. *Tillage Operations.*—Mechanical and chemical changes—Influence of atmospheric agents—Drainage of land—Influence on its temperature, and on the health of stock—Choice of crops—Rotation of crops—Advantages of good cultivation.

5. *Livestock.*—The economy of good stock management—Special requirements for making land either a good dairy farm or a good sheep farm, or good grazing land.

6. *Food.*—Chemical matters present in various kinds of food: in milk, green food, hay and corn, &c.—The different materials necessary for the growth of the body—Maintenance of heat—Process of fattening animals.

The fee for the course (October to May) is only 7s. 6d. The Saddlers' Guild offer a prize of £5 5s. to the student who passes the best examination in chemistry and agriculture.

— **ORCHID SALES.**—Last Tuesday and Wednesday, September 21 and 22, the celebrated Fernfield collection of Orchids of Dr. PATTERSON, Bridge of Allan, was sold by auction by Messrs. PROTHROE & MORRIS, at their sale-rooms in Cheapside. The largest sum paid for a single plant at this sale was £47 5s., for *Cattleya Trianae*. A fine plant of *Laelia elegans* Turneri was sold for £36 15s. For one plant of *Odontoglossum crispum* as much as £33 12s. was paid, and £38 11s. for *Vanda suavis*. Among other good prices may be mentioned *Colymbia Gardneriana*, £16 5s. 6d.; *Cypripedium Vetchianum*, 15 gs.; *Cattleya labiata*, 18 gs.; *Laelia Pectini alba*, 20 gs.; *Vanda Cathartii*, 15 gs.; *Cymbidium Lowianum*, 13 gs.; *Vanda tricolor* Patersoni, 16 gs.; *Odontoglossum crispum*, £14 3s. 6d.; *Dendrobium Ainsworthii*, 13 gs.; *Vanda suavis*, 14 gs., &c. The total number of lots was 742.

— **PUBLICATIONS RECEIVED.**—*Botanical Exchange Club of the British Isles: Report for 1885.* By G. GEORGE, F.L.S. (Manchester); J. COLLINS (Glasgow); K. KING (Stratford).—*Review of Forest Administration in British India for 1884-85.* By B. RIBBENTROP. (Simla: Government Central Branch Press).—*The Propagation of Plants.* By J. HART. (Kingston (Jamaica) Horticultural Society, Date Tree Hall).—*The Construction of Silos, and the Compression of Green Crops for Silage.* By T. POTTER. (London: B. T. BATSFORD, 52, High Holborn).—*Tobacco: its Ups and Downs in England, and how to Cultivate and Cure it in the West Indies.* By SIR W. ROBINSON, K.C.M.G., Governor of Trinidad. (Port of Spain: Government Printing Office).—*School of Forest Engineers in Spain.* By J. C. BROWN, LL.D. (Edinburgh: OLIVER & BOYD, Tweeddale Court.)

— **GARDENING APPOINTMENTS.**—Mr. ALFRED BISHOP, late Head Gardener to Mrs. DAVIDSON, of Abbotsoford Park, Burgess Hill, Sussex, has succeeded Mr. WICKSON as Head Gardener to R. BURRELL, Esq., Westley Hall, Bury St. Edmunds.—Mr. GEORGE TAYLOR has been engaged as Head Gardener to H. G. BAINBRIDGE, Esq., Malvern Hall, Solihull, near Birmingham. He was lately Gardener at Packwood Grange, Knowle, in the same district.—Mr. C. CHIDLEY, late Gardener to C. NORRINGTON, Esq., Abbotsofield, Plymouth, has been engaged as Gardener to W. CURTIS, Esq., Fallapit, South Devon.

YAMS IN THE WEST INDIES.

THE root crops, often termed "bread kind," associated with the above plants are largely used in the West Indies for food purposes. The sweet Potato (*Batatas edulis*) is the main food crop at Barbados, where Yam is little known, whereas at Jamaica the converse is the case, the Yam (*Dioscorea*) being very largely grown all through the interior hills, while the cultivation of the sweet Potato is confined to a few places in the lowlands. Since the large emigration of negroes to the Isthmus of Panama there has arisen a considerable trade in Yams between Jamaica and Colon, to the manifest advantage, in present cash returns, of the former country. Unfortunately, the cultivation of Yams entails the cutting down of forest year by year, as good Yams seldom do well, in the manner cultivated at Jamaica, except by the "rotation of land"—a peculiar negro mode of interpreting the European idea of "rotation of crops." Hence it is not very desirable, from a general economic point of view, to extend or encourage the cultivation of Yams. With the sweet Potato, however, it is different. This tuber can be grown without the sacrifice year by year of valuable virgin forest, and it is, in many respects, a crop well adapted to all the lowlands, not only of Jamaica, but also of the West Indies generally.

Besides being utilised directly for food purposes, it would appear that a new demand is likely to arise for the tubers of the sweet Potato in connection with the production of alcohol. The first notice of the sweet Potato being utilised in this manner appeared in a report to the Foreign Office given by Consul Hertslet on the trade and commerce of the Azores for the year 1884.

Owing to a variety of causes it appears that cultivators at St. Michael's and other islands of the Azores, who had hitherto looked upon Oranges as their staple production, were so disheartened by low prices and the diminished crops yielded by their trees that they resolved to clear their land of everything and plant it afresh with sweet Potatoes. The whole of the crop thus raised was used in the preparation of alcohol. During the year 1884, 1826 pipes of alcohol, of the value of £40,588, made from sweet Potatoes, were exported from the Azores to Lisbon; and, as will be incidentally shown later, the trade has assumed still larger proportions.

For the information contained in this article we would mention at the outset that we are indebted to Mr. D. Morris, late Director of Public Gardens and Plantations, Jamaica, now of the Royal Gardens, Kew, who has obligingly placed it at our disposal for the use of West India planters.

Encouraged by the success of the enterprise at the Azores it appears that an enterprising French chemist, Mons. A. Ralu, having much experience in chemistry, as connected with distillation, and possessing extensive relations with the West Indies (Martinique), has taken out patents 1-1. For utilising as a commercial and industrial substance sweet Potatoes and Yams by means of desiccation and conversion into flour; and, 2, for distilling alcohol from the above flour.

In relation to the ordinary or Irish Potatoes, white Beetroot, and Maize flour, sweet Potatoes possess an alcoholic richness of 15.50 per cent. as compared with 8 and 9 per cent. of the Irish Potato, and 4 and 5 per cent. in the Beetroot. The value of raw sweet Potato for distillation, and its superiority, both as to quantity and quality, over other substances, has been for some time known and recognised. The difficulty has been in extracting the alcohol on the spot; added to this, there is the danger attending its exportation, for it is impossible to prevent leakage, and the vapour of alcohol at 95° Fahr. in hot climates is said to be inflammable. Alcohol, therefore, is assumed to be a dangerous cargo. As alcohol cannot, it is supposed, be made on the spot and exported to Europe, Mons. Ralu's patents aim at the preparation of sweet Potato flour in the West Indies, from which afterwards the alcohol may be distilled and utilised in Europe.

As already noted, one establishment for distilling alcohol from raw sweet Potato exists at the Azores, and we gather that since it began work it has doubled its plant, and all the alcohol it produces is sold in advance at Lisbon, where it is used for the fortification of wines. M. Ralu says:—"The alcohol of which we have specimens is superior in quality to the best marks of France. The distillery obtains 12 per cent. (i.e., 12 litres of alcohol at 100° per cent. kilo,

of sweet Potato) of alcohol. We have experimented with the sweet Potato of Algeria. They give 13.4 to 10 litres of alcohol per 100 kilo. The sweet Potato of Martinique and Brazil have given 15 litres. There is here, therefore, a very rich material for distillation. Ordinary Potatoes yield only 3 litres of alcohol per 100 kilo.

The objects sought by M. Ralu's patents involve the extensive cultivation of the sweet Potato in the West Indian Islands, its desiccation by means of fruit driers, its reduction into a meal, and its export to Europe, where an almost unlimited demand exists for sweet Potato meal for distilling purposes. The alcoholic richness of the sweet Potato is unquestioned, and the following table will give its superiority over the cereals ordinarily employed at present for distilling in Europe:—

	Francs.	Litres.
Wheat	19.75 to 21.50	28 to 30
Rye	15.50 to 16.25	22 to 23
Barley	17.75 to 20.00	24 to 25
Oats	17.25 to 19.50	20 to 21
Buckwheat	16.00 to 17.00	24 to 24
Maize	14.00 to 14.50	28 to 30
Rice	18.00 to 19.00	30 to 33
Sweet Potato flour	14.00 to 15.00	38 to 39

Maize, it will be seen, is the only cereal which is as cheap as the Potato flour, but it requires 324 kilo. (714 lb.) of Maize to make one hectolitre (22 gallons) of pure alcohol, whilst it requires only 235 kilo. (519 lb.) of Potato flour to make the same amount of alcohol. There is a great saving of time and combustibles when distilling from the flour, as compared with the Maize. Alcohol from Maize costs 10 francs per hectolitre more to make, and when made sells at from 8 to 10 francs less than the alcohol made from the sweet Potato flour.

The question for the planter, however, is, Will it pay to grow sweet Potatoes and to prepare the flour for export purposes?

The sweet Potato at present cultivated in Jamaica is mostly intermingled with other plants in the provision grounds of the negroes. Hardly any is cultivated by Europeans. No definite area is returned as exclusively devoted to this cultivation, and no returns of yield per acre are available from authentic sources. A negro in the same ground will have Yam (Dioscorea), Corn (Maize), Sugar-cane, and, possibly, also, two or three other plants, such as Bananas, Plantains, Cocos (Colocasia).

Sweet Potatoes thrive best in rich friable soil free from clay.

At the foot of the Liguanea Hills, and, indeed, in most localities with the soil indicated above, they are found to thrive. They are easily propagated by slips or portions of the stem planted in rows or in hills. The roots come to maturity in three or four months, and the cultivation is continued by covering up the stems when digging up the more perfect roots for use.

The crop comes in practically all the year round: there is no regular season for it, and hence it can be best harvested by examining the state of the roots, and taking out those that are found perfectly ripe. The crop may be gathered at least three or four times in the year; but as to the amount or value of each cropping no data are immediately available.

If the cultivation were undertaken by sugar planters, and large areas were planted with sweet Potatoes, there is no doubt that in Jamaica they might be grown as advantageously and as successfully as anywhere.

We apprehend that few of the West Indian islands would care to grow sweet Potatoes to be utilised simply in the manner indicated by M. Ralu. Why should they go to the trouble and expense of drying the tubers, reducing them to a meal, and export the latter to Europe to be there converted into spirit? If the whole process can be accomplished at the Azores there is no reason why it should not be also accomplished in the West Indies. We say this with due regard, of course, to any patent rights held by M. Ralu or his friends. At least, it is well worth trying; and the number of sugar planters now on the look-out for something to supplement the meagre profits (or something worse) of a West Indian sugar estate should lead to some concentrated and united action being taken to examine and test everything having the slightest hope of aiding them at the present juncture.

In relation to its size, Barbadoes at present grows sweet Potatoes more extensively than any other West Indian island. They are grown as a catch crop between the regular intervals of planting the Sugar-cane, and are generally sold as they stand, the purchaser harvesting them himself. Here there would be no difficulty in growing sweet Potatoes on the most extensive scale commensurate with the size of the island; but there are no stills already in existence as in Jamaica, and both the plant and the knowledge of distilling would have to be introduced. Jamaica has the advantage in this respect, for every sugar estate

there has its still-house, and when once the *modus operandi* is known as regards this special industry it would be a very simple matter for the Jamaica planter to distil alcohol pure and simple from the sweet Potato, as for him to distil rum from molasses. The Barbadoes planter at present ships his molasses either to Europe or America, or sells it to the distillers at Martinique, where it is used in the preparation of French rum.

It is not our intention to advocate, in any decided manner, the preparation of alcohol from sweet Potatoes, or express a strong opinion either way. We only wish to point out to the West Indian planter a possible means, in these hard times, of meeting a demand which evidently exists for a certain article, and to throw out suggestions which may be of ultimate benefit to him.

At St. Vincent, for instance, where nothing at present appears to pay, a well-established industry connected with this method of utilising sweet Potatoes might give the initial start to local enterprise and lead to a more prosperous state of things. Or, again, there is Tobago with its *Métayer* or quasi co-operative system which might offer an excellent opening for an industry of this kind, provided, of course, it were taken up in a business-like and systematic manner and adapted to the special circumstances of the island. In fine, this is essentially a matter which commends itself for consideration to West Indian planters in general, and they would do well to look carefully into it, *European Mail*.

The Apiary.

SENDING HONEY.

ABOUT this time last year I mentioned the fact that before the advent of the Self-opening Tin Box



FIG. 28.—HONEY-BOX FOR POSTAL TRANSIT.

Company, there was no known method of sending extracted honey with perfect safety by rail, certainly not by post. Lest that notice escaped the eye of any bee-keeper, I mention the fact again, and add an illustration (fig. 28). Since last year the sale of these tins has immensely increased, and they are used for endless purposes; but we have only to deal with them as far as the storage and carriage of honey is concerned. Many influential members of the British Bee-keepers' Association, and others interested in apiculture have given their favourable opinion unasked about these tins.

Everybody knows that even a box of sardines is not always easily opened, while larger tins of various articles are certainly opened with some difficulty. To get over this difficulty, the Tin Box Company invented a tin with a lid which is opened by leverage, and which can be lifted up by a penny. The lid fits so nicely that it is not only impossible for it to tumble off, but when pressed down into its proper place, the box is perfectly air-tight, and therefore very useful for all purposes where a perfectly air-tight vessel is required. This company, while keeping to the original principle, has improved its tins in many ways. I have one standing before me now which is a great improvement on those I had last year. It is made entirely without solder. There are only two pieces to each box, one piece for the lid, and another for the box itself. To suit the convenience of bee-keepers various sizes are made, and some tins holding $\frac{1}{4}$ cwt. were recently shown.

Two silver medals were awarded to this company at the recent large show in the conservatory at South Kensington in connection with the Colonial Exhibition.

WINTERING.

As September is now nearly run out, if not already done, look over all stocks at once, to see if they have enough food to carry them through the winter, and if not feed at once. All feeding ought to be completed before October commences. I would state that about 20 lb. of honey is considered a perfectly safe quantity. *Walter Chitty, Fowey.*

HOME CORRESPONDENCE.

Picea pungens glauca.—This charming though, comparatively speaking, little known species of Spruce Fir—better known in gardens as Abies Parryana—is now growing most luxuriously in our York nursery, both in exposed and sheltered positions. One young tree has made a leading shoot during the present season fully 21 inches in length, the total height of the tree being only 56 inches, its longest lateral shoot produced this season being 9 inches. The soil where this tree is planted is rich sandy loam, and the position is a decidedly moist one, Gentiana pneumonanthe being in bloom close alongside. The variety *P. pungens glauca* also promises to be an equally hardy and rapid grower, and so far retains its characteristic feature well. Such a wet season as the one we have had will, no doubt, account in large measure for the unusually strong growth of the particular tree referred to above, but it is worthy of note that similar trees planted on higher ground, in drier positions and in stiffer soil, appear less vigorous in health. From the habit which this tree possesses of retaining its bud-scales until June, it proves itself to be one of the hardest species of Spruce Fir which we grow, and consequently one highly suited to our climate. It will, I feel sure, be much more generally cultivated as this quality becomes better known, seeing that it is proof against our latest spring frosts, as well as the most severe winter weather, our plants having stood uninjured during the last eight years. *F. Backhouse, jun., York.*

Crocus karduchorum, Kotschy.—I have at last obtained corms of this species, which has heretofore been only known by a few dried specimens scattered through European herbaria, collected by Theo. Kotschy, on September 27, 1859, on a mountainous ridge between Muklis and Scherwan in Kurdistan. The corms I have recently flowered were sent me last autumn by the Rev. A. H. Hubbard, American missionary, of Sivas, Asia Minor, but whether they were obtained near Sivas, or from the locality far to the east where Kotschy discovered the species, I have not yet been able to ascertain. The figure in my monograph of the genus *Crocus* (plate v.) which was drawn from Kotschy's herbarium specimens, fairly represents the plant, except that in colour the fresh flowers are a little bluer in tint, and each segment is veined with about nine fine purple lines extending half way up the segment, which were not visible in the faded dry specimen. *C. karduchorum* somewhat resembles *C. zonatus*, of Gay, but the flowers are smaller, and instead of the bright golden zone at the base of the inner surface of the segments above the throat, two small orange spots occur similar to those in *Crocus vallicola* of Heribert. In Kotschy's specimens preserved in the Vienna herbarium the leaves pertaining to the previous year's growth were preserved up to the flowering time in September—two years' sets of leaves, one dormant within the sheathing leaves, being present at the flowering time. This occurs in only one other species, *C. Scharojani* of Ruprecht. *George Natio, F.L.S., Benthall, Kentley, Surrey, Sept. 20.*

Allotment Land.—Conversing with a native of Nottingham who called upon me the other day, he said that for some of the best allotment land round that town artisans pay the extraordinary price or rather rental annually of 2½d. the square yard, the which, if Nottingham yards are the same as elsewhere, means about 6s. per rod, or £48 per acre. It is surprising to learn also, such is the wonderful cultivation given, that even at this rental the allotments are made to pay. What a comment does this fact offer upon the doubts cast on the capacity of working men to cultivate allotments profitably! Not only does this case illustrate the extraordinary capacity of the Nottingham operatives to garden well, but it also displays the strength of that latent earth-hunger which is at the bottom of the recently formulated demand for small holdings and allotments. The fear expressed lest working men should fail as cultivators is hardly borne out by experience, for as a rule allotments, where the land is at all of decent quality, are invariably well cropped and productive. The labouring classes seeing land falling out of cultivation because farming on a large

scale has proved to be a comparative failure, do but ask that they may have a fair chance to try their fortunes as small cultivators. If eventually they fail, a problem will at least have been fully solved, but it is hardly fair that those who themselves have failed should endeavour to prevent others from trying in a diverse way. It is obvious that when agriculture, whether in large or small farms, fails us, then the country must soon shut up shop. A. D.

Chrysogonum virginianum.—I send a specimen of a North American Composite, little known in English gardens, but of great merit, *Chrysogonum virginianum* (Lin.). It is dwarf, having few stem-leaves, and a generally procumbent flower-stalk a foot long, on which flowers are borne in succession from June till the frost. It increases sparingly by runners, and is readily divisible. It never becomes weedy; and though yellow American Composite is a terrible character in the opinion of many, it does not look like a Composite. I had it first from St. John's Nursery, Worcester, and having grown it for two years can give it a very good testimonial. C. Walley Dod, Edge Hall, Malpas. [An engraving is in preparation. Ed.]

Semi-double Cypripedium (figs. 83, 84).—As an addition to the series already published, we now give an illustration and plan of the floral arrangements in a flower of *Cypripedium superbiens* (Veitchii) kindly for-

recent hot weather has had something to do with perfecting the growths and setting the buds. When the pots are packed full of roots as these are, abundant supplies of water and sunshine in the same proportion harden the growths, and the buds are formed before the cold nights set in. Large quantities of *E. caffra*, *E. gracilis*, *E. melanantha*, &c., are also grown. J. D.

Herbaceous Plants.—What are we to understand by "herbaceous plants"? I find that at flower shows a very wide latitude is given to this term, and in a stand of "herbaceous cut flowers" I not unfrequently see *Clematis* of the Jackmanni type, *Roses*, *Pentstemons*, *Gaillardias*, and other things differing somewhat widely in character. It is difficult for judges to disqualify unless they are prepared to give an authoritative definition of a "herbaceous" plant. I perceive that a writer in a gardening contemporary describes herbaceous plants thus:—"They differ from shrubby plants in the limited and less woody nature of their growth, and in dying down to the ground every year after they have flowered, and their leaves and stems have performed the functions necessary to their future well-being." Can this be accepted as a safe definition? If so, then *Roses* and *Clematis* should find no place in a stand of flowers of herbaceous plants. Taking flower shows generally, I should think, judging from the nature of the subjects shown

sionally treated to surface-dressings of soot. As all the plants are standing in the open ground it was necessary for Mr. Wildsmith to take necessary precautions against their being damaged by wind, and therefore he hit upon the plan of driving into the ground two stout stakes, one at each end of a line of some 50 feet; four strong wires are stretched from stake to stake, and against these wires the plants are placed. Each plant is supported by means of a long stout stake, not placed in the pots but into the ground behind the pots; the plants are secured to the stakes, and the stakes to the wires. They are so secure that no possible harm can come to them through being blown about by the wind. The height to which some of them have grown leads the visitor to wonder how the flowers will be gathered, but in a place where Vines are growing upon their heads instead of their roots, one need not wonder at anything being accomplished. Mr. Wildsmith is growing a representative collection, but chiefly incurved Japanese and refined varieties. Where he will stow away all his plants when the time comes to house them, is enough to set any one considering, but it will have to be accomplished some way or the other. In addition, there is a fine lot of bush specimens of *Chrysanthemums* that will be valuable for decoration in the autumn and winter. It will be well worth a visit to Heckfield to see the *Chrysanthemums* in November, and at that time the terrace garden will be full of winter occupants, and repay an inspection also. R. D.

Narcissus viridiflorus.—I have just succeeded in flowering this species from bulbs I collected in the neighbourhood of Gibraltar in the autumn of 1883. I have been in doubt whether, like some other autumn-flowering bulbous plants, it has a double period of growth—an autumn growth of the flowering scape and a separate vernal growth of the leaves; but I am now satisfied that there is but one



FIG. 83.—TWO-LIPPED FLOWER OF *CYPRIPEDIUM SUPERBIENS*.

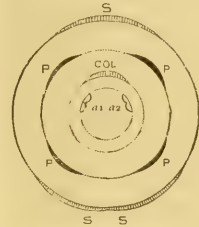


FIG. 84.—*CYPRIPEDIUM SUPERBIENS*.

Plan of flower:—s, Sepals; p, Petals; col, Column; st, stamens; a2, inner fertile stamens.

warded to us by Mr. James, Castle Nurseries, Norwood. In this flower the sepals, s, in the plan fig. 84 were in their customary position; there were four petals, p, the two lower ones being represented by pouch-shaped lips; so that in place of one lip there were two, placed side by side and evidently in the same cycle as the two upper petals. In this case, therefore, the lips cannot be considered as belonging to the staminal series. The column, col, with its shieldlike staminate, two lateral fertile stamens, a1, a2, and stigma, showed in this flower no deviation from the ordinary conformation. It is possible that the two lips may have arisen from the sub-division of one, but that could not be ascertained in the full-grown flower. M. T. M.

Erica hymenalis.—If the summer-flowering species of Cape Heaths have lost something in popularity during the last few years, the winter-flowering species seem to have gained. In Messrs. Low's nursery at Upper Clapton the plants in preparation for the winter supply take those by surprise even those who have had an intimate knowledge of the London trade in these Heaths for a quarter of a century. *E. hymenalis* is the principal species grown; there are 60,000 plants in 5 and 6-inch pots. The plants stand about 18 inches high from the surface of the pot, and many of them have from twenty to thirty stems, furnished the whole of their length with flower-buds. Messrs. Low's manager considers that the plants are finer this year than they ever were before. Doubtless the

as herbaceous plants, that anything almost that is hardy enough to stand out-of-doors all the winter is regarded as admissible, while some apply it to tender things such as the *Gaillardia*. Can you give a definition that can be safely accepted by judges, and clear away the doubts which exist in the minds of many, and especially in that of a *Perplexed One*. [We agree with our unnamed contemporary—*Roses*, *Clematis* Jackmanni, and *Gaillardia*, certainly are not herbaceous plants in the ordinary acceptance of the term. Ed.]

Chrysanthemums at Heckfield.—For two or three years past at least Mr. W. Wildsmith has proved himself a successful grower and exhibitor of *Chrysanthemums*, cultivating a select collection, and doing it well, as he does everything else in the gardening way that he takes in hand. Calling upon him a few days since I found that he has this season greatly extended his collection, and has now between 600 and 700 plants in pots, the larger part of them on single stems for the purpose of obtaining exhibition blooms. They were raised from cuttings taken in December and January: that they have done well is seen from the enormous stems they have made, their vigorous growth and large dark leaves, and the height to which they have attained. If all goes well, as there is abundant evidence to believe it will, some grand flowers should result. The plants are well looked after in the matter of watering, and are occa-

growing period in which flowering-scapes or leaves, or both together, are thrown up in the autumn, the leaves continuing to grow late into the spring; then with the hot weather comes the long period of rest from April or May to September. My potted bulbs, last year, continued to produce a free growth of leaves up to the end of last May. I then dried them off and reported about the beginning of August, standing them for about a month under the conservatory stage, and then removed them to a slightly heated pit in which leaves are being rapidly produced with the flowering scape. I can detect no difference of character or structure between the leaf and the scape, indeed it seems that the rush-like growths, call them leaves or scapes, are identical in their nature, the stronger growths only producing flowers. I believe the difficulty attending the flowering in cultivation of many autumn-flowering bulbous plants, e.g., *Narcissus viridiflorus*, *N. serotinus*, *N. elegans*, &c., is, that they are kept growing when they ought to be at rest, and that we often reverse and mix up their natural periods of growth and of rest in cultivation. George Maw, F.L.S., Bentham, Kenley, Surrey.

Peas, Telephone and other Kinds.—At p. 371 I was very pleased to see Mr. J. Rust's account of the Telephone Pea. I have grown it two seasons, and my experience is just the same as that stated by Mr. Rust. I shall not grow it again, and feel sure it will be out of cultivation in a few years' time. After growing the new Pea, Prodigy, sent out by Messrs. Veitch & Son (I had only one row of it this year) I can say it is the grandest Pea I ever saw, and that it has the largest and best filled pod I have ever seen. This is a distinct green wrinkled marrow variety, and is first-class in quality, a heavy cropper, and the plant a robust grower, and resists drought and mildew. It grows to a height of from 5 to 6 feet. When this grand Pea gets better known we shall hear but little more about Telephone. I will mention

a few of the best kinds I find do best here, and I sow 36 quarts per annum:—Early Sunrise, Linton's Alpha, William I., Criterion, Prodigy, Veitch's Perfection, Marvel, British Queen, Ne Plus Ultra, King of Marrows, and Sturdy. The last four named kinds I am picking daily, and am likely to continue doing so till the end of October or November if the season keeps mild. *W. Smythe, The Gardens, Basing Park, Alton.*

Classification of Dahlias.—I am glad you have called attention to the urgent necessity for a better classification of Dahlias. For some seasons past, and at local flower shows in particular, there has been a growing confusion between the two classes of show and fancy varieties. To be sure there is but little difficulty amongst practical men, and it is mostly the less experienced growers who fail to see where the one class ends and the other begins. One reason for much of the complaint lies in the fact that competitors accept the lists given in nursery catalogues, and are thereby led to place fancies in stands of show varieties, or *vice versa*, without considering that when a fancy variety throws a self flower (which several varieties often do), the flower thus thrown is, of course, quite disqualified from being exhibited as a fancy. Even nurserymen are not blameless, for I find that Messrs. Keynes & Co., of Salisbury, and others to whom my attention has been drawn this season, catalogue Stafford Gem, a very old fancy variety, as a show Dahlia. I think your proposed new division of classes a much needed improvement, and one which would greatly simplify our catalogues. But in my opinion an even simpler classification would be to abolish the present divisions of show and fancy, and classify the blooms according to their prevailing colour. Thus we would have, say, whites, yellows, crimsons, and purples, with all the intermediate shades grouped round their respective primary colours. Tipped and striped varieties would have to be relegated to the colour of which they showed most. *James Service, Maxwellton, Dumfries, N.B.*

Fuchsia corymbiflora.—What has become of *Fuchsia corymbiflora*? I know many gardens all over Ireland, and only remember having seen it with Mr. Harbridge in the greenhouse of the fine old gardens attached to Trinity College, Dublin. Within the past few weeks I have been much around London, including Kew, the "Home for Flowers," &c., and cannot remember having seen it. The query is suggested by an old Irish gardener having told me of several places in the south of Ireland where, thirty years ago, he saw it and fulgens dotted at every yard along an avenue an Irish mile long, and left out in the winter, merely covered with bracken. I know the latter will live through the winter, as does *F. corymbiflora*, but is it not a mistake to allow such good things to become so scarce? *W. J. Murphy, Clonmel.*

Delphiniums.—A collection of beautiful Delphiniums, shown by Messrs. Kelway & Son, nurserymen of Langport, at the meeting of the Royal Horticultural Society on September 7, scarcely got the recognition their beauty and distinctness deserved. There were fruit and Dahlias, and other things, in large collections, and these engaged the attention of the visitors to the exclusion of other things of a less imposing character. Some of the varieties from Langport were particularly distinct, especially those of a single and semi-double character, with large rounded petals and saucer-shaped flowers having a bold centre of white stamens. These took the eye at once; deep blue and violet with white centres went well together. I made a note of the following as represented by bold and massive spikes of a very showy character:—Her Majesty, semi-double, bright blue with large, fine, and strikingly marked white centres; a very distinct single variety, deep blue, with white anthers, flowers large and bold; Trophée, deep azure-blue, large and fine; Rupert, greyish azure-blue with white anthers, very fine; Nahamah, the outside petals deep bright blue, the inside bronzy-magenta, semi-double, very fine; Juno, exterior petals very bright blue, the inner petals blue shaded with pink, semi-double, very fine; Lord Carrington, blue, centre bronzy-pink, semi-double, very fine; Eschandra, deep purple-blue, with white anthers, very fine; and Shotover, pale blue, the centre slightly dashed with pink, white anthers, very fine. It would be a very easy matter to extend this list, and some fine older varieties might be added to it, such as *alpeocoloratus*, *Belladonna*, *coelestinum*, *formosum*, *grandiflorum plenum*, *Keteleeri*, *Madame H. Jacotot*, *magnificum*, and the scarlet semi-double. I would think seedling Delphiniums are now more frequently raised by lovers of hardy flowers. By sowing the seed early in the year in a little heat, and then growing the plants on into size as soon as possible, and putting them out-of-doors into a bed of good soil, they are made annuals, and a large number of these will bloom the same season. All the finer forms can be planted out at the backs of the flower borders, the inferior ones, not being worth keeping,

can be destroyed. When seed is saved a select few of the very best only should be allowed to mature a few pods, and the rest be cut away, as it weakens the plants if they are permitted to mature all the seed-pods they form. Slugs are apt to injure the plants in winter and spring: a dressing of soot will help to keep them at bay, and ashes about the roots form a barrier to progress also. D. nudicaule needs some special treatment, being of a more delicate character: it needs a lighter soil, and it has the peculiarity of forming its corn-like roots near the surface: it is, therefore, a good plan to top-dress the plants occasionally with some light rich soil. *R. D.*

Clematis vitalba.—This plant luxuriates in a truly extraordinary manner in Normandy. On all sides the masses of its white flowers are to be seen during August. I should almost think it is a perfect pest offentimes, as in one instance when I saw it spoiling a fine Conifer of about 20 feet in height by climbing all over it, and even webbing the upper branches to its neighbours. But at the same time its festoons of blossoms looked very pretty. This habit of climbing everywhere has its advantages, however, and one of the prettiest of sights was near Caudebec, where part of a hill had been cut away for the railway and canal. This steep side about 50 feet high. The Clematis and a very few Brambles had taken complete possession here; not a single blank space was left. When this bank is in full flower what a grand sight it must be! It was late in August when I passed that way, and there were to be seen but the last few flowers—even that was fine: what, then, must it have been? *Le Voyageur.*

Wasps.—In reference to the remarks on this subject at p. 371, I am permitted to say that here the "wasping season," from the end of June to the middle or end of September, is the garden men's "harvest," and an unprecedentedly bad one for them this season, as is shown by the sums paid for the nests when compared with the last four years:—1883, £63 2s.; 1884, £53 9s.; 1885, £45 3s.; 1886, £62 19s. We pay 1s. per nest, the queen wasp being produced every week with each nest during the ten or twelve weeks over which the wasping season extends. The nests are as common as they are counted. *H. W. Ward, Longford Castle.*

In the spring we had a large number of queens, and expected, in consequence, great annoyance; but we have very few, in fact, less than have ever been known. *Thomas Taylor, Bocking, Braintree, Sept. 21.*—This year the scarcity of wasps is remarkable, and more particularly as Pears and Plums are so plentiful. At the same period last year almost all ripe fruit here was destroyed by wasps, if not protected, and we destroyed over 600 wasps nests within a radius of one mile round the gardens and park, and we have so destroyed them there for the last five years. Last year I noticed a great number of queen wasps in the Pine-stoves, vineries, and other glasshouses, and took great care to destroy them. I never remember having seen here, or in any other part of England, so few wasps and nests. I have only heard of five nests, and have not seen twenty wasps this month. I quite believe that most of our best nests of wasps were destroyed last May and June by the cold days and nights, and the heavy rains, which, no doubt, drowned hundreds of wasps. But it is most interesting to note that since we have had no wasps the bees have taken to devouring the ripe fruits—first the Gooseberries, and now the Plums are covered with bees, sucking their juices from them. *Wm. Smythe, The Gardens, Basing Park, Alton.*

Non-growth of Primula Seed.—I note the query on this subject at p. 372, and the sensible practical advice to keep it in a super-heated condition until it will germinate in the spring. I permit me to supplement this by advising Mrs. Abbot not to cast away the seeds as hopeless till the spring of 1888, as the finest lot of seedlings of *Primula japonica* I ever raised laid fully eighteen months in the soil before germinating, and several came up in the reserved seed-pans after two years. Possibly not a few good seeds of Primroses and other plants are lost through impatience. So many seeds come so quickly that we lack the patience to wait for the laggards, though why some seeds from the same sowing should germinate promptly, others slowly, and yet others, apparently equally good, not at all, is a problem that greatly needs further elucidation. Neither are the causes of the truth that has almost passed into a truism among cultivators, that the older the seed the longer in germinating, altogether obvious. Further, this is so generally true to entitle it to rank as an absolute fact? I very much question it. Though it is a long way from Primroses to Turnips, "A. D.'s" note on the slow growth of the latter from old seeds (see p. 371) has probably an important bearing on the question. The peculiarity of the Turnip case, as stated, is not the slow germination of the seed, but the slow growth of the plants afterwards, the progress of the plants from the old seeds being in this case so slow as to lose him the

season and the crop. This is a view, and from the cultivator's standpoint a vitally important view, of the correlation of age of seed to growth. It is also singular as confirming a fancy of the old cultivators that old seeds favoured fertility at the expense of mere extension or vigour. But these views, if correct, would have limited the top-growth and stimulated the bulb-growth of the Turnips, whereas in the case of "A. D.'s" Turnips the growth of the entire plant was so sluggish as to entail the loss of the crop. If this is possible in the case of Turnips of course it is equally so in regard to other plants, fruits, and vegetables, and may exert the most potent power on products or profits. *D. T. Fish.*

Tropæolum Lobbianum.—I have been astonished to find that the beautiful *Tropæolum Lobbianum* is so little known at the present day; indeed, it seems quite possible that, unless attention is called to its merits, it may soon slip out of cultivation altogether. It is catalogued by the London seedsmen, and something is sent out for it by the German seed-growers, but some at least of both of these classes know it not. What I buy for it in London is the common *T. majus*, and one at least of the German growers asserts that this is the true plant, and describes the difference between the two as consisting in the longer stems of what they call *T. Lobbianum*. *T. majus* is, I am told, grown largely for it as a market plant, and some country nurserymen I have learned, since my attention has been directed to the subject, call a variety of *T. majus* by this name of *Lobbianum*. I turned to some of the principal plant catalogues, such as Veitch's and Williams', it being one of our best cool stove winter blooming climbers, but find no mention of it in them. I hope I have been exceptionally unfortunate in my search after so fine and ornamental a plant, not difficult to grow, and which, therefore, ought not to be uncommon. I find it is not now to be seen in some of our London public gardens, such as Battersea Park and the Regent's Park, in both of which, I think, I used formerly to meet with it. Do try to rescue this handsome climber from undeserved oblivion. *M.*

Messrs. Backhouse's Rockwork.—Having often heard of this beautiful rockwork, I was fortunate enough to have a long-felt wish fulfilled when on a business tour this year in the North of England and Scotland I was enabled to pay it a visit. This piece of work so far exceeded my expectations, that I feel I must write a few lines concerning it in your columns, to induce amateurs of rockwork and alpine plants to go and see it as soon as they are so inclined, and to see that they will be amply repaid for their journey. The rockwork is about 350 feet long, 200 feet broad, and from 20 to 35 feet high. It consists of immense stones put together in a way so as boldly to imitate Nature; a nice piece of water with shallow spits, in which stones are put so as to enable visitors to walk over them, greatly adds to its charm. The whole is planted with exquisite alpine plants, Ferns, &c., the number of which is not possible to enumerate. I can only say that during the whole year flowers of the kind are to be seen. It is a great pity that rockworks are so rarely met with in gardens, as they add a permanent charm to them. Besides the rockwork, Messrs. Backhouse's nursery is amply worthy a visit for the interesting collections of plants of all kinds, *J. M. C. Janskindt Coninck, Delemersaar, near Zwolle, Netherlands.*

Primrose Seeds.—Herr Max Leichtlin recommends that Primula seed should always be on the surface of the soil without being covered up at all. Possibly, therefore, Mrs. Abbot's seed has been buried too deeply. *H. E.*

Strawberry Plants.—The demand for these is always so large that Strawberries are largely grown by some to produce "runners" for sale. Strawberry culture of this character is made a specialty by Messrs. James Carter & Co. at their Crystal Palace Nurseries, but they do not leave the runners on the beds till required for the execution of orders, as is the case with some, but they are taken from the beds as soon as large enough, and planted in good soil in cold frames, and being kept well watered soon grow into good plants, and make a greater headway than when allowed to remain on the beds. The task of executing orders is rendered a much lighter one, and it can also be done more quickly, and despite the weather, and when frost abounds the plants can be protected from its action in cold frames and orders executed during its prevalence if necessary. *R. D.*

The Cedar at Brethly Park.—I was interested in seeing the engraving of the old Cedar in the Chelsea Botanic Garden, and enclose you a photograph of the one here, which came to England, it is believed, at the same time as the Chelsea tree, and the late Countess of Chesterfield used to say that according to some old documents in the possession of the family it was planted in 1676. The tree is very lofty and

noble looking, *G. Brunt*, gr. [The photograph obligingly sent by our correspondent shows that the bole divides into two main divisions at some considerable height from the ground, and that the branches spread mostly in a horizontal direction; so seem to have been lost by weight of snow or other cause, and others are secured by staking. It would be of interest to know the girth at 5 feet from the ground and the height. Ed.]

Leycesteria formosa.—The behaviour of this plant in Britain, according to the testimony of several writers and authors, has been disappointing, or the reverse of satisfactory. Those who have seen it in its Himalayan home speak of the high coloration attained by the bracts and berries. When first cultivated in the Edinburgh Botanic Garden it was grown in heat, and flowered in 1838, but, as might be expected under such conditions, the bracts were pale and unattractive, the leaves larger, thinner, and more cut. Farther north in the open shrubbery the plant is generally killed down in winter, but as summer advances it sends up long, hollow, Willow-like shoots, that frequently grow freely enough, but the bracts are green, or slightly tinged with purple, and altogether too pale to afford sufficient contrast to the white or pale purplish flowers. Its hardness there is very severely tested. In the neighbourhood of London it flowers freely enough, and even fruits, but in most cases the indifferently coloured bracts are liable to the same fault as in the above-mentioned case. Wherever I have witnessed it, however, in maritime localities, there is a marked difference in the coloration of the bracts; whereas the usual colour inland is green, more or less tinged with dull purple, especially that of the upper and smaller bracts, at Saundersfoot in Pembrokeshire the bushes in the villa and cottage gardens attain a height of 5 or 6 feet, while the large bracts of the terminal, drooping, and tassel-like inflorescence acquire a deep brownish-purple of remarkable richness in tint. In the lower and older part of the inflorescence berries begin to form and gradually acquire a reddish-purple colour that deepens almost to black, while at the tips of the shoots the berries are still small or flowers even may be present. The same remarks apply to plants in shrubberies at Ventnor, in the Isle of Wight, and in cottage gardens at Baitle, in Sussex. In these latter places the beauty of the fruit and inflorescence argues in favour of a more extended cultivation than it even now enjoys, and planters would do well to give it a sheltered but sunny, open position, in order to obtain the highly desirable coloration, even in spite of the fact that it grows in Oak and Pine forests at an elevation of 6000–8000 feet in its native home. It has been recommended as a covert plant where pheasants are reared, and which are fond of the berries. Whether or not it ever attains any popularity from this economic point of view it certainly deserves a trial under different conditions in order to test fully its character as a decorative shrub. London must have been mistaken (*Trees and Shrubs of Great Britain*, p. 543) when he stated that the berries are equal in size to a common-sized Gooseberry. They are oval in outline, but more comparable in size to that of a Pear. Fortunately the plant is easy to propagate from cuttings in a growing state, or after the shoots are tolerably ripened, and in autumn anything is gained by the consumer. We have nothing added in the way of flavour or in texture of flesh; we have nothing added in the way of prolificacy. We get perhaps rather more of beauty if perfectly smooth fruits are more beautiful than are prickly ones, and also rather more of length, but beyond those features nothing seems gained. Very probably it will be found on inquiry that to exhibitors do we owe this change more than to any other cause. Naturally just what we favour in smooth spiny fruits because they bore a prettier appearance. It is rather odd that whilst we eat both Melons and Cucumbers in the raw state yet we almost invariably make it a condition that the former shall have good flavour, or at any rate select those for prizes showing best flavour, whilst Cucumbers are judged by length and appearance alone. If, as often happens, the finest and handsomest Melons in a competition are the worst flavored, might not the same thing happen in a competition for Cucumbers? Again, it is the rule to place Melons upon the dessert table whole, and naturally a handsome looking one makes an attractive feature. Cucumbers, on the other hand, rarely

appear on the table in a whole state; indeed, those who partake of them at table, probably seldom see them whole, and yet we in our judgments absolutely reverse the order of things by giving prizes to Melons for flavour regardless of beauty and to Cucumbers for beauty regardless of flavour. Again length and even beauty or smoothness in a fruit afford no criterion as to the relative cropping properties of the kind it represents. It may be that the plant which produced it stops at ten or twelve fruits, whilst another shorter kind will produce three times as many fruits. What gardener is there, after all, in spite of the prize-winning value of the first-named kind, who would not prefer the same prolific plant because it would enable him to fully satisfy the demands of his family. Judges who incur the duty of awarding prizes should ascertain flavour and very naturally so, as it would prove an exceedingly unpleasant duty, and still farther not a few, owing to vitiated tastes, are unable to discern the true points in flavour found in many vegetables. None the less, if the flavour test may not be applied, why should they invariably go for large fruits? It is true I have met with some exceptional judgments, but even then only when larger fruits have been old or ill-shaped; still the general practice remains to favour the longer kinds if they can be found in preference to shorter fruits. Long, straight, and smooth fruits invariably win; shorter and specially spiny fruits are neglected. Now in growing Cucumbers I have been struck with the very prolific nature of that fine-spined kind, Blue-gown, one of the best, deepest coloured, and most prolific of all the family. As compared with long smooth kinds the former throws fruit not merely at almost every joint, but in many cases three, four, or five fruits are clustered at a joint. Of course so many cannot be left, but ample evidence is thus given of its prolific qualities. Then Bluegown, as its name implies, is of a deep bluish-green colour, and, farther, carries—what so few of the smooth kinds do—a dense bloom on the surface. That may or may not be evidence of quality, but at least it is a pleasing feature, because it exhibits good cultivation. If Cucumbers were eaten in their skins no doubt the prickly spines found in Bluegown and similar kinds would be very objectionable, but Cucumbers coatings are indigestible, and invariably removed before the fruits are served up. We have new, or what are called new, Cucumbers offered in trade from time to time, but few indeed now present any special features of interest or novelty. In smooth kinds Telegraph, if a good selection, still furnishes fruits which satisfy the description of a dozen others, and what is peculiarly noticeable in any special Cucumber competition is, that rarely do any two of the samples shown in the class agree in character. If all are *bona fide*, then does this fact illustrate the not unknown erratic nature of many so-called distinct kinds. In reference to this matter it is certain that Bluegown, amongst the spiny section, not only comes always true, but can easily be distinguished. I hope in this drawing attention to its obvious merits I may not assist in its rebaptism. A. D.

Mr. Laxton's New Peas—Charmar and Walton Hero.—I have grown these Peas under most favourable conditions, and with very satisfactory results during the present season. Charmar attained to a height of 5½ feet, the haulms being heavily laden with large handsomely curved pods, each containing on an average nine Peas of excellent quality. It appears to be less liable to the attacks of mildew than many of the older varieties are; the pods are dark green, heavily covered with bloom, are quite distinct from any other variety that I am acquainted with, and I consider it an acquisition to the already long list of Peas in cultivation. Walton Hero is the result of a cross between Telephone and British Queen. In habit of growth, size, shape, and colour of pods, which are produced too thinly on the haulms to please me, it partakes strongly of Telephone. H. W. Ward.

Cranberries and Cowberries.—Is there any way of distinguishing at sight or by taste the berries of *Vaccinium vitis idæa*, commonly called Cowberries, or Whortleberries, from those of *V. oxycoccos*, the Cranberry proper? A lady sends me from Inverness a specimen of *V. vitis idæa*, with ripe berries, saying, "they are locally called Cranberries. Baskets of small scarlet berries are sold in Inverness market in the middle of September as Cranberries, which I suspect to be the fruit of *V. vitis idæa*. I have seen *oxycoccos* growing plentifully in wet moors in Dumfriesshire, and also in Perthshire, but I do not think it is common in the more northerly Highlands. Perhaps some correspondent who knows the Highlands and the plants well will tell me. C. Wolley Dod, Edge Hall, Malpas.

German Moss Litter for Orchids.—I advise Mr. H. J. Buchan (p. 371) to have nothing to do with this as a material for potting Orchids. I have seen it, or something of the same nature, experimented

with for the purpose in several places, and although the plants, and especially fresh imported ones, seem to take to it well at first, in a little time it gets sour, rotten, and slimy, if kept wet, and next to impossible to wet without soaking, if once allowed to get dry, in either case ruining the plant in the end. During my time I have tried *Coccos* turf and other things, but never found anything good but peat or bracken fibre and sphagnum moss, and these would be cheap at higher rates than they now command in comparison with any other stuff, such as German moss litter. James O'Brien.

Reports of Societies.

ROYAL HORTICULTURAL:

September 21.

THERE were no competing classes at this exhibition of the Royal Horticultural Society, the occasion being merely the meetings of the Fruit and Floral Committees. The display of flowers was very large, consisting principally of Dahlias and Gladioli, with other herbaceous plants. A great number of new and interesting plants were also shown. Apples constituted the chief feature of the exhibits which came before the Fruit Committee.

Floral Committee.

Present:—G. F. Wilson, Esq., F.R.S., in the chair; Messrs. J. Douglas, T. Baines, Shirley Hibberd, G. Paul, W. Holmes, R. Dean, H. Ballantine, J. Durney, H. M. Pollett, A. S. Leady, J. O'Brien, H. Turner, H. Cannell, W. Wilks, C. Noble, J. Hudson, H. Bennett, G. Duffield, Dr. M. T. Masters, and Amos Perry.

Among the principal objects shown were:—

Crataegus Lalandi.—Some nice pyramids of this were shown in pots by Messrs. Veitch. It is a form of the common *Pyraeantha*, but produces berries earlier and, if possible, more profusely, especially if worked on the Quince. Its berries are rather more orange-coloured, and the leaves somewhat narrower than in the type.

Ostrya alata major.—A Fern with bold deltid tri-pinnate fronds of leathery texture, the ultimate segments broadly oblong-obovate. Mr. Bull.

Moranta eminea (Hort., Bull.).—A form with stalked oblong leaves, with a greenish-cream coloured ground, on which are scattered transverse oblong blotches of deep green colour of different sizes, and sometimes connected with the midrib by short slender processes of the same colour.

Cephaelis discolor.—This is a stove shrub or tree, with large pendulous oblong-lanceolate acuminate leaves, the younger ones of a pale chocolate-cream colour. It was suggested that this might be a species of *Grias*.

Selenicelma tessellata.—A handsome Club-moss, with erect four-sided branches, and flat deltid fronds.

Palaucorea jugosa.—A stove shrub, with highly decorative foliage, having short-stalked opposite lanceolate leaves of a deep velvety green colour with a lilac midrib. Bull.

Pancratium guianense.—A species whose flowers have very narrow reflexed segments.

Cissampelos, shown by Sir Trevor Lawrence, and remarkable not only for its handsome flowers, but for its hardness. The flowers are broadly funnel-shaped, white flushed with rosy-lilac, and borne in a truss of six, eight, or even more flowers.

Cyrtanthus hybridus rosea.—Several plants of this were also shown by the President of the Royal Horticultural Society. They are the progeny of a cross between *Valota purpurea* and a *Cyrtanthus*, and vary in colour: those shown were of a rich rose colour.

Cypripedium Sanderianum.—A remarkable Cypriped, with an upper lanceolate sepal, a smaller lower one, two narrow purplish-brown petals prolonged into long tails, a long lip of an olive-brown colour with a long stalk compressed from side to side, and with the column provided with a very long spade-like staminate. Veitch.

Trochodendron palmatum.—An Aralid, with spiny stem, and deeply palmately 7-lobed green leaves, the lobes oblong-lanceolate, serrulate. Veitch.

Curcuma sumatrana.—A species with long-stalked, oblong, plicate leaves, and erect flower-stalks provided with concave, shell-like spreading bracts of a reddish colour.

Rhododendron King of the Yellows.—One of Messrs. Veitch's novelties, in the way of the so-called greenhouse Rhododendrons, and bearing a truss of yellow, fawn-coloured flowers, of good form and substance.

R. Eric Perfection.—Another hybrid Rhododendron, with pale rose flowers.

Sagadinella gracilis.—A Club-moss, with slender cylindrical upright stem, thinly beset with small scattered appressed leaves, and flat bipinnate leaves, the pinna linear-lanceolate, with rows of densely packed fine leaves. Veitch.

Grammatophyllum Ellisi.—A massive looking Orchid, with square pseudobulbs and a raceme of numerous flowers of triangular outline, the segments thick, oblong, yellow, densely spotted with minute brown spots.

Pinus Bristoli *pauciflora*.—A very prostrate, creeping Elm—if Elm it be—with long slender pendent branches and alternate rough leaves, equal at the base (not

This would imply a collection in pots, of which the most valuable only of the plants need be permanent, while the others might be annuals, or lifted from the open ground at a convenient season. Besides permitting a close and easy inspection, such a

house and its contents would afford pleasure and satisfaction to its owner, and might be utilised profitably for some other purpose in summer. Saxifraga ligulata, which flowers naturally in the end of February or in March, according to the weather, is very amenable to pot cultivation, and indoors may be induced to flower by Christmas or immediately after. Endless variety can be secured by growing such as Iberis saxatilis, I. gibraltarica, Saxifraga Bursieriana, S. oppositifolia, Chionodoxa Lucilifolia, various species of Crocus and other early flowering plants that will repay the little extra trouble incurred in growing under glass. The cooler that Chionodoxa can be kept the better it will look, and it suffers being frozen with impunity. These are but a few of the hundreds of plants that might be utilised for such a purpose.

The most economical, serviceable, and all-round convenient method, perhaps, of arranging a collection of herbaceous plants for general effect and variety of display is the old-fashioned one of cultivating them in borders. For convenience of inspection these ought not to be more than 12 to 15 feet wide, although wider ones are sometimes recommended, and narrower ones will suffice. A systematic arrangement of the plants in lines will not destroy their effectiveness, for the different heights, hues and tints of both foliage and flowers, and their general contour, will prevent any undue appearance of formality that might arise were they planted for purely botanical purposes.

Furthermore, herbaceous plants need not be absolutely confined to borders, for what can have a more telling effect in autumn than a bed of Kniphofias at the end of a long walk or vista? Many other bold or stately subjects might be singled out in like manner, such as Funkias, Liliums, Delphiniums, Pæonies, Anemone japonica, with its varieties alba and hybrida rosea. I shall not soon forget the stately and sentinel-like appearance of a row of our native Lythrum Salicaria in an old-fashioned garden planted as a background to some summer flower-bedding arranged on gravel. The effect was rendered even more striking if a few of the stems were blown on one side, as if in the attitude of defence. Nothing in the hardy plant way can be more suggestive of a tropical vegetation than well-grown specimens of Gunnera chilensis or G. manicata planted near water, where their roots may dip down and obtain an unstinted supply. For drier places, or the shrubbery, Heracleum villosus has few equals for a princely and commanding appearance.

Not these isolated subjects alone, but herbaceous plants in general, well repay liberal treatment both in a healthier and more robust growth, together with a greater produce of flowers. I cannot sympathise with those who starve their plants rather than dig their borders for fear of hurting the roots; for, except in the case of tuberous-rooted subjects, such as Alstroemerias or Liliums in full growth, no harm will result if the border between the lines of plants be rather roughly dug up after being heavily top-dressed with some well-rotted manure.

In a thoroughly representative collection there is a maximum return for a minimum outlay; for when once a collection has been got together, an annual top-dressing, forking over, timely staking, and hoeing or weeding, together with a little attention to the propagation of rare or tender subjects, complete the routine of the more important operations in connection with this class of plants.

To the ardent cultivator, however, it will soon become apparent that a rockery is desirable, or even indispensable, where alpine plants are grown to any appreciable extent, in order to secure the variety of soil, shade, moisture, or exposure necessary for subjects of as many different habits. Above all, whether grown in beds, borders, or on rockwork, the interest or value attached to a collection will be much enhanced if the subjects so grown are correctly and legibly labelled; for not only will the owner derive pleasure and satisfaction therefrom, but the rising generation, whether professional or amateur, have an opportunity, not only of learning their habits and requirements, but also their names—a key to their whole history. J. F.

BOTANIC GARDEN, SINGAPORE.—Mr. Cantley's report for the year 1885 is chiefly of interest to us at home for the list of cultivated vegetables used in the colony, with the native names applied to them. Amongst other things, the Malays eat the young shoots of various Ferns, such as *Ceratopteris thalictroides*, *Anisogonium esculentum*, *Stenochlaena palustris*, *Blechnum orientale*, and *Thamnopteris distachya*. Attention is called to the necessity for the careful conservation of the gutta-percha forests,

Variorum.

CULTIVATING THE MAMMOTH SEQUOIA OF CALIFORNIA.—To the editor of this magazine one of the most interesting lessons learned in California was one which only one experienced in the culture of trees could learn; namely, that the Sequoia gigantea is by nature a swamp tree. The places where they grow now are comparatively dry; but two or three thousand years ago they followed the track of descending glaciers, and they received the melting snows from the tops of mountains that have no summer snows now. The ground on which these mammoth trees stand, once very wet, or even swampy, has become drier through the long ages. Horticulturists know that swamp trees generally grow very well in ground that is comparatively dry, but seeds of such trees will not sprout in anything but the moist oozy moss on the top of a swamp or damp ground. Hence the only young trees we find in the mammoth tree locations are where a chance seed happens to fall on a moist rock, or other damp situation. Young trees are common only in one location, where clouds condense against a mountain-side, and the whole situation abounds with springs and oozy spots. Here in the east hundreds of trees have been planted during the past quarter of a century, but rarely has one lived more than a few years. They do not mind the winters. We have known them stand 20° below zero uninjured, but some fungus, favoured by a dry atmosphere, carries them off gradually during the summer season. Profiting by these facts, the writer brought three strong plants from California and set them in a swamp. Usually when we set swamp trees in a swamp they will not grow unless they are suffered to grow into the swamp themselves. We make a mound and plant them in the mound, from whence they root down as suits themselves. These three plants have had two winters and one summer, the past winter being a terribly severe one. To-day they look perfectly sound and flourishing, and the editor believes that he has at last discovered how to make the great tree of California thrive in eastern gardens. *Gardeners' Monthly*.

JAPYAN CLOVER (LESPEDEZA STRIATA, H. A.).—My attention, says Dr. Schomburgk, was directed to this valuable fodder plant by Mr. T. E. Schlegel, of Beachport, by his sending me a cutting from a Californian paper (the *Rural Californian*), which gives a glowing account of this remarkable plant. The extract runs as follows:—The perennial Clover, *Lespedeza striata*, is now covering thousands of acres; where in 1866 it only covered 10 feet square. It grows in the plains, and at an altitude of 4000 feet, and stands well through the midsummer droughts, flowering and blooming until the first comes, and living after most-herbage is dead. It grows on every kind of soil—rich or poor, clay or sandy, dry or wet—and is deep-rooted and improving the soil. It never runs out, and can be fed off without injury. It is wonderfully fattening, and contains—

Nitrogen matter	.. 16.60	Potash	.. .. 0.88
Fat	.. .. 1.10	Soda	.. .. 0.51
Ash	.. .. 5.52	Phosphoric acid	.. 0.39
Lime	.. .. 0.92	Sulphuric acid	.. 0.20
Magnesia	.. .. 0.56		

DEPENDENCE OF THE GROWTH OF WOOD UPON METEOROLOGICAL FACTORS.—A. Spamer communicates the following conclusions as to the dependence of the growth of wood upon meteorological factors:—1. Temperature and precipitation are the meteorological phenomena that affect the process of the formation of wood. 2. Of these two variable quantities during the principal period of growth, the rainfall diminishes the formation of wood while the heat increases it. 3. The principal period of wood growth is from July to October, at least for the plants which are very sensitive to frost. 4. The rainfall seems to influence growth more than the temperature. [Excess of rain diminishes growth more than excess of temperature increases it.] 5. The growth of different plants is not affected in the same degree by the rain; some are affected more by rain and others by the temperature. 6. In many periods only one of these factors appears to exert any influence, the other being inactive. 7. Possibly this anomaly may be explained by observations of the duration of insulation. 8. The increase of carbonaceous compounds goes parallel with the increase in the inorganic constituents of the wood. 9. The aqueous component of the wood diminishes when the carbonaceous increases. 10.

The so-called ripe wood [the heartwood] differs from that which is less ripe by a greater amount of ashes and carbon. *Smithsonian Institute Report*.

Obituary.

We have received intelligence of the death of Mrs. BLAIR. She was in her 94th year, and had been for twenty-one years a pensioner of the Gardeners' Royal Benevolent Institution.

—The death, on the 19th inst., of the Rev. C. P. PEACH, at Appleton-Street, Malton, is announced. Mr. Peach was in his 58th year, and for some years past had been in ill health. Mr. Peach was an excellent cultivator, who knew how to mould and improve his practice by the teachings of science. He was a frequent contributor to the gardening journals, and occasionally to the *Gardeners' Chronicle*, his chief subjects of predilection being Roses, fruit trees, and herbaceous plants. As a friend he was genial and straightforward—a man who will be very greatly missed among his friends and neighbours.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, SEPTEMBER 22, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.		HYGROMETRIC DE- DUCTIONS FROM GLAISHER'S TABLES 5th Edition.		WIND.		RAINFALL.
	Mean Reading 3 p.m.	Deposited from 18 years.	Highest.	Lowest.	Mean for Range for Day. Average of 30 years.	Dew Point.	Degree of Sat. = 100.	Direction.	
Sept. 16.	30.24	+0.38	65.0	45.0	52.0	4.0	47.5	68	N.E. 0.00
17.	30.03	+0.18	64.0	54.0	59.0	3.5	45.0	64	N.E. 0.00
18.	29.95	+0.12	66.0	61.0	63.5	4.1	43.1	71	N.E. 0.00
19.	29.85	+0.03	66.1	54.5	60.4	2.9	44.0	70	N.E. 0.00
20.	29.72	-0.09	65.1	51.0	58.0	4.1	48.1	76	N. 0.00
21.	29.49	-0.37	64.5	52.0	58.0	4.1	54.1	84	N.E. 0.03
22.	29.64	-0.18	63.0	47.0	55.0	4.0	49.0	71	N.E. 0.00
Mean	29.81	+0.07	65.0	45.0	58.3	4.1	47.5	73	N.E. 0.00

Sept. 16.—Fine day, generally dull, but bright at times.
17.—A fine and bright day throughout.
18.—Fine day throughout.
19.—A fine day throughout, cloudy at night.
20.—Dull in early morning, but fine and bright after wards.
21.—Frequently bright, but a dull afternoon.
22.—Fine and bright in morning, but dull and cloudy afterwards.

LONDON: Atmospheric Pressure.—During the week ending September 18, the reading of the barometer at the level of the sea increased from 30.01 inches at the beginning of the week, to 30.15 inches by the morning of the 13th, decreased to 30.05 inches by 5 P.M. on the same day, increased to 30.44 inches by 1 P.M. on the 16th, decreased to 30.19 inches by 5 P.M. on the 17th, and was 30.09 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 30.20 inches, being 0.22 inch higher than last week, and 0.15 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 75° on the 14th; the highest on the 16th was 66° 9. The mean of the seven high day temperatures was 67° 6.

The lowest temperature in the week was 40° 8 on the 17th; the lowest on the 13th was 60°. The mean of the seven low night temperatures was 48° 9.

The greatest range of temperature in one day was 25° on the 18th; the smallest was 14° 5 on the 13th. The mean of the seven daily ranges was 18° 7.

The mean daily temperatures were, 59° 5 on the 12th; 66° 3 on the 13th; 65° 1 on the 14th; 56° 4 on the 15th; 52° 9 on the 16th; 53° 1 on the 17th; and 53° 4 on the 18th. These were above their average till the 14th, by 1° 9, 8° 9, and 7° 9 respectively, and below their averages from the 15th, by 0° 7, 4° 4, 3° 5, and 3°, respectively.

The mean temperature of the week was 58° 1, being 3° 2 lower than last week, and 1° 1 above the average of the week.

The highest reading of a thermometer with blackened bulb in *vacuo* placed in the full rays of the sun was 129° 5 on the 13th. The mean of the seven high day readings was 115° 1.

Rain.—No rain fell during the week.

ENGLAND: *Temperature*.—During the week ending September 18, the highest temperatures were 80° at Truro 77° at Cambridge, and 75° at Blackheath and Leeds; the highest at Newcastle was 69°, at Bradford 68° 2, and at Wolverhampton 69° 1. The general mean was 71° 8.

The lowest temperatures were at Wolverhampton 36° 5, at Cambridge 38°, and at Bristol 38° 5; the lowest at Plymouth was 50° 5, at Truro 48°, and at Nottingham 45° 8. The general mean was 42° 4.

The greatest ranges were at Cambridge 39° 7, at Blackheath 34° 2, and at Bristol, Hull, and Leeds 34°; the least ranges were at Plymouth 21°, at Liverpool 24° 8, and at Newcastle 25°. The general mean was 29° 4.

The mean of the seven high day temperatures was highest at Cambridge 70° 2, at Truro 70°, and at Blackheath 67° 6; and lowest at Newcastle 59° 3, at Liverpool 62° 4, and at Preston 62° 9. The general mean was 64° 9.

The mean of the seven low night temperatures was highest at Plymouth 54° 8, at Truro 54° 3, and at Nottingham 51° 2; and was lowest at Wolverhampton and Newcastle 46° 5, and at Hull 47°. The general mean was 49° 9.

The mean daily range was greatest at Cambridge 22° 1, at Bristol 18° 9, and at Blackheath 18° 7; and was least at Plymouth 10° 9, at Liverpool 12° 4, and at Bradford 12° 5. The general mean was 15°.

The mean temperature was highest at Truro 60° 8, at Plymouth 58° 9, and at Blackheath 58° 1; and was lowest at Newcastle 51° 6, and at Wolverhampton and Hull 54° 2. The general mean was 56° 2.

Rain.—No rain fell at several stations. The largest falls were 0·58 inch at Preston, 0·21 inch at Liverpool, and 0·17 inch at Bradford. The general mean fall was 0·11 inch.

SCOTLAND: *Temperature*.—During the week ending September 18th, the highest temperature was 68° 5 at Aberdeen; the highest at Glasgow was 64°. The general mean was 66° 7.

The lowest temperature in the week was 30° at Glasgow and Perth; the lowest at Greenock was 38°. The general mean was 33° 4.

The mean temperature was highest at Paisley 53° 4, and lowest at Glasgow 50° 1. The general mean was 51° 7.

Rain.—The largest fall was 1·50 inch at Greenock; and the smallest fall was 0·35 inch at Dundee and Leith. The general mean fall was 0·71 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, September 20, 1886, issued by the Meteorological Office, 116, Victoria Street, London, S.W. General remarks.—The weather has been fine and dry in all parts of the kingdom.

The temperature has continued a little above the mean in "England, S.," and the "Channel Islands," and has been about equal to it in "England, E.," and "Ireland, S.," but in all other districts it has been below its normal value, the deficit in "Scotland, E.," being as much as 5°. The highest of the maxima, which were recorded on the 14th, ranged from 60° to 67° in Ireland, Scotland, and the N.W. of England; to 78° in "England, E.," 80° in the "Channel Islands," and 81° in "England, S." Towards the end of the period the daily maxima were low for the season, scarcely exceeding 50° in Scotland, and not reaching 60° in many parts of England and Ireland. The lowest of the minima, which were generally registered either on the 17th or 18th, varied between 28° in "England, N.W.," (at Newton Rigney), 31° in "Scotland, N.," and "Scotland, E.," and 39° in "England, E.," and "England, S.W.," in the "Channel Islands," however, the lowest reading was 55°. During the night of the 16th—17th frost was experienced on the grass even as far south as London.

The rainfall has been less than the mean in all

districts. Over the greater part of the kingdom the weather has been altogether rainless.

Bright Sunshine.—Shows a decided increase nearly everywhere, the percentages of the possible amount of duration ranging from 27 in "England, N.E.," and 39 in "Scotland, E.," to between 54 and 60 in "Ireland" and most parts of "England," and to 76 in the "Channel Islands."

Depressions Observed.—At the commencement of the period a depression which had previously passed over our Islands was moving in a north-easterly direction across the North Sea to Norway; but as this disappeared, the distribution of barometric pressure over the United Kingdom became anticyclonic, and no depressions appeared in our immediate neighbourhood till towards the end of the week, when some shallow disturbances were formed over France and our south-east coasts. South-easterly to north-easterly winds of moderate strength were most general in England and Ireland, but in Scotland they drew into south-east, and were light in force.

Enquiries.

"He that questioneth much shall learn much."—BACON.

BOOKS UPON BEES.—Will Mr. Walter Chitty, or any reader of the *Gardeners' Chronicle*, oblige me with the names of any books upon bees published previous to the year 1700? Black-letter books especially requested. Edwin Jackson.

Answers to Correspondents.

AQUATICS: *Old Subscriber*.—*Nymphaea alba* and odorata, *Nuphar lutea*, *N. advena*, *Butomus umbellatus*, *Vallisneria spiralis*, *Sagittaria*, *Hottonia palustris*, *Typha latifolia*, *Sparganium ramosum*, *Sis. pseudocarpus*, and *manihotus*.

BRITISH ASSOCIATION, &c.: *J. F. G.*. A full report is published annually by the Society. The current numbers of *Nature* contain most of the papers. Prof. Hillebrand's lecture was reported in full in the *Journal of the Pharmaceutical Society* lately.

BULBS ATTACKED BY INSECTS: *C. B. M.* The bulbs sent are swarming with creatures destructive to them; the principal are the true root-eating Acanth—i.e., *Rhizoglyphus* (species chiefly *Robini*) in immense numbers. There is also *Serrator rostratus* in great quantities, and *Anguillulæ* are swarming. The bulbs have apparently chiefly commenced to decay from the centre. They are in an advanced state of decay, and contain fungus. It would not be possible, from these bulbs, to say how the evil commenced; possibly it was had some of the bulbs where the damage is only just beginning, or some of the apparently sound bulbs from the same lot, we might be able to form some idea on the subject. *A. D. M.*

CUCUMBER ROOTS CLUBBING: *Jenny*. The knobs on the roots are the dwelling-place of an infinite number of small worms, repeatedly described and figured in these columns. Burn your plants, and begin again with fresh soil.

DOUBLE GLADIOLUS: *W. H.* Many thanks. We will examine and report. You are one of the few who know how to plant flowers so that they may reach us in good condition.

EUCALYPTUS TREE IN FLOWER AT CHEPSTOW: *X. Y. Z.* Certainly not common. Of what species is it, and of what height? Information would be acceptable.

FLOWER SHOW DISPUTE: *One of the Committee*. Without having seen the condition of the flowers we cannot adequately answer your question; but, other things being equal, we should consider the best collection (eight varieties) to be that which comprised the largest number of separate species. Thus, the stand that contained three *Zinnias*, four *Roses*, and so on, is, in our opinion, second in interest and variety to the other one, which contained a larger variety of species and genera.

INSECTS: *F. O.* The Swede Turnips sent show no signs of having been attacked by insects. The hole in the crown of each seems of long standing, and has probably widened with the growth of the plant. We are unable to say whether originally made by mice, or birds, or other animals. *I. O. W.*—*G. P.* The caterpillar which you saw devouring an aphid of the Rose is the larva of one of the pretty two-winged flies (*Syrphus* sp.) which look like small wasps. Do not destroy them. *I. O. W.*

NAMES OF FRUITS: *W. S. & S. Cox's* Emperor.—*A. O. P.* Nonsuch.

NAMES OF PLANTS: *L. J. B.* One of the forms of Turkey Oak (*Quercus cerris*). Please send a leaf to make sure.—*E. Gilman*. We should say the Bean sent is the Asparagus Bean (*Dolichos sesquipedalis*), a variety grown in the South of France, with stems 1 foot to 2 feet long, and pods 1 foot. There is also a larger variety, from Cuba, with pods 2½ feet, and stem 13 feet.—*E. V. B.* *Sanguisorba canadensis*, 1. *Veronica incana*; 2. *V. virginica*; 3. *Liatris plicata*; 4. *Eryngium alpinum*; 5. *E. Olivarium*.—*Percy T.*

Ingram. 1. *Bouvardia*, a garden variety; 2. *Houstonia longiflora*; 3. *Fuchsia Riccartoni*; 4. *Lythrum barbatum*; 5. *Rubus laciniatus*; 6. *Incarvillea Olge*.—*H. Coldstream*. *Polygonum cuspidatum*.—*R. P.* *Agrimonia eupatoria*.—*R. H. S.* *Polygonum cuspidatum*.—*Z. G.* 1. *Echium molle*.—2. *Aspidium amabile*; 3. *Erigeron mucronatus*; 4. *Calycastrum occidentalis*; 5. *Nerine undulata*; 6. *Polygonum affine*.—*G. W. A.* *Clematis cirrosa*.—*W. B. H.* A dwarf seedling form of *Nephradium molle* corymbiferum.—*W. R.* *Fassia racemosa* (princeps of gardens).—*J. T. H.* *Vanda limbat*. Another time send your inquiry to the Editor. It has nothing to do with an advertisement.—*F. B.* *Erigeron acre*.—*J. W. M.* *Syringa josikaea*.—*J. H. F.* *Lotus tetragonolobus*.

PEACH HOUSE: *A. B.* The remarks made in our issue of the 11th inst., under the heading "Fruits under Glass" (p. 335) are applicable to your case. In order to restore, and afterwards sustain, vigour in your trees, give occasional surface-dressings of Beeson's Manure prior to giving copious supplies of water at the roots at intervals of a week or ten days during the growing season. This, together with a free use of the syringe or garden-engine during the summer months, and care not to over-crop the trees, should maintain the latter in a healthy and vigorous condition. *H. W. W.*

TODEAS: *Old Subscriber*. These may be freely watered overhead in some places, but they are injured by it in others. We saw a batch of plants at Kew last year which had suffered in the way you describe, and this was proved to be the result of frequently syringing the foliage. It was not a fungoid disease. This year the same plants are now in fine health, but they are not watered overhead.

WOODLICE: *J. P.* Lay slices of Carrot or Apple about, and go round at night and destroy the enemy.

INTELLIGENT READERS, DO PLEASE NOTE.—*Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and NOT to the Editor.*

CATALOGUES RECEIVED.

W. DRUMMOND & SONS, 58, Dawson Street, Dublin—Dutch Flower Roots.

J. SCHWARTZ, Route de Vienne 7, Lyon, France—Roses.

HOOPER & CO., Covent Garden, London, W.C.—Bulb Catalogue.

JAMES COCKEY & SONS, Aberdeen—Bulb Catalogue.

FRED. HORSMAN & CO., Colchester—Orchid Specialities.

P. J. KANE, Kells, Meath—Dutch Bulbs, &c.

H. CANNELL & SONS, Swanley, Kent—Bulbs, &c.

W. RUMSEY, Joyning's Nurseries, Waltham Cross, W.

E. G. HENDERSON & SON, Maida Vale, London, W.—Dutch Bulbs, &c.

ISAAC DAVIES & SON, Ormskirk, Lancashire—Rhododendrons, Azaleas, &c.

COMMUNICATIONS RECEIVED: *W. P.*—*W. B.*—*C. Lorenz*.—*E. B.*—*J. F. C.*—*N. J.*—*A. B.*—*R. E.*—*E. R. C.*—*E. S. B.*—*R. V.*—*S. S.*, Exeter (many thanks); we shall probably reproduce one or more of the photographs.

Markets.

COVENT GARDEN, September 23.

MARKET VERY heavy, especially in Plums. Prices lowering. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½ sieve	1 6-3 6	Peaches, per dozen	1 0-6 0
Figs, per dozen	0 9-1 0	Pears, per dozen	1 0-1 6
Grapes, per lb.	0 6-2 0	Pine-apples, Eng. lb.	2 6-3 0
Cost Cob's per doz.	55-0 0	St. Michael, each	2 6-8 0
Lemons, per case	1 0-6 0	Rhubarb, ½ sieve	0 9-2 0
Melons, each	1 0-2 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, per doz.	4 0-0 0	Mint, green, bunch	0 4-0 0
Aubergines, each	0 3-0 0	Mushrooms, punnet	1 6-2 6
Beans, Kidney, lb.	0 4-0 0	Mustard and Cress, doz.	4 0-0 0
Beet, red, per dozen	1 0-2 0	Onions, per bushel	4 0-0 0
Brussels Sprouts, lb.	0 4-0 0	Parley, dozen bunch	3 0-0 0
Carrots, per bunch	0 6-0 0	Potatoes, per cwt.	4 0-5 0
Cauliflowers, per kidney	per cwt.	Spinach, per bushel	5 0-0 0
Celery, per bundle	1 6-2 0	Tomatoes, per lb.	0 12-0 0
Cucumbers, each	0 6-1 0	Turnips, bunch	0 4-0 0
Endive, per dozen	1 0-0 0	Veget. Mar., each	0 3-0 0
Herbs, per bunch	0 4-0 0		
Leeks, per bunch	0 3-0 0		
Lettuce, per dozen	1 0-1 6		

POTATOES:—*Kent Regents*, 8s. to 9s.; *Schoolmasters*, 7s.; *Hearty of Hebron*, 10s. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Foliage Plants, var.	
Begonia, per dozen	6 0-12 0	Adiantum, doz.	2 0-10 0
Bouvardia, doz.	12 0-18 0	Fuchsia, dozen	3 0-6 0
Cyperus, per dozen	4 0-12 0	Gladioli, 12 pots	6 0-0 0
Dianthus, terminal, in var.	doz.	Onions, per lb.	0 12-0 0
—varied	30 0-60 0	Marguerite Daisy,	
—per dozen	12 0-24 0	—per dozen	5 0-12 0
—varied, per doz.	12 0-24 0	Myrtles, per dozen	4 0-6 0
—varied, in var.	6 0-18 0	Palms, in var., each	6 0-21 0
—per dozen	6 0-18 0	Pelargoniums, doz.	6 0-12 0
—varied, in var.	6 0-18 0	—scarlet, per doz.	3 0-6 0
—per dozen	6 0-18 0	Petunias, dozen	2 0-6 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lily, 12 blms.	4 0 6 0	Marigolds, per 12	3 0 6 0
Asters, 12 blooms	2 0 4 0	Mignonette, 12 bun.	1 0 3 0
Bouvardias, per bun.	0 6 1 0	Pansies, 12 bunches	1 0 3 0
Caranations, 12 bun.	3 0 6 0	Polyanthus, per 12	0 9 1 0
Conflowers, 12 bun.	1 6 3 0	Roses, Tea, per doz.	0 9 2 0
Daisies, common, 12	0 4 0 0	— red, per dozen	0 9 1 0
Eucharis, per dozen	2 0 4 0	Pyrethrums, 12 bun.	2 0 4 0
Forget-me-not, or	0 6 4 0	Roses, Tea, per doz.	0 9 2 0
Myosotis, 12 bun.	2 0 4 0	— red, per dozen	0 9 1 0
Geraniums, 12 blooms	2 0 4 0	— outdoor, 12 bun.	2 0 6 0
Stapholite, 12 sprays	1 0 2 0	Sweet Peas, 12 bun.	1 6 3 0
Heliotrope, 12 spr.	0 6 1 0	Sweet Sultan, 12 bun.	3 0 4 0
Jasmine, white, bun.	0 6 0 9	Tropaeolum, 12 bun.	1 0 2 0
Lupinus, red, 12 bl.	1 0 2 0	Tuberose, 12 blms.	0 4 0 9
Lilium longiflorum,			
12 blooms	4 0 6 0		

SEEDS.

LONDON: Sept. 22.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., state that the seed market to-day exhibited no fresh feature. There are still some small orders dropping in for Trifolium. The supply of winter Tares on the spot is short; values are unaltered. Many of the samples of new white Mustard now offering are in poor condition. Rape seed fully maintains late rates. Less money is accepted for Hemp seed, the tendency of values continuing against holders. Canary seed sells on former terms. Blue Peas are cheaper. Some choice New Zealand Cocksfoot is now obtainable on moderate terms. Feeding Linseed is steady.

CORN.

MARK LANE: Sept. 20.—Of good white English Wheat, offered at 34s., red at 32s., merely retail quantities were taken off. In foreign Wheats there was barely enough business to establish quotations, but the tendency was adverse. Part of the large arrivals is being sent to granary from lack of demand. Flour was difficult to sell at 6d. decline. Good malting Barley is firm from scanty supply. Ordinary sorts met no demand. Grinding Barley is barely supported on the spot, and a rather lower price has been accepted for arrival. Round Malt has declined 3d. on the spot, and is also easier floating. Beans are firm. Peas have a downward tendency. With large receipts, Oats were 3d. lower on the week for common qualities.

Sept. 22.—Trade was inactive. With merely retail sales of Wheat and flour, prices were nominally unaltered from Monday last. Malting Barley of good quality met inquiry, but common grades remained dull. Grinding sorts were quiet. Beans and Peas were quiet at late rates. Oats met a slow sale without further change in value.

Average price of corn for the week ending September 18:—Wheat, 31s. 3d.; Barley, 28s. 1d.; Oats, 18s. For the corresponding period last year:—Wheat, 30s. 10d.; Barley, 31s. 1d.; Oats, 19s. 2d.

FRUITS AND VEGETABLES.

COLUMBIA (East London): Sept. 22.—Large consignments of all kinds of fruit and vegetables arrived, and were readily disposed of at moderate prices. Quotations:—Damsons, 2s. 6d. to 4s. 6d. per bushel; Plums (black), 2s. 6d. to 3s. 6d.; Peas, 2s. to 4s. 6d. do.; Apples, 2s. to 4s. 6d. do.; Scarlet Beans, 1s. to 2s. per sieve; Vegetable Marrows, 2s. 6d. to 3s. 6d. per tally; Cabbages, 2s. 6d. to 3s. 6d.; Greens, 2s. to 3s. per dozen bunches; Onions, 2s. to 2s. 6d. do.; Carrots, 1s. 6d. to 2s. do.; Turnips, 1s. 6d. to 2s. do.; Parsley, 1s. to 1s. 6d. do.; Onions, 70s. to 80s. per ton; Carrots, 35s. to 40s. do.; Mangels, 17s. 6d. to 22s. do.

STRAFORD: Sept. 21.—The market has been well supplied during the past week, and a brisk trade was done at the undermentioned prices:—Cabbages, 3s. 6d. to 4s. 6d. per tally; Cauliflowers, 2s. to 3s. per dozen; Turnips, 2s. per dozen bunches; Mangels, 20s. to 22s. per ton; Onions, 2s. to 2s. 6d. per bushel; Apples, 2s. to 2s. 6d. do.; Watercress, 6d. per dozen; Tomatoes, 1s. 6d. per dozen lb.; Plums, 1s. to 1s. 3d. per half-bushel; Peas, 1s. to 2s. per bushel; Damsons, 1s. 6d. per half-sieve; Orlean Plums, 1s. 6d. to 1s. 9d. do.; Celery, 10d. to 1s. 3d. per bundle.

POTATOS.

BOROUGH AND SPITALFIELDS: Sept. 21.—The bulk of the supply consisted of second and inferior qualities, which were very dull of sale. Best samples met a fair demand. Quotations:—Kent Regents, 50s. to 60s.; Essex, 45s. to 70s.; Hebrons, 70s. to 90s.; Early Rose, 50s. to 70s.; and Magnum Bonum, 50s. to 80s. per ton.

COLUMBIA (East London): Sept. 22.—Magnums, 40s. to 70s.; Regents, 60s. to 65s.; and Victorians, 50s. to 55s. per ton.

STRAFORD: Sept. 21.—Magnums, 45s. to 65s.; and Regents, 55s. to 65s. per ton.

Government Stock.—Consols closed on Monday and Tuesday at 100½ for delivery, and 100½ for the account. The final quotations on Wednesday were 100½ for delivery, and 100½ for the account. Thursday's final record was 100½ for delivery, and 100½ for the account.

GREENHOUSES, VINERIES, RANGES, CONSERVATORIES, FORCING HOUSES, &c.

Constructed with the latest horticultural improvements to the most artistic designs, of the best materials, at the lowest prices. THE EFFICIENCY OF ALL WORK, INCLUDING BOILERS AND HEATING APPARATUS, GUARANTEED. Illustrated Catalogues, Designs, Plans and Estimates free of charge.



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THE NEW PATENT TUBULAR
COMBINATION STAKE
AND CLIP,
For Trees, Roses, Dahlias, &c.

(CARTWRIGHT'S PATENT.)

THIS PATENT STAKE AND CLIP is at once simple, effective, durable, economical, and safe. It does away with the necessity of tying with string or grass; and when once the tree is fixed in position it is utterly impossible for it to get loose again by the action of the wind or weather; in fact, it must remain fixed in position until the gardener himself loosens it. Does not harbour insects and their eggs as do string and cloth.

The Stake itself is a wrought-iron tube, and is made in various lengths, from 3 feet up to 7 feet 6 inches.

The Spring Clips are supplied in various sizes, of 1, 1½, and 2 inches across the ring when shut, and are coated with soft indiarubber.

Light Brass Caps are also supplied when required. These Caps are fixed on the top of the tube to keep the rain and earwigs, &c., from getting in it.



We can also supply these

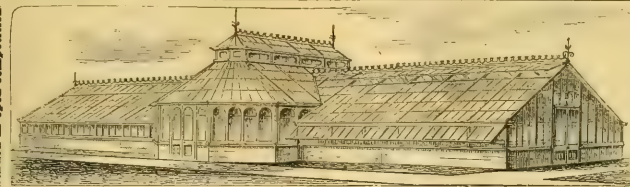
STAKES ADAPTED FOR RASPBERRY CANES
WHEN GROWN IN CLUMPS.

These Stakes are supplied with two large Wire Clips, one on each side of the Stake, as shown in sketch.

MAY BE OBTAINED FROM ALL SEEDSMEN, &c.

Wholesale from CORY, SOPER, FOWLER & CO. (Limited), London; OSMAN & CO., London; BENJAMIN FIELD, Swan Place, Old Kent Road, London, S.E.; or, from the Manufacturers THE PLASKYNASTON TUBE COMPANY (Limited), Ruabon.

Five 1st Prize Medal recently awarded in open competition



Five 1st Prize Medal recently awarded in open competition

R. HALLIDAY & CO.,
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ROYAL HORTICULTURAL WORKS, MIDDLETON, MANCHESTER.

Vineries, Stoves, Greenhouses, Peach Houses, Forcing Houses, &c., constructed on our improved plan, are the perfection of growing houses, and for practical utility, economy, and durability cannot be equalled. We only do one class of work, and that THE VERY BEST.

Conservatories and Winter Gardens designed architecturally correct without the assistance of any one out of our firm, from the smallest to the largest. Hot-water Heating Apparatus, with really reliable Boilers, erected, and success guaranteed in all cases. Melon Frames, Sashes, Hotbed Boxes, &c., always in stock.

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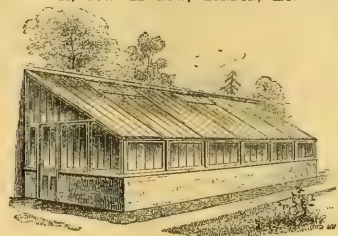
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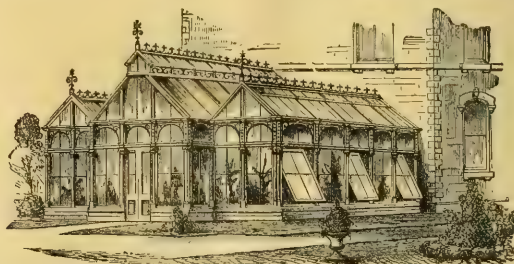
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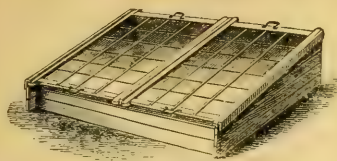
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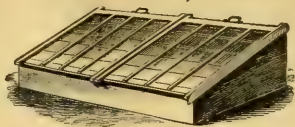


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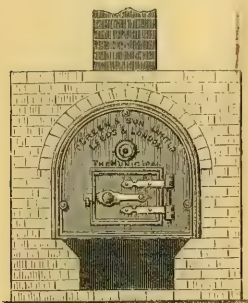
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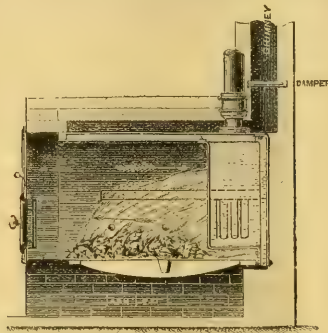
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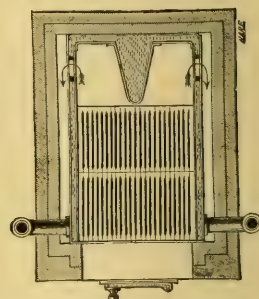
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THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 2, 1886.

THE WEALD.

[The Weald as it was and as it is.—Messrs. Cheal's nursery at Crawley—Its principal features, Parade beds—Rockwork—Dahlias, single and double, Cactus, and pompon—Repulsive conduct of the bees; out of evil cometh good—*Clacius à son goût*—The reason why—Principles of variation—Unravelling the pedigree—Alleged constancy of some characters, variation of others, selection and no selection—Philosophy in the study and in the garden—Fruit trees, cordons—The most of the best from the least—More philosophy—The results of sharp practice, a full fruit-room—Progress, its promotion and hindrance.]

THE casual traveller traversing the Weald of Sussex by means of the Brighton line of railway at the rate of fifty miles an hour, or the same individual overlooking the district either southward from Red Hill or northward from the Brighton Downs, would, in all probability, arrive at very erroneous conclusions as to the true nature of the country. Probably he would look on it as, on the whole, flat. A clay soil, with frequent swamps and abundance of timber, principally Oak, would strike him as the predominating characteristics of the district. If he passed through a tunnel, in all probability he would, without paying special attention to the matter, and remembering the proximity of the South Downs, say off-hand that it was a chalk tunnel. Like most general conclusions arrived at from partial and incomplete observation, these would be tinged with a strong infusion of error. Clay there is, swamps there are, Oaks abound, the Brighton coach road is for miles almost as flat as a billiard-table, though now more frequented by bicycles than by coaches. But until the traveller makes use of his own natural method of locomotion, or avails himself of that furnished by a horse, he will have little idea of the many ups and downs, the steep ascents and sharp descents of this old forest country of Anderida. Still less opportunity will he have of familiarising himself with those warm, dry, and yet moisture-absorbing sandstone rocks, which he may have associated with Tunbridge Wells, but which he had not connected in his own mind with the Wealds either of Kent or Sussex. In truth the Weald, the broad tract between the North Downs and the South, which seems so uniform in its character when looked at from a distance, consists of two very distinct portions, each marked by its own special characteristics. There is the Weald clay, heavy, cold, stubborn, waterlogged, flat, and low-lying. Sometimes it is more or less mixed with sand, and then forms a fertile Rose-growing, Wheat-producing soil. There are, again, the Hastings Sands, beds divided into numerous subdivisions, high-lying, sandy as the name implies, rocky and pictorial; woods and undergrowth abound; large parks are numerous, villages are small, towns, except along the line of rail, do not exist; cottages are few and far between. The villages are often on the top of the hills, as if originally to secure immunity from the ill-drained swamps below,

or to insure protection against forests marauders of all kinds. A wolf or a wild boar would not be such a very extraordinary apparition in this locality. There must have been plenty of them once in the "wald," "weald," or forest. An iron furnace in full blast would seem out of place now-a-days in this situation, and yet it is not so very long ago that ironworks were in full operation in this now quiet, sylvan, and thinly-peopled district. Who can tell whether by some strange revolution all this may not one day again be changed, and iron smelting again form a staple industry of Sussex? There is the wood and there is the iron, and stranger things than this have happened. But it is no part of our business to speculate on what may be, though the temptation to say something of what has been becomes almost irrepressible when passing through such scenery.

Let us wander too far, however, it is as well to say that our object in penning this article is to say something about a branch of industry comparatively recently established in this district, but to such good purpose that its promoters have achieved a well-earned reputation; and, judging from appearances, there is every chance of its increasing as time goes on. Messrs. Cheal's nursery at Crawley is on the low-lying part of the district. Part of the site once formed part of a common. Common land and poor soil often go together, but it is not quite so in this instance; the loamy soil here seems to suit fruit trees and Roses to perfection. Many Conifers do well; Rhododendrons thrive; deciduous shrubs seem quite at home. A long border faces the high road, where trees and shrubs, graceful Pampas-grass, fern Trifoliums, bright Phloxes, and glowing Fire King Dahlias, are arranged on parade to attract and, it may be, to tempt the passer-by. Branching off at right angles is a long green way, turfed in the centre and bordered on either side by a selection of choice shrubs, deciduous and evergreen, intermixed with gay flowering plants,—also a parade ground. This method of arranging plants is the one most commonly adopted in nurseries, and experience proves, what common observation suggests, that it is the simplest and readiest way of bringing under the notice of the visitor the distinctions and comparative merits of particular plants. Messrs. Cheal, however, do not rely exclusively on this mixed border system. Groups arranged for effect are as likely to attract the visitor, and are more useful to the intending planter than the more formal linear disposition.

A rockwork lately established by Messrs. Cheal affords in its way an illustration of the grouping system. It is at present on a small scale, and has not been long established, but enough may be seen to show how attractive and beautiful a feature it will become. The design is simply a low undulating bank with a small piece of water at the base, and overlooked by a steeper bank on the opposite side which projects like a promontory, and is capped by a rustic summer-house. The conception presents no very original feature, but, as carried out by Messrs. Cheal, it adds an element of much beauty to their establishment, and at the time of our visit it was radiant with bloom, and impressed us with the care that had been exercised in the selection of the plants, due attention having been paid to balance, proportion, and contrast in point of form and size—matters in which the amateur, if unguided by the practical experience of others, is very apt to go astray.

Messrs. Cheal are largely engaged in landscape gardening works and in planting operations. Their nursery accordingly is largely occupied with the usual furnishing stuff in every variety of ornamental and useful trees and shrubs, and it was a pleasure to see symptoms of a revival of taste for the better class of flowering shrubs and ornamental trees which have been too much neglected of late years. The increasing demand for forest trees, as well as for those of a more strictly ornamental character necessitates more space, and so we find Messrs. Cheal, like other successful nurserymen, covering acre after acre with new plantations, and turning the steam cultivator to account, thereby securing an advantage over trenching in efficiency, rapidity, and economy. Without occupying space with details that may be seen in any nursery, more or less, we may more advantageously allude to some of Messrs. Cheal's specialties, and in particular to the Dahlias and fruit trees.

SINGLE DAHLIAS.

Although, just previous to our visit, there had been a touch of frost which had somewhat injured some of the flowers, it was not sufficient to interfere with the general effect. The single Dahlias in particular were very varied and very beautiful. Seen from a little distance they resembled a mosaic of brilliant, harmonious or contrasted colours. Moreover, there was an appearance of selectness and refinement about them, contrasting rather forcibly with the ungainly form of the "lumpy, inelegant" ones in other quarters of the ground, and an appearance which reflects credit on Messrs. Cheal's taste in selection. Bees tumble about in a state of hopeless intoxication over these flowers, and so effect numerous crosses. Out of evil comes good! If the bees did not indulge their natural appetite to such excess, we should probably not have so many beautiful Dahlias; but this is a matter of ethics that we do not feel called on to deal with, which is the more fortunate, seeing our inability to do so. At any rate, whether by accident (so called) or by design, Messrs. Cheal raise numerous seedlings which are here tried. A large proportion are found wanting, and are rejected accordingly. A glance over the reserved collection of named and unnamed varieties suffices to show that the qualities Messrs. Cheal aim at, consciously or unconsciously, are profusion of flowers, evenness of form, purity and brilliancy of colour, combined with medium size. Some flowers are flat, others slightly recurved, the best with broad petals and with a luminosity of colour unsurpassed unless it be by the Forget-me-Nots and Gentians of the Alps. But the raiser has to consult various tastes. There are some who admire the form of double Dahlias, there are some—and we are told these are principally ladies—who prefer muddy tints to the rich purity of colour which delights others. This we suspect is a relic of that æstheticism (so called) which we should qualify by the affix nonsensical, but that it is a caprice that is rapidly dying out.

Among the finest varieties, new and old, at the end of September we may mention the following, classifying them according to colour. By large we here mean a flower 3 inches across and upwards; by medium, one of 2–3 inches; by small, one less than 2 inches; but the size, of course, varies according to season and other considerations—we merely speak of things as we find them.

WHITE.

Alba perfecta.—Remarkably distinct in foliage, the segments, or some of them, are unusually tapering at the base. Flowers large; rays spreading oblong-ovate; good form.

Mr. Tait.—Medium-size; white, with fringed petals.

YELLOW.

Primrose.—Stem hairy. Leaves coarsely toothed. Bracts very long. Flowers large; rays oblong, somewhat pointed, clear yellow.

Alfonso.—Stem slender, purple, glabrous. Leaves coarsely toothed. Flowers large; rays flat, broadly obovate, fine canary-yellow of

Mr. Hawkins—yellow shaded with pink.

ORANGE TO RED.

Sunset.—Stems slender, purple, glabrous. Flowers medium; rays yellow deepening into orange-red.

Helena.—Stems purple. Flowers large; rays reflexed, rounded, luminous yellow shading off into pinkish-brown or red.

Beauty of Upland.—Leaf-segments ovate-lanceolate, coarsely toothed. Flowers large; rays flat or reflexed, orange-red with a spot of yellow at the tip.

Picta formosissima.—Orange, with marginal stripes of a deeper colour.

Edith.—Stem slender, glabrous. Leaves coarsely toothed. Flowers large; rays flat, oblong-obovate, spreading, orange shaded with crimson: disc small in proportion to the rays.

Mr. Kennett.—Stem glabrous, stout. Leaf-segments ovate-lanceolate. Flowers large, of good form; rays flat, reflexed at the ends, yellow, variously striped and marbled with orange and red stripes.

Formosa.—Leaf segments very pointed. Flower medium, of good shape; rays reflexed, rich velvety brown-red.

Benjamin Barkway.—Stem hairy, purple. Leaf segments acuminate. Flowers medium to large, of good shape; rays flat or cupped, dark.

ORANGE-RED.

Enchantment.—Stem purple. Leaf-segments broad, acuminate. Flowers medium, of good form; rays shining red, yellow at the base.

DEEP RED.

Acquisition.—Leaf-segments coarsely toothed. Flower medium to large, finely shaped; rays reflexed, rich deep velvety-red.

Cleopatra.—Leaves very coarsely toothed. Flowers medium, of good form; rays rounded, reflexed, rich velvety brown-red.

Negress.—Leaf-segments narrow. Flowers medium to large; rays deep velvety brown-red.

Negro.—Very dark purplish-brown, similar to Negress, but better in form.

LILAC TO MAROON.

Lady of the Lake.—Leaf-segments acuminate. Flowers large, bracts very long; rays oblong-ovate, white at the base, lilac at the top.

Miss Linaker.—Stem purple, slender; leaf broadly ovate acute entire (!). Flowers large; rays spreading, oblong, deep lilac, yellow at the base.

Mrs. Cotton.—Stem slender, leaf-segments very pointed. Flowers medium; rays rounded, pale lilac, margins white.

Union Jack.—A federal union this, in which each unit does as it seemeth best to himself, but at the same time is inseparably linked to its fellows. This is a sort of Harlequin or Proteus flower, which would lead a strict florist to say "shocking," but which is not only pretty, but interesting. The plant has a glabrous purple stem, with ovate entire leaf-segments. The flowers are of medium size, and seem to produce every variety of colour, from white through various shades of lilac, magenta, maroon, reddish-brown, purple, and that very deep purple-brown which passes for black. These colours are distributed very differently in different flowers, but it is interesting to note that where there is a difference it is always the central part of the rays, which is lightest in colour, the darkest portions being at the margins. We have a theory to account for this, but it involves too many technical considerations for us to inflict upon the reader in detail, besides it is a mere speculation; suffice it to say, the ray consists of three petals in combination; the one in the middle in such cases is apt to be restricted in its growth and development by the outsiders which have more room in which to develop.

Magpie is like Union Jack, but has more lilac in the flowers.

Paragon is one of the purple-stemmed varieties; its beautiful flowers are too well known to need description.

Amos Perry also has the stem of a purple colour, with very long-pointed leaves, and very long bracts. The flower is large, of a rich maroon colour; the rays rounded and overlapping.

We might enumerate many more, but we must hold our hand, and content ourselves with saying that the tubers are started under glass in 5-inch pots, and planted out at the end of May, when fear of frost ceases to trouble. A rich soil is not desirable, as the tendency to grow too rampantly would thereby be too much encouraged.

SHOW AND FANCY DAHLIAS.

In these, in spite of the unsightliness of their form, the range and purity of colour are as remarkable as in the case of the singles. The flowers had suffered more from the frost than the single ones, but were still very showy. *Gaiety*, a pink-tipped form, measured no less than 6 inches across; *Mrs. Gladstone*, a pale rosy-lilac with a flush of primrose, pale in the centre, is exquisite in colour; *Prince of Denmark*, a very dark self, is of good form; the same may be said of *Shirley Hibberd*, but that variety is said to open its eye too soon, and to keep it in that condition too long. Our friend is a keen critic; was it some wag of a raiser who had his reasons for so naming this Dahlia? Mr. Harris is magnificent in this rich luminosity of colour. Then there are the show Dahlias, and the Cactus Dahlias, and the pompons, but we shall never have done, and our notes are getting mixed. Whether *Fair Helen* or *Guiding Star* be the best white for cutting, our notes do not quite enable us to decipher. Moral for the readers' benefit—Go and see for yourself, or, if that be not possible,

then—but this, though the next best thing to do, is a far inferior plan—send for a catalogue.

PRINCIPLES OF VARIATION.

Before we leave the Dahlias, it is allowable to allude to a matter of great interest to those who want to know the reason of things, and those that do not lose half the charm of a garden. This is the matter: Suppose we wished to ascertain the origin and parentage of the Dahlia—suppose, we say, for the fact that this particular matter is known does not affect the significance of our illustration. Our postulate, therefore, being granted, we should not look to the testimony of the flower in the first instance, because, what between the bees and the raisers, the variation is extreme, and the selectors have picked and chosen what suited them. But this picking and choosing has not, at least not to anything like the same extent, been practised in the case of the foliage. Here, then, is a point, say the philosophers, wherein the genealogist in working out a pedigree, and tracing back the ancestry, may the more safely trust; let him in such case look to the leaves. Alas! for the theory, it may be all right—we believe the principle is right enough in the main—but it will not apply in the case of the Dahlia, wherein (barring colour) there is almost as much variation in the foliage which has not been specially selected as there is in the flowers which have been selected. From what has been said above there is, independently of height, which may have been influenced by selection, great variation in the colour and hairiness of the stem, the form of the leaf-segments, the size and shape of the deflexed bracts below the flower, and other matters which are indifferent to the cultivator, or which at least have not been expressly selected. A similar thing holds good in the case of the Potato. Few people of set purpose pay much attention to the haulm. It is the tuber which is the general object of their choice; but, while the tubers vary very much, the haulm and the foliage are very far from being exempt from variation. "This same philosophy is a good horse in the stable but an arrant jade on a journey," says Goldsmith. Inference—philosophers must not confine themselves to books and dried specimens, but as the great master, Darwin, did, seek knowledge from the flowers themselves in field or garden, or, as Sir Thomas Browne has it, suck divinity from the flowers of Nature.

FRUIT TREES.

This is another department to which Messrs. Cheal have paid special attention, and one as fruitful (no pun intended) in interesting speculation and profitable research as the Dahlias—only more so! Our impression received rather a shock at Crawley. We have read and had to write statements that Apples are "thin" this year. Perhaps so, but there are some exceptions, that is obvious. Here Colonel Vaughan, described as a good market Apple, which never fails to give a crop, is weighted down with an enormous crop, while Nanny, a Sussex Apple of medium size, pretty colour, and rich flavour, would certainly groan, if she could, under the weight of the crop. It is interesting to see how much a tree can bear, but the interest becomes almost painful to witness when one sees such a burden as this. These two trees were standards of considerable size, the boughs, however, being anything but standards just now.

CORDONS.

The cordons form, however, the chief feature in this nursery. How many there may be ready for emigration, how many in process of training the way they should go, we really cannot tell. How many budded on the Crab, how many on the Paradise, how many Pears on the free stock or on the Quince, how many Plums on the Plum stock or on the Myrobalan—the latter stated to be well-nigh blight-proof, how many Morellos, we fear to say. There are some figures in our note-book, jotted down as we walked along the quarters, but we fear to quote them lest we should be accused of exaggeration. Any way, this we may say, they are not only extremely numerous, but beautiful samples—clean, healthy, even, well grown, furnished to the bottom with fruit-spurs, and not a few, though mere infants, bowed down to the ground with the weight of produce. On a two-year-old cordon of Colonel Vaughan we counted two dozen Apples, and in some instances we saw fruits on yearling plants—some sorts more so than others, of course. It may be taken for granted that the sorts grown include the best of their kind, and Messrs.

Cheal and their fruit manager take special pains to be accurate in their nomenclature. The wonderful facility possessed by the managers of such establishments of recognising sorts from their wood and foliage alone is a faculty which makes botanists envious.

The best exhibition fruit, as a rule, is gathered from the cordons—a fact confirmed by the birds, which are particularly attentive to the cordons unless prevented by netting or other devices. The fruits are stored in a neat well-constructed fruit-room, to such purpose that, as late as June 15, no fewer than fifty-five varieties of late Apples were exhibited by Messrs. Cheal. In one quarter of their grounds Messrs. Cheal have arranged an experimental plot consisting of rows of stakes supporting horizontal wires at intervals, the width from row to row being just sufficient to allow any one without a dress-improver to pass. On these wires are trained Apples, Pears, Cherries, mostly as diagonal cordons. The object is to show how the maximum of produce can be obtained in the minimum of space. At the same time the space is so restricted that protection from frost by light netting thrown over the top is easily effected, while if growth be too rampant, this over-tendency to form wood can be restrained by root-pruning. But cordons are all over the place—against walls, covering boarded fences, bedecking archways, edging the quarters. Some of these cordons are budded, others grafted, the latter being preferred where a double cordon is wanted, for while the bud yields a single branch the first year, two are obtained from a graft. For forming diamond cordons this plant is obviously well suited. In these cordons the fruit is borne on or close to the main stem. Now the bark of this main stem is the great storehouse wherein food and nutritive matter concocted in or by the leaves is stored up. Of course it is stored up in the branches also, but obviously there must be more in the stem, so long as it is not enfeebled or degenerate from age, than in the branches, and so the individual fruits in these cordons are proportionately finer and of better quality than those on standards. This much is proved by experience, and fits in with theory very nicely, but there is one point of practice about these cordons not so easily understood at first glance. Messrs. Cheal are emphatic in urging that in planting a cordon the tree should not be beheaded, but that the leader should be nailed on or tied to the wire and allowed to grow to the full extent required. Thus, say they, the lower part of the stem becomes furnished with fruit spurs, while, if the leader be shortened, the new growth assumes the form of wood-buds. And when the little cordons are well set with fruit spurs from the base upwards before planting they may afterwards be maintained in a fruiting condition by appropriate pruning. This pruning is effected in July, when the fore-right and lateral shoots are cut back to within two or three eyes of the last pruning, and the process is repeated in September. Whatever be the explanation the facts are obvious—the cordon Pears and Apples are furnished to the base with fruit spurs, and any aspiration that the tree might naturally have to form a trunk and air its leaves is brought into subjection by the use of dwarfing stocks and judicious pruning at the right season with root-pruning if necessary as a last resource. We ought to add that the selection of sorts is a matter of importance, for while some are complaisant and do what the trainer wants them to do, some are recalcitrant and refuse to comply with his wishes. After seeing what is accomplished we can only infer that ignorance is the obstacle to the non-accomplishment of the desired result in other cases, and that ignorance the intelligence and the daily accumulating experience of the growers and trainers are daily replacing by knowledge. Nescience gives place very readily under such circumstances to science. *The Rambler.*

GERMINATION OF SEEDS OF THE VINE.—M. Nobby has ascertained that the number of seeds which germinate is proportionately small, and that the process of germination occupies weeks and even months. The seeds of the best varieties germinate less freely than those of commoner kinds. Ripe seeds freshly taken from the berries germinate best: drying of the seed diminishes the germinating power. There is no advantage in heating the soil to 18° or 20° C. (68° F.). A slight fermentation in the pulp acts favourably, but the same operation if continued for six days destroys the germinating power. The best temperature for germinating Grape seed lies between 12° and 15° C.

THE LAST OF SPIRANTHES ROMANZOVIANA.

GLAD indeed was I to see that, although no British botanist has publicly expressed a word of regret regarding the probable extermination of *Spiranthes Romanzoviana*, a distinguished foreign botanist, in the person of M. Naudin, of the Antibes Botanic Garden, has not only done so, but kindly offered practical suggestions for the future preserving of our rarer floral treasures. No doubt Mr. Naudin's idea for the preservation of rare plants by transferring them to private gardens or other safe grounds is excellent, and has already received attention in this country; but an equally good, if not indeed better plan, when we consider that rare plants are usually difficult to cultivate, is to try and by some means or other preserve them in their native habitats. That this is readily enough done will be pointed out further on, but first of all, with reference to the editorial remarks on the note I have already written (September 11, p. 340), allow me to explain, that by securing was not meant purchasing, the piece of ground on which the above plant grew, but simply securing or guarding it against molestation either by tillage or improvement, and which could have been readily enough done by a simple request from the persons I quoted. I much fear, however, now that you have expressed a doubt whether the Kew authorities could advantageously interfere in such matters, that but little interest will be taken in the preservation of our native flora, for if they, in the Botanic Garden of Britain, and from which have emanated our standard works on the British flora, can stand aside and see our rarer native plants becoming exterminated, well may other less interested persons imitate them. To say that a simple request from the Director at Kew to the owner of a piece of ground on which any rare plants grow to prevent this extermination, would be unheeded by any landowner in Great Britain or Ireland, I cannot think likely; and certainly a letter from that quarter would have greater weight than from any other I know of, and would neither occasion much loss of time or be attended with expense either. That such a plan would work well I will now give an example or two. Lately a request was sent to the agent, Mr. McIntyre, at Gwydyr Castle, in North Wales, and from a far less influential person in matters botanical than the head of the Kew Gardens, to save *Asplenium germanicum* and septentrionale from being totally uprooted, and a similar thing has happened not a mile from where I write. In the first instance, Mr. McIntyre caused it to be publicly notified that all trespassers in the grounds where the two plants grew would be prosecuted, and gave orders for a watcher who lived hard by to see that the order was stringently carried out, else by this time both these rare Ferns would have been things of the past in the Vale of the Conway. The other case I refer to was an old building on which grew a few specimens of a now nearly extinct British plant, and which were fast becoming less and less in number by the too pressing attentions of botanists and collectors; but, happily, this is not the case, for the agent of this particular farm was acquainted with the fact, the farmer asked to preserve it, who willingly complied with the request a long time ago. Judging from the rate at which it was disappearing, the individual specimens would either have been few and far between, or completely carried off.

Now I would suggest that Government empower some influential person in matters botanical, and I can certainly think of none better than the head of our botanic garden at Kew, to ask, as a favour or otherwise, the landed proprietors on whose estates rare plants grow to look after such; and even if it be found necessary, that a small sum be paid as compensation to the farmer on whose grounds a rare plant grows, to preserve it from extermination either by land tillage or at the hands of collectors.

Such might, perhaps, hardly have been necessary had the managers of our various botanic gardens acted in cases of this kind as Mr. Naudin has done in France. As something ought sooner or later to be done to prevent plant after plant being lost to our flora, suggestions from some of your correspondents who can devise a better plan than that set forth would certainly be of great value.

There is a chance, as Mr. Naudin suggests, of the *Spiranthes* again appearing in the cultivated ground, not, I fear, in the Potato ground, as he suggests, for that will be tilled for some green crop next season,

but in the portion devoted to corn, as that will, according to the usual rotation of crops, be under grass next year.

Arrangements are, however, being made for the ground to be searched, and likewise an appeal made to the owner to stay further cultivation of these particular fields, so it is to be hoped that the sweet little *Spiranthes Romanzoviana* will reappear, and perhaps little the worse for the trying ordeal through which it has passed.

In conclusion, I may inform you that there is no chance of Mr. Burbidge's specimen, from which your drawing was made, either increasing or multiplying, for when dormant it was thrown on the rubbish heap by an assistant gardener, who was unacquainted with the contents of the pot in which it grew. There are, however, four healthy specimens just now in my garden, perhaps the only remnants of the Cork plants, and for which I have to thank Mr. Gumbleton, of Belgrove. Let us hope that long may live and flourish in private, in "wild, wild Wales," the little plant that was "evicted," as you well put it, from its only known European station in the Emerald Isle.

This *Spiranthes* was discovered by Mr. J. Drummond, on August 3, 1809 or 1810, and is referred to in his original journal as follows:—"The following day I spent on Bear Island; I found nothing new upon it, but I found a very curious species of *Ophrys*, which I believe to be new, upon the mainland opposite the western redoubt, growing in a salt marsh near the shore; it was in very small quantity, I only found two specimens." No native plant has, perhaps, occupied the attention of botanists so much as the one in question. Both Lindley and Babington wrote special memoirs of it; Bentham contributed a paper on it: Smith got into trouble over its nomenclature—indeed, at the present time, botanists are still disputing over its name; while Gray, Darwin, and hosts of other eminent persons, have had more or less to say regarding its history. It was at one time cultivated in the Cork Botanic Garden, where it did well until rats put an end to its existence by eating the tubers. *A. D. Webster, Llandegai, Bangor, North Wales.*

Orchid Notes and Gleanings.

ORCHIDS IN THE OPEN AIR.

A. H. SMKE, Esq., The Grange, Charlshon, whose experiments in this direction we fully noted last year, has experimented still more largely and successfully this summer. A general collection of *Masdevallias*, about 200 *Odontoglossums*, most of the *Lycastes*, many *Dendrobies*, *Oncidiums*, and an interesting collection of other Orchids have grown most vigorously in "My Garden" on the stages placed over the shady rivulets, many of the plants flowering there. *Odontoglossum madrense* and *O. ciriosum*, which most growers affirm want warmer treatment than *O. crispum*, have strangely enough done the best of all in the open air in summer, the former being sturdier and greener than it comes indoors, and furnished with a stout spike of flowers. *O. ciriosum* also exhibits vigour of root bulb and leaf not to be surpassed.

BLERIA VERECUNDA, R. Br.

Adverting to the note on this plant in the *Gardeners' Chronicle* of July 31, I may mention that this plant is generally distributed throughout the island of Jamaica, and I here offer a few notes which may be of assistance to British cultivators. The plants flower in profusion during the months of May, June, and July, and though sometimes found growing at lower altitudes, finds its most congenial home at elevations of 3000—4000 feet above sea-level, elevations represented by a mean annual temperature of about 65°—70° Fahr. The leaves are deciduous, and the flowers are produced on spikes borne on a peduncle some 24 or 30 inches in length, arising from the side of the naked tuber. It is found in best condition on sunny banks, where the rock is covered with only a slight layer of earth, and in positions where, in the season of growth, it receives an abundance of water, which can never become stagnant, on account of the sloping character of the ground. At times these places are well scorched by the sun, and become so

dry as to give the tubers quite a shrivelled appearance. The two latter facts, coupled with the proper temperature, will, I think, plainly indicate to cultivators the method of culture to be pursued to grow the plant successfully. *J. H. Hart, Gordon Town, Jamaica, Aug. 31.*

GUNNERA SCABRA.

OUR illustration (fig. 85) gives a good idea of the extraordinary vigour of this plant as seen growing this year in Sir Charles Nicholson's gardens at The Grange, Totteridge. The plants—for there are several of them—grow on the edge of a small pond at the bottom of a slope and alongside of a path; and the roots, although in a moist position, do not come into contact with the water. The leaves grew this season to about 7 feet in diameter; the first, which were destroyed by frost, had they remained uninjured would probably exceeded this measurement. The flower-stalks, of a greenish-brown colour, studded eventually with small orange berries, were about 3 feet in length, and are found lying prostrate on the ground. The plant is not quite hardy, as was proved by the loss of two unprotected roots by frost last winter.

The best protection for the root-stock, which resembles that of the *Rhubarb*, is a thick covering of fresh tree leaves kept in position by sods. The *Gunnera* can be increased by seeds or divisions, and provided the soil is rich and moist, they are of the easiest culture.

Associated with the *Gunneras* were specimens of *Heracleum giganteum*, also with leaves of enormous dimensions, and flower-stems that reached heights from 12 to 15 feet; the whole group being exceedingly tropical in its exuberant appearance.

It may be said, as a warning to those inclined to grow the last-named, that it is a free-seeder, and can become a most determined intruder in dressed grounds.

DWARF TREE CARNATIONS.

THESE most valuable of winter-blooming plants form an interesting and instructive feature at the Messrs. Hooper & Co.'s nursery at Twickenham. The kinds grown are chiefly of French origin, and seem to possess a dwarf compact habit, so very diverse in character from what are usually seen in our ordinary Tree Carnations. At Twickenham the plants are grown in the open ground in beds all the summer, and when I looked in at the nursery a day or two since the potting up of the layers from the beds for furnishing saleable stock during the winter was just completed, and the lifting and potting of the blooming plants had begun. The soil there is naturally light and sandy, and to encourage close home or ball-rooting, when the young plants—which, by-the-by, consist of the smaller potted layers left over from the winter—are turned out in the spring, it is the rule to drop a handful of turfy loam into the holes made to receive the plants, and into this rooting takes place more readily than into the looser natural soil. As evidence of this peculiar result, as also of the light porous nature of the soil, the manager, Mr. Bruckhaus, using his hand as a trowel, lifted out a fine plant and showed the cluster of roots which had formed about the handful of loam. All these plants—many hundreds of them, in fact, stocky, robust, carrying three and four stems and many buds, but all as dwarf, comparatively, as those in bloom, did not exceed 14 inches high—were being got into 48-sized pots, and then into a cold frame, where, shut close down and slightly shaded during sunny days, they soon become established and bloom finely all through the winter. Tree Carnations in this admirable state of development cannot well be said to need forcing, they simply want a moderate growing temperature with ample light and air to keep them in good bloom. Amongst the kinds grown were some few striking ones, which being on trial may not be mentioned now, but another year, when fully proved, very likely they will merit approval. It is worthy of remark that these French kinds show numerous lemon or yellow grounds, and much of that flushed or suffused coloration of petals which is now not so inaptly known as *terra cotta* hues. These seem even more beautiful in the winter than now or in the summer, the colours being more pleasingly displayed. All the same for general purposes, rich defined self colours seem the most valuable and useful. Of these, very beautiful even with the early blooms outdoors are *Mademoiselle*

Carle, pure white, capital habit, and free, probably the best white kind yet seen; *Irma*, beautiful clear rose, dwarf and free; *Souvenir de la Bruyère*, rich carmine, and robust in habit; *Raspail*, fine deep scarlet; Dr. Raymond and *Filata*, both very deep crimson, the former presenting a compact and free form of the old crimson *Clove*. Of parti-coloured flowers singularly pretty are *Belle Lyonnaise*, lemon ground, and having deep rose flakes; *Jeau Sisley*, dwarf and free, flowers creamy-white heavily flaked with reddish-scarlet; *Claude A. Comte*, lemon ground heavily flushed with magenta-red; *Zouave*, very robust habit, flowers white striped or flaked with scarlet; *Madame Masciault*, one of the *terra cotta* style, flowers pale yellow ground flushed with rose; and *Brisson*, very dwarf habit, and exceedingly free bloomers—flowers white flaked with rosy-scarlet. These comprise a selection of the more robust forms as seen in the open ground, but there are many others better known perhaps, and therefore less necessary to be mentioned here. It is possible that some which present more delicate habits in the open may, however, be good bloomers in warmth during the winter. There is one difficulty connected with Tree Carnations that does not occur with all other flowers. Their special value is found in their fitness for cutting to employ for buttonhole or bouquet purposes; hence, as the flowers are removed almost as soon as they are fully expanded, a show of flowers can only be found where some are specially preserved. It is not their capacity to produce showy heads of bloom, but rather their power to produce a long succession of flowers, which renders tree or winter blooming Carnations so valuable. Referring to those kinds found at Messrs. Hooper & Co.'s nursery the term Tree Carnations perhaps unfairly applies, because of their dwarf compact habit. No doubt the appellation, winter bloomer, is the more consistent term to apply and the more truly descriptive of their merits. *A. D.*

T O B A C C O .

THE following extracts are taken from a pamphlet written by Sir William Robinson, K.C.M.G., the Governor of Trinidad. We omit those portions which are of purely local interest merely expressing our hope that the West India planters will avail themselves of Sir William's suggestions, and of the many hints which have been given them by Mr. Morris, now Assistant Director at Kew, for the development of their resources. To Mr. Morris the Governor dedicates his pamphlet in the following strain:—

"In this short pamphlet I have endeavoured to popularise a 'Minor Industry' in which I have ever felt an unusual interest.

"I dedicate it to one who has done more than any other living man to foster the so-called 'Minor Industries' in Jamaica, and to direct the attention of residents in other West Indian islands to the absolute necessity of extending and developing agricultural enterprise."

The history of Tobacco in England is both interesting and somewhat amusing. As every one knows, or ought to know, we are indebted to Sir Walter Raleigh for this popular product. In 1585 he introduced it into England, and having an eye to business he persuaded "Good Queen Bess" to give him a patent for the possession of Virginia, from which excellent supplies have been, and are still, procured. The first Tobacco plant grown in Great Britain was imported from Virginia. Raleigh, not satisfied with his property in America, obtained from the Virgin Queen, in addition thereto, 12,000 acres of forfeited land in Cork and Waterford, on a portion of which the Tobacco plant was afterwards regularly cultivated.

Raleigh was a courtier—a gentleman of position and great influence—and it is not surprising that the habit of smoking which he adopted became very fashionable. We accordingly read in one of his biographies that the "ladies and great and noble men" of Queen Elizabeth's Court "would not scruple to blow a pipe sometimes very sociably." At Sir Walter's house in Islington he frequently entertained his guests with a "mug of ale with grated Nutmeg and a pipe," and I have no doubt that when in less prosperous times he was confined in the Tower of London, he had recourse to the grateful weed, though he may have been robbed of his beer. Elizabeth's successor, James I., "was a Goth," or, what to us smokers is the same thing, an anti-tobaccoist. He was dis-

gusted with the "precious stinke" of the pipe and cigar, and did his "level best" to put down the habit of smoking amongst his long-suffering subjects.

In 1604 (let this be a warning to colonial governors), in a most unconstitutional manner, without the consent of Parliament, he issued a warrant raising the tax on Tobacco from *2d.* to *6s. 10d.* for every pound value.

But if the memory of James I. is anathematised by all smokers, his action was absolutely mild when compared with that of Pope Urban VIII., and that of the King of Persia and Czar of Muscovy. The Pope threatened excommunication to all using Tobacco in churches—certainly an unseemly and intolerable practice, but the King and Czar forbade its use under pain of death, with the pleasant alter-

Camden, in his *Annals*, asserts that in the reign of the first Charles Tobacco was highly prized, "both as a recreation and a health restorative."

We smokers are much indebted to Lord Baltimore for the fillip he gave to Tobacco cultivation. In 1633 he emigrated to Maryland with 200 persons, who were specially encouraged to cultivate the industry which has been maintained there ever since. Great quantities were grown in England in the middle of the seventeenth century, but of course the psalm-singing Rump Parliament prohibited its growth. The smokers, however, were too strong for Cromwell, and also for Charles II., who, vicious as he was, might have permitted his loyal subjects to indulge in the little vice of smoking, if it is one.

efforts are being made to restore its cultivation in the United Kingdom. Truly it may be said, in reference to the "noxious weed"—*Tempora mutantur et nos mutantur in illis.*

Curiously enough, in the reign of George III. the practice of smoking was well nigh superseded by the practice of snuff taking.

With reference to snuff, at that period, Wesley, in his *Poems on Several Occasions*, observes:—

"To such a height with these is fashion grown
They feed their very nostrils with a spoon."

Latterly smoking has, in my opinion, been happily revived. It has found a steady supporter in the future King of England. Except with the object of securing



FIG. 85.—A BOLD FOLIAGE-PLANT: GUNNERA SCABRA AT TOTTERIDGE. (SEE P. 424.)

native of having the nose cut off for enjoying it in the form of snuff.

But these potentates could not stem the tide. James soon found this out, and, with an eye to the main chance, cannily changed his tactics. He saw there was "a tide in the affairs of man, which, taken at the flood, leads on to fortune," so he took to himself the pre-emption of all Tobacco imported. He also decreed, with a view of putting money in his purse, that only those holding his letters patent should be allowed to import.

It is perhaps not generally known that Charles the Martyr began his reign in 1625, to all intents and purposes, as a Tobacco merchant and monopolist. The fact remains, however, that all Tobacco not grown in Virginia or Bermuda was seized for his benefit, and that 50,000 lb. of Spanish Tobacco were bought by himself and resold to his subjects.

In 1660, by 12 Carl. II., chap. 34, Charles, simply to increase his own pocket money and to furnish means for his expensive habits, issued a legal prohibition against the cultivation of Tobacco. Smokers were not to be daunted, however. He could not put their pipes out, for the Yorkshire men pursued the industry with characteristic stubbornness, and, notwithstanding persecution and prosecution, Tobacco and smokers gallantly held their own.

In 1782 a descent was made on the York cultivators. All their stock of Tobacco was seized and publicly burnt, and the dealers were mulcted in penalties to the amount of £30,000. Even as late as 1831 were Tobacco cultivators harassed. William IV., of whom better things might have been expected, in that year prohibited its growth in Ireland. I think I am right in saying that at the present moment great

a good sneeze after dinner the somewhat unclean habit of snuffing is a thing of the past.

CULTIVATION.

For general information and guidance I would state from my own experience the following facts:—

1. Any ground intended for the growth of Tobacco should be cleared of bush by the end of July at latest. The bush should be cut as low as possible, and the stumps extracted if practicable.
2. Seed should be sown in the middle of the month of August and not all the year round as is probably now the case.
3. Every plant before being transplanted must have six leaves on it, and those leaves should be as large as a half-dollar piece before it is removed from the nursery.

4. When transplanted, a distance of 18 inches should be allowed between each plant.

5. Tobacco plants are sometimes attacked by insects in November. This, however, depends upon the state of the weather. The plants should be carefully watched, and the insects, if any, picked off.

6. As soon as suckers present themselves they should be ripped off; they will be found between the stem and the leaves. By this operation the vigour of the plant, which should not be allowed to flower, is increased, and the condition of the leaf improved.

7. Tobacco flourishes best on level ground, and red or reddish soil is preferable to any other. If the spot where it is cultivated is at all hilly, the northern portion of the ground will be best, as in that position the plants will suffer less than in any other from the rays of the sun.

8. Vegetable manure will be found an admirable fertilizer, and it will be necessary to dress the ground every two years, as the plant exhausts the soil very rapidly.

9. Care should be taken, in sowing the seed for transplanting, not to sow too thickly.

CURING.

10. The curing of Tobacco—and everything depends upon the curing—is a very delicate operation, and one requiring great care and attention. The most common practice, when the leaves are fit for gathering, is to cut the stems of the plants close to the ground and lay them on beds to dry until the evening. They should then be carried to a drying house, which should be thoroughly ventilated, laid in heaps to "sweat," covered with mats to keep in the heat, and left for several nights to soften and bleach. The leaves—and no more than twelve should be allowed to grow on each stem—should when supple be stripped from their stems, strung together on packthread and then hung across the drying house: sufficient room for the air to circulate among them must be allowed. When dry the leaves should, in damp weather, be placed on hurdles in heaps and left for a week or two. During this time the leaves should be frequently examined and turned with a view of preventing undue fermentation. When fermentation is complete the leaves should be sorted according to their different qualities, redried, tied in bundles and pressed.

11. It is necessary in the case of those intended for export that the bundles should be compressed into a solid mass and the air excluded from them.

12. In Jamaica, Cuban, Chinese and native labour is employed in the cultivation of the plant, but Cuban and Chinese labour alone is employed in the manufacture of the leaf into cigars.

13. The cultivation of two acres of Tobacco should cost about £30 and the average produce should be worth £80, leaving a nett profit of £50.

The Director of Kew Gardens informed me four years ago that with "proper methods of cultivation and preparation Tobacco might become a very important article of export from the British West Indies."

If any one should doubt the correctness of my rules let me say, though it may appear egotistical, that Sir Joseph Hooker observed that "Governor Robinson's excellent despatch" (from which they are taken) "rests leaves little room for further remark. It is of course desirable to obtain seed of good quality, though this is of less moment than careful attention to cultivation and preparation. Governor Robinson's statement that the finest Tobacco in the world may be spoiled by improper or inefficient curing cannot be too much emphasised." Looking to the fact that Spanish colonists in two distinct parts of the world, east and west, grow Tobacco with pre-eminent success, it certainly is difficult to understand why more should not have been done with it by British enterprise.

VINE MANURES.—As a result of observations made in Germany, it appears that superphosphate of lime increases the yield, hastens the ripening of the Grapes, and facilitates the ripening of the wood. Nitrogenous manures are useful when the Vine lacks vigour, otherwise they do harm by stimulating growth rather than fructification and maturity. Potash by itself is of no value, but when conjoined with phosphates and nitrogenous manure it is very serviceable.

Florists' Flowers.

PERPETUAL FLOWERING CARNATIONS.

This plants produced from spring-struck cuttings are now of considerable size. They are also showing their flower-buds, and as soon as cold, wet weather sets in, they ought to be removed to the drier, warmer atmosphere of the greenhouse or intermediate-house. During the recent hot weather greenfly may have attacked them; if so, they will be found clustering round the flower-buds; fumigating with tobacco-smoke will destroy them, and not injure any buds or open flowers. Some flowers, such as Pelargoniums, are much injured by smoke, but the most delicate glistering white Picotee is none the worse for repeated fumigations.

THE PINK.

By this time the young plants raised from cuttings (piping is the professional term) in July are now ready for planting out. This ought to be done this month before the soil is saturated with the autumn rains. The bed should be prepared by deep trenching and manuring; it ought to be 18 inches deep, but this depth must not be gained by throwing up bad subsoil to the top, and burying the best soil in the bottom. I write on the assumption that the ground has been trenched and trenched again until the surface soil and subsoil have been incorporated. It is very desirable to place 2 or 3 inches of prepared compost on the surface of the bed before planting.

Forcing Pinks should be large tufts by this time, large enough to be lifted and planted in 6-inch pots; for this purpose the compost used to repot the Carnations will answer admirably. The plants must be carefully lifted, with as many as possible of the roots attached, and any worms that may be lodged amongst them should be removed. Treat the plants the same as advised for Carnation plants until they are well established, when the lights may be drawn off night and day in fine weather.

PANSIES.

Now is the best time to plant out for spring blooming, and it is well to remember that the Pansy loves a rich soil and the careful hand of the gardener. Plenty of cow-manure and leaf-mould is what the Pansy delights in. The plants are also so very brittle—the least awkward touch, and they snap over at the neck. They are never safe until they are pegged down; this induces young growths from the base of the plants as well as from the point which will turn upwards at the peg. No more need be said about them, except to urge watchfulness, as the leather-coated grubs, slugs, and wireworms are all *connoisseurs* of the Pansy.

THE RANUNCULUS.

This is considered to be the best month in which to sow seeds. Sow in boxes of any convenient size, and 6 inches deep. The seeds should be sown thinly, and be covered to the depth of one-sixteenth of an inch. The boxes should be well drained, and over the drainage a layer of fibrous turf should be placed. Loam two parts, leaf-mould one part, and one part of sandy peat is good material to fill the boxes with. The surface should be made quite level, and the seeds covered with finely-sifted sandy mould. Place the boxes in frames; keep the soil moderately moist, and admit air freely. The beds ought to be prepared now, for planting out the tubers in February. I mean, of course, the tubers that may be purchased now, or that were dug up in August. We left ours in the ground longer this year, and only a very few had started to grow. One or two seasons I had them dug up rather too early, and they failed next season. This lovely flower is not grown so much as it ought to be. The roots are far too cheap to yield a profit to the grower. The finest tubers, and best varieties can be purchased at 2s. 6d. to 5s. per 100—the best Scotch spotted varieties to name at that price. Fifty years ago that price had to be given for single tubers, new varieties a guinea each: five hundred or a thousand tubers may be purchased now for that sum. I advise those who have never grown Ranunculus to send for some when ordering the bulbs. Twenty shillings-worth will make a good bed, and the tubers will increase three or four fold for next season.

THE TULIP.

The growers of these stately flowers are certainly increasing in numbers. We are not likely to have a Tulip mania again, nor is it desirable; but a place in every garden should be found for the good old-fashioned Tulips of the florists. They can be obtained from the northern florists, or of an inferior strain, but good enough for ordinary purposes, from any dealer in Dutch bulbs; they are as cheap as Ranunculuses. The Tulip bed ought now to be prepared. If the preparation is delayed later, the ground is generally too wet for them to do well. Have some good compost prepared to place on the surface before planting. Pure turfy loam is as good as anything.

THE CALCEOLARIA.

It is now a good time to repot all seedlings and propagated plants into those in which they are to pass the winter. They must not be over-potted, and some idea as to the size of the pots in which they are to flower must be present to the mind of the cultivator. A plant intended to flower in a 7-inch pot should now be repotted into one of 5 inches; and larger specimens that would fill an 8½-inch pot should be placed in one 6 inches in diameter. If the plants are free from insects, that is no reason why they should not be fumigated with tobacco-smoke once every five or six weeks. Healthy, well developed leaves cannot be produced if greenfly gets a footing. The plants ought now to be placed near the glass in a house from which frost can be excluded, but the heating apparatus must not be used unless it becomes necessary to do so; as the plants are very impatient of heat in the winter season. I like to go into the house in the morning, and find the leaves stiff, and sparkling with a row of tiny dewdrops on them. Those plants that are sufficiently advanced should have the centre pinched out. This is best done when they are in vigorous growth and no more pinching is necessary.

THE CINERARIA.

Those who can grow Calceolarias well, will be sure to be successful with the Cinerarias. We prefer this to the other and grow several hundreds, which are now in various stages of development. As I write we are repotting the plants into pots in which they will pass through the winter; and the size of the pots is much the same as those the Calceolarias require. It must not be forgotten that they both make good growth during the winter months. We pinch the centre out of the plants whether they have been propagated by means of seeds or cuttings, and they speedily make strong lateral growths; the right thing is to pinch them, when they are established and growing freely.

The potting soil for both is decayed turfy loam: to four parts of this add one of peat or leaf-mould, one part of decayed cow-manure, and one part of sand. Do not be too free with the water-pot, especially when the plants have been recently repotted. Owing to the dry weather mildew has been troublesome on various plants and shrubs in the garden, and may spread to the Cinerarias; if it does, it may be removed by dusting with flowers of sulphur, a very slight powder puffed on the leaves with a sulphurator will destroy it on its first appearance, but when it has spread much it requires a good deal of this material which renders the leaves unsightly, but this has to be put up with, as the lesser of two evils. Nothing destroys this parasite so effectually as flowers of sulphur.

THE CHRYSANTHEMUM.

Sharp frosts may be expected early this month, and to make sure that the flower-buds showing colour are not injured it is best to put the plants into the house where they are to open their flowers. When frosts have set in suddenly we have had to lay the plants on their sides, and throw a mat or some other covering lightly over them. It is not safe to leave them outside after the second week in October. Supposing the plants are quite free from any aphides, they are not likely to be free from millew. See that they are well dusted with flowers of sulphur before taking them into the house. Those who wish to obtain first-rate blooms for exhibition of the incurved varieties, would do well to get the blooms, or rather the partly developed blooms, as near the glass as possible. Some varieties such as Mrs. George Randle and varieties from it, will not produce coarse blooms even under unfavourable conditions, but some,

such as John Salter, Bronze Jardin des Plantes, &c., are almost sure to produce coarse blooms unless they are within a foot or so of the glass roof, and well exposed to the sun and air. Artificial heat is not needed, unless it be to dry up the water that may be spilled; and this is best done in the early part of the day when the ventilators are open. Those who have been accustomed to exhibit know how annoying it is to have their best blooms injured by the decay of some of the outer petals; but it will happen even with careful management. As soon as any of them show signs of decay they are best removed at once with a pair of tweezers, to prevent the decay from spreading to the others. The decay of the outer petals sadly mars the beauty of the blooms. At p. 203 I urged the importance of the specimen plants being trained naturally. The growths must be supported with sticks, and this may be done any time in September; ours have just been finished (the last week in the month). The large-flowered and the Japanese varieties require sticks; the pompon varieties very few or none at all. Those plants that are grown to produce large flowers for exhibition require very tall sticks. The Japanese and Chinese are much the same in this respect, and even the Anemone pompons will grow as tall as any of them, when grown to produce large single blooms. Give sufficient water at the roots, and avoid excess. Some persons are so careless in watering that they apply so much that some of it runs over; this is not only waste, but the unnecessary moisture is injurious. *J. Douglas.*

NURSERY NOTES.

SAWBRIDGEWORTH.—This name can only suggest the nursery of Mr. Rivers, made famous by three generations of fruit cultivators, especially of fruits grown on the restricted root methods. Peaches were not nearly over in the long span cool-houses, but only late kinds were ripening, at the time of our visit, the early kinds having been all gathered. Most of the trees were in pots, but a few old veterans of thirty years or more had been accommodated in the side borders, with the idea of rejuvenating them, and so thoroughly had the operation answered that it was difficult to distinguish the fruit from others taken from young trees in their first flush of bearing. Amongst those carrying fruit we noted Lord Palmerston and Prince of Wales, both excellent in flavour, as grown; very fine also was the Nectarine Peach, a hybrid from the Stanwick, but which has not the fault of cracking like that kind—a fault aggravated in many cases, both in this fruit and in Grapes grown in pots, notably the Madresfield Court, by watering the plants in the evening instead of in the morning—the evaporation from the foliage during the hours of daylight getting rid of the major part of the moisture drawn up by the roots. The Nectarine Peach, although of a red colour next the stone, is white-fleshed, and is deliciously aromatic in flavour. Whatever may be advanced against the method of growing these hardy fruits under glass, it is to be recommended in all northern, cold, windy, and moist localities, in preference to walls. The trees bear well. If there is a flow and return 4½-inch pipe in the house there is immunity from spring frost; the insects affecting the trees can be readily destroyed; the house makes a pleasant promenade at almost any time; the fruits can be reached without a ladder; and when it is said that nails, shreds, and ties are not needed at all, and that expensive borders are likewise superfluous, enough has been said to show the advantages of cool glass-houses for the culture of such fruits as are usually attached to walls for the extra warmth there afforded them.

The Pears growing in similar houses to those in which stood the Peaches were loaded with fine fruits, although the pots were not more than 10 inches in diameter in respect to the largest of them. Surface feeding with manure and loam is practised with all the Pears, and to keep this mulching or top-dressing in its place the expedient is adopted of driving in broad labels or small pieces of slate around the edge, and by that means actually increasing the height of the pot by 4 or 5 inches. The plants are put outside when ripening their fruits, the fuller exposure developing their flavour perfectly. Of Doyenné du Comice, Clapp's Favourite, Beurré de l'Assomption, Madame Treve, Souvenir du Congrès, Gratioli, Doyenné Boussoch, specimens of 4 feet in height were

noticed with from eight to twelve fruits each of a large size.

Pears in pots admit of a great many kinds being grown, if that is desired; and in that way, when selected with regard to the season of ripening, plots of fruit could be avoided; and with 200 to 300 pot trees, dessert fruit could be served during eight months of the year. We know large gardens that cannot do so much as this, although possessing acres of wall space.

Plums were almost put in the houses, and with the abundant crop outside they seemed to have less interest this year; but we have many years in succession when the Plum is conspicuous by its absence, it is then the little trees in pots prove their usefulness. The Bryantonse Gage, Transparent, Violette de Galopie, a rich, juicy, purple Plum; and the Jefferson were delicious. To defeat the wasps and flies the trees can be bundled up in muslin.

The houses of Black Alicante Grapes were superb, the bunches numerous and large, and the colour and bloom unequalled. The Gros Colmar approached these almost in all good points, but were less heavily cropped. Mr. Rivers has "taken it out" of his Muscat of Alexandria in former years, and they are now retaliating by shanking at a great rate. Duke of Buccleuch was a capital crop of short compact bunches.

The appearance of the nursery stock out-of-doors was just what might be expected at this famous fruit centre, but there was an innovation on old practice observed in cordons that were being prepared for sale; that is, that they receive but one pruning whilst in leaf, and that takes place in September, leaving but a small amount of pruning necessary in the winter. The result is abundance of good fruit-buds in place of the weak ones and numerous wood-buds produced by the constant pinching advocated and practised formerly. A good system of fruit tree planting well adapted for small, or, indeed, any gardens, was observed in a quarter planted 6 feet apart each way with upright cordons—Pears, Plums, Apples interlined with Gooseberries and Currants, the two latter kept at not more than 3 feet in height. So long as only dwarf subjects that do not crowd the cordons are used as the interlining ones it matters little what is planted, so that the ground is not rapidly exhausted. Violets, Roses, Strawberries, salading, &c., would all be suitable.

TREES AND SHRUBS.

HOLLIES: GOLD AND SILVER VARIEGATED.

WITH us all kinds of Hollies do well, the soil being a light sandy loam, which suits them admirably, but especially noticeable is the Golden Queen and the silver variegated, as they produce such quantities of short sprigs of the pure gold and silver sport, both in leaf and stem. I do not remember to have seen such large quantities of this for some years past as in the present season, a dry season being more conducive to this growth than a wet one. The variety of purposes to which this can be put makes it invaluable through the winter months. It is much sought after for the Christmas decoration of the churches in this neighbourhood, and I also use it largely for dlaner-table decoration. With this we use a pale blue silk cloth laid along the centre of the white one on the dinner-table, using the short sprigs of this Holly to edge the blue one, and also to lay about on this cloth; and with silver cups filled with yellow Chrysanthemums on rather long stems, with plenty of foliage interspersed, when lighted up has a most pleasing effect, and makes a good variety among dinner-table decorations. I also use it largely for vases amongst cut flowers; for this purpose it is also very effective.

PINUS PINASTER.

We have a handsome specimen of this growing on one of two islands in a lake of 32 acres. It is fully exposed to all the winds and storms, is from 60 to 70 feet high, and girths 10 feet 9 inches at 3 feet from the ground. We have many good specimens of this variety in other parts of the pleasure-grounds, but none to equal the one under notice. *Edward I. Ward, Hewell Gardens, Bromsgrove.*

CALOPHACA GRANDIFLORA.

A shrub with long puberulous pinnate leaves and

long, straight, many-flowered racemes, pedicels about as long as the yellow papilionaceous flowers. Native of the Amu Daria district, where it was discovered by Albert Regel, who sent home seeds which have been distributed from the St. Petersburg Botanic Garden. It is likely to prove a hardy shrub, of a very ornamental character. A description and coloured figure are given by Dr. Regel in the *Gartenflora*, September, t. 1231.

SINGLE BEECHES v. BEECH IN LINES.

Can you or any of your correspondents inform me why the Beech when planted as a hedge tree retains its leaves until the following spring, while single specimens, or those in the nursery border, shed these at the usual time in autumn? It is not the effects of pruning, as we have here single specimens pruned closely in that shed their leaves; neither is it caused, as one would naturally think it might be in the case of a close fence, by the shelter afforded to one by the other, for I know of a Beech hedge of 8 feet high, planted on an exposed mound where the worst winds blow, and where no shelter is afforded, that is as full of leaves at Christmas as it is at midsummer. *Emergo*

MAGNOLIA FUSCATA.

Can any of your readers inform me if a larger plant of Magnolia fuscata exists in these islands than the one at the Earl of Kimberley's, Kimberley Park, Wymondham, which is at least 10 feet above the tub and 7 feet through? Mr. Wainwright (the head gardener) treats it just the same as his large specimens of Orange trees (which, by the way, are loaded with fruit), namely, by keeping it out-of-doors all the summer, and in the orangery during the winter months. *J. G. Hill.*

A NEW VARIETY OF CRAB.

We send you by this post fruits and shoots of a Crab of which we received the seed from Russia a few years ago. It appears to us distinct from anything we have hitherto cultivated. The tree is of free strong growth, and, as you will see, fruits freely. Last year was the first season of bearing. As the season advanced the fruits became almost black. They are now deep crimson, and of a distinct oblate form. *James Backhouse & Son.* [A variety of *Pyrus malus prunifolia* of a crimson colour, the fruits an inch in diameter by three-quarters of an inch in the lesser diameter, the fruit-stalk very slender, and about 1½ inch long. *ED.*]

PICEA AJANENSIS.

The note on Picea Parryana glauca at p. 404 tempts me to recommend this much prettier Spruce Fir. We have both growing together in our garden, but the Japanese species is of freest growth, and the silvery sheen of the undersides of the leaves is most pleasing. I believe it is perfectly hardy. *Abies Alcockiana* (Holt.) is a synonym of it, the true *A. Alcockiana* being a taller growing tree. No collection of coniferous trees should lack either of these. I wish we could say this has been a wet season. Our ground is now parched for want of water, but this suits the Japanese Coniferæ. *J. Douglas.*

CEDRARS OF LEBANON AT BAYFORDBURY

There are eighteen fine Cedars growing on the lawns and in the shrubberies at Bayfordbury, besides many large ones about the park. Of the eighteen growing about the gardens, ten were planted in 1765, being then nine years old, having been raised from cones of a Cedar then growing at Enfield, and still in existence there. An accurate account has been kept of their growth, and periodical measurements up to the present time, which shows their increase in girth of the stems in the later years to have averaged about 1 inch annually, and they are all now in vigorous health. These Cedars vary much in their habit of growth, and in most of them the branches commence at 8 or 10 feet from the ground. The measurements of girth taken at 7 feet show at the present time 18 feet 9 inches for the largest of the ten trees, down to 15 feet 1 inch for the one represented in the photograph, where it will be seen that in the other two trees the branches commence very low down, and the girth immediately below them is about 25 feet. The spread of their boughs, which rest upon the ground all round, is very great, and in a longitudinal measurement of the trees being 60 feet apart, with their branches interlacing and forming a large shady hall, often used

for summer gatherings. This group of three trees is situated on the south-east side of the lawn at Bayfordbury. *W. R. Baker.* [A fine photograph accompanied this communication, and which we may reproduce on a future occasion. Ed.]

CONES OF *PINUS MACROCARPA*.

The six cones of *Pinus macrocarpa* represented in the photograph are a portion of eleven cones, which have just been taken off a tree in the Pinetum at Bayfordbury, with some of the branches which it was necessary to cut in order to obtain the cones, the sight of which when lying altogether on the ground was very striking. The total weight of the six in the photograph is 16 lb., and that of the largest cone 3 lb. They were all growing near the top of the tree, which is about 40 feet in height, and it is the third year since the cones were first formed, which appears to be necessary for their full growth. There are two larger specimens of *P. macrocarpa* in the Pinetum, which have never yet coned, and this inclines me to consider the one in question as a variety, probably the one which goes under the synonym of *P. Coulteri*, as its foliage is much finer, and it has coned freely for many years. I shall be glad of the opinion of others who may possess cone-bearing trees on this point. I would observe that the cones in the photograph are not exactly in the position which they held on the tree, although nearly so, and show the way in which they are attached to the branches from which they require a saw to detach them. *W. R. Baker.* [Two full-sized illustrations of these noble cones were given in our columns, 1885, March 28, pp. 409 and 413. Ed.]

MESSRS. JAMES VEITCH & SONS' SEED GROUNDS, TURNHAM GREEN.

TRAVELLERS by the London and South-Western Railway passing Turnham Green station have doubtless noticed a piece of ground facing the station which, especially during late summer, is very gay and neat with subjects possessing attractions and interest for those of a horticultural turn of mind.

Here is one of the trial grounds belonging to the firm, whereat are tested the novelties and varieties of flowers, &c., put into commerce by them. Asters have been a conspicuous feature this season, imparting quite a glow of varied colours. The Victorias were represented by a fine strain. They are perhaps the most showy and massive of all the Asters, bearing enormous flowers of great fulness, grand for exhibition purposes, producing from twenty to twenty-five flowers on each plant; height of plant $\frac{1}{4}$ to 2 feet.

The dwarf *Chrysanthemum* flowered variety is a very useful one for edgings, beds, and pot culture. It is of low growth and stiff habit, and very free-flowering, 9 to 12 inches in height, bearing from fifteen to twenty flowers on each plant. The individual flowers are large, often reaching 4 inches in diameter, and belonging to the flat-petalled class.

The pompon imbricated Asters form a charming free-flowering class of compact, neat, branching, pyramidal habit, the growth of the plant being $\frac{1}{2}$ to 2 feet high, most useful for cutting; the flowers, although small, are of excellent form and the best imbricated of all.

Truffaut's Improved *Pæony* Perfection is a large-incurved variety, fine for exhibition purposes. It is of fine form and symmetry, the flowers are $\frac{3}{4}$ inches in diameter and very double. The plant is of pyramidal growth, $\frac{1}{2}$ to 2 feet high, very constant in height, and bears about twenty to thirty flowers.

Of those well known and much admired plants, Stocks, a fine display was to be observed. In the Ten-week or early flowering section, the large-flowering variety holds the first place, producing plants of compact and robust growth about 1 foot in height, which yield fine large spikes of bloom that endure for a long time. The intermediate section of Stocks forms a succession to the above, coming into flower two or three weeks later, and frequently remaining in bloom till destroyed by frost. The plants are of dwarf habit, very free-flowering and double.

A new forcing variety, appropriately named Snowflake, was noticeable. It is valuable on account of its being admirably adapted for forcing, thus being got into bloom when white flowers are scarce. It produces a vigorous main spike of large and very double snow-white flowers, and when well grown, a number of flowering side shoots.

Those attractive half-hardy annuals, Zinnias, have been a special feature this season. Being of easy culture, they should be grown extensively in all gardens.

To those with a fancy for the gaudy Sunflower, the new miniature form is a welcome addition. It produces an abundance of small bright golden-yellow single-petalled flowers with a dark disc—very decorative, useful for cutting purposes.

A subject to attract attention was a fine strain of *Lobelia speciosa*; the plants, which have been carefully selected and grown from cuttings, are dwarf and compact in habit, very profuse and continuous in flowering, and of a beautiful rich dark blue colour. *B.*

MASDEVALLIA DAYANA.

THIS very singular plant is an ally of the windowed *Masdevallia* (*M. fenestrata*), sent over by Mr. Purdie from Jamaica in 1843, and which bears dull purple flowers, about one-third the size of those of our illustration (fig. 86). Both have much the habit of *Restrepia antennifer*, their sheathed stems and manner of producing their flowers from the one at the base of the leaf strikingly calling to mind that plant. *M. Dayana* forms a compact tuft with *Restrepia*-like leaves, often 4 inches by 3 inches in a well-grown specimen, such as that which Sir Trevor Lawrence was awarded a Botanical Certificate for at a recent meeting of the Scientific Committee of the Royal Horticultural Society, and



FIG. 86. —*MASDEVALLIA DAYANA*: YELLOW, PURPLE-SPOTTED.

from which our illustration was taken. The upper sepal, which is yellowish-white with irregular purple spots, has seven low, longitudinal membranous keels. It is joined to the inferior orange and brown connate sepals at the tip, the internal structure of the flower, which is very curious, becoming visible through the openings at the side. *M. Dayana*, which flowered first in 1875 with John Day, Esq., of Tottenham, is a New Grenadan species, which thrives best in a shallow pan or in a basket suspended with the *Masdevallia* chimæra varieties, and treated in a similar manner.

JARDIN DES PLANTES, ROUEN.

THIS garden, which is partly a botanic garden, has been established for a period of about half a century, having been at first a private establishment belonging to a Mr. Calvert, an Englishman, and as such was laid out and partly planted by Mr. Wood, who was sent over from the Chelsea nurseries (which were at that time in the hands of Mr. Knight) for that purpose. Mr. Wood remained in charge for about eighteen months, when, from various circumstances, he considered it better to resign his place, and started a nursery on his own account. To this nursery we hope to refer shortly. The Town Council of Rouen found it convenient to buy up the place, and secured it as a public garden for the town. Quite lately a new plot of land has been purchased and added to the original piece, and altogether the extent of the garden is about to hectares (about 25 acres). The new part has as yet nothing in it, but if it is laid out and planted in accordance with the rest—and there is every reason to believe that it will be—a fine garden will be the result, of which the

townsfolk of Rouen may well be proud. The soil here is not by any means rich, and being too abundant, and in many places we were assured the fertile soil is not more than from 6 inches to 1 foot in depth. There are no specimen trees of very large size, but the Conifers which are to be seen are of excellent shape and form, and appear to be extremely healthy, especially *Sequoia gigantea* and *Abies Piceapop*. Limes and Chestnuts are largely planted, forming avenues, and there is also a fair proportion of *Sycamores*. The Limes are not as healthy as could be wished, but the Chestnuts are perfect marvels of beauty. *Pavia macrostachya* grows very well, and when seen as it was at the time of our visit—about a month ago—full of flowers: it is truly a handsome plant. There are large numbers of *Mosses* planted out in the beds, which tend to give a tropical appearance to the place, but, unfortunately, they are in some instances very much cut and torn by the winds. The beds are almost all carpet-beds, and are well designed and executed, one being the arms of the city of Rouen—but we will not enter into a minute description of them. Other beds are filled with the usual "bedding stuff," including *Cannas*, which are remarkably healthy; *Pelargoniums*, *Phloxes*, *Dahlias*, *Ageratum*, *Marguerites*, &c. The greenhouses, which have only been erected about a year, are built on a good plan; there is a corridor with the different houses, seven in all, running off from it on the south side; against the other wall various plants are trained, but *Begonias* and *Tropæolums* chiefly. There is nothing of a very rare or extraordinary character, but everything in the houses presents a remarkably clean and neat appearance. *Achimenes* are especially well grown, as are also *Gloxinias* and *Begonias* in variety. One house struck us as being particularly gay with these plants; grand specimens of *Begonia corollina*, *B. metallica*, and others, but chiefly the former, are trained up the posts supporting the roof, attaining a height of sometimes 10 or 12 feet, and being laden with their very abundant rich coral-red flowers, have a most attractive and gay appearance; this *Begonia* is very floriferous, and should be largely grown. From the roof are suspended several *Orchids*, which however, with a few exceptions, were not in flower at the time of our visit. The best flowering specimens noticed were *Vanda suavis*, a very good plant; a fine form of *Cattleya Eldorado*, and *Lælia Lindleyana*. Another attractive flower was a creamish-white *Compætiæ-like* flower which we did not recognise. This house is laid out in a very pretty natural sort of style, with winding walks, rockeries, and ornamental pieces of water in which the plants present a very pretty appearance. Another house contained an immense number of *Coleuses*, in fact it was completely filled with them: it is not necessary to particularise any of these plants. There is also a small *Orchid-house* where the best flowering specimens included *Chysis bracteosa*, *Stanhopea Ruckeri*, *Brassavola nodosa*, several very good and well flowered specimens of *Brassia verrucosa*, and large numbers of *Odontoglossum crispum*; some fine examples of *O. Pescatorei* and *O. Schleipernianum* may also be mentioned. One plant which was to be found in this house in good condition must not be omitted, although not an *Orchid*: it is *Lasiandra macrantha*, which is very attractive with its purple-red flowers, which, however, are too fugacious.

We must not omit to mention the Palm-house, which stands away from the foregoing houses, and containing several very fine plants, including *Dracæna unbraculifera* and *Sabal Adansoni*, both very attractive; a fine *Lantana borbonica*, 20 feet high; and *Chamærops humilis*, 4 feet higher; and a specimen of *Scindapsus pertusius* also about 24 feet high. There were several other interesting plants, among which we might mention the official collection, placed in a cool structure connected with the Palm-house. There is an extensive nursery ground connected with the garden, and possessing great interest. The *Dahlias* were making a fine show here when we visited it, especially the single varieties.

In the centre of the garden, in a slight hollow, and directly in front of the Palm-house, is the Jardin Botanique, arranged according to the classification of the late M. A. Brongniart. This department is most interesting, and is very extensive, every order being largely represented. There are many interesting plants here, especially in the Conifère. *Orchidaceæ* are wonderfully well represented, and *Cryptogams* have great prominence. One botanic garden is very much like another as a matter of course, but at the same

time some are better than others—Rouen certainly has one of the best.

A capital institution in connection with the garden is a course of botanical lectures and botanising excursions to the neighbouring districts, under the able direction of M. Blanche. These lectures are open to all comers, and, more than that, the classes, which are held on Sunday mornings, are free of charge, so that any one who can spare the time may study botany and obtain specimens for examination for the mere asking for them. There is also a school of horticulture, where practical lessons are given during the proper season on the training of fruit trees of all kinds, the garden containing many excellent examples of well-trained trees.

The garden (exclusive of the botanical garden, directed by M. Blanche) and all the squares, &c., in Rouen, are now under the direction of M. Varenne, who deserves credit for the way in which he carries on the work connected with them all. We must also take this opportunity of expressing our thanks to M. Varenne for his courtesy and attention to us on our many visits to the delightful garden. *Le Voyageur.*

PLANT PORTRAITS.

BURCHELLIA CAPENSIS, *Revue Horticole*, September 16.—A very old stove plant, deserving more attention at the hands of our plantmen than it has yet received. We have no doubt it could be grown to be as fine an exhibition plant as an *Ixora*.

CANTUA DEFENDENS, *Illustrierte Monatshefte*, October, 1886.

CYPRIPEDUM PURPURATUM, *Revue de l'Horticulture*, September.

ECHINOCACTUS SENILIS, *Gartenflora*, t. 1230 A.

GEUM RHICITICUM, Brügger, *Gartenflora*, t. 1229.

HYPERICUM OBLONGIFOLIUM, *Garden*, September 4.

LAURIS ALATA, *Illustration Horticole*, t. 605. A Boinean shrub, belonging to the Myrsinaceae. Leaves lanceolate, with a purple midrib, each about 6 inches long, by 3 inches in width.

FORESTRY.

RENOVATING OLD HARD-WOOD PLANTATIONS.

TIMBER for estates may now be felled, converted into boards, planks, &c., and set to dry, as has been previously recommended. Old plantations should be gone over, and dead branches and decrepit underwood, &c., should be cleared out. Where an open space is available all this may be burnt. The thinning and pruning of the trees should now be looked to. Where, as is now commonly the case in park woods, specimen trees of the newer and rarer Conifers are interspersed throughout, see that these have plenty of room for their perfect development.

If it be intended to plant up the newly thinned woodland with shrubs for covert purposes, the thinning should be somewhat severe, for as light and air are the essentials for the successful cultivation of underwood, the trees must stand well apart. Choose out the thinnest or most open spots for the various clumps of shrubs, keeping an eye at the same time to natural effect, particularly where the woods are contiguous to drives and walks; dig out pits 18 inches in diameter and 8 inches or so deep, at about 4 feet apart, the distance asunder depending of course on the size of the plants to be used, but for those of, say, 30 inches to 3 feet high the prescribed dimensions are near enough; take care that the sides and bottoms of the pits are well loosened with a pick. From a score to say fifty to sixty plants are sufficient in one clump, which should be irregularly arranged throughout the woods. Game of all kinds detest dense sunless jungles of underwood, but delight in the opposite. As regards the plants to be used fancy and use must decide, but the best suitable are the common and Portugal Laurels, Box, Privet, Yew, *Laurustinus*, various kinds of *Barberry* in the open situations only; while for single specimens to give a warm green appearance to deciduous woods in winter nothing equals the Holly, evergreen Oak, and Yew. The roots of the plants used for underwood should be well spread out, and

not planted any deeper, or at least very little more, than they were in the nursery borders. Pruning large tap-roots and ungainly top leading shoots should be set about either before the plants are sent from the nursery or immediately before being planted. In selecting sites for the large standard evergreens above referred to choose such as are open and airy and within a short distance of the plantation margin, as in such positions the furnished look of the wood, if composed of hard-wood trees, may be greatly augmented. For these bigger holes than those whose dimensions are above cited should be made, say, 4 feet in diameter and 18 inches deep, as for the future welfare of the plants a little extra expense must not be grudged. Stakes must be put to these as soon as planted, but on no account wait until a half-blown over, mutilated-rooted, and chafed-barked tree compels this being attended to. *A. D. Webster, Penrhyn Castle.*

GREEN DAHLIAS.

THESE productions, though by no means uncommon, seem to excite the attention of the public



FIG. 87.—THE GREEN DAHLIA, *D. VIRIDIFLORA*.

just now in no ordinary degree, on which account it may be appropriate to reproduce our illustration (see fig. 87). Immediately beneath the flower of an ordinary Dahlia are five or more small green leaves or bracts bent downwards; these are followed by a number of greenish scales, in the axils of which the true flowers, the quills or rays of the gardener, are produced. So that the Dahlia is not a single flower, but a "composite" of many flowers. In the green form the true flowers are not produced at all, but, as if by compensation, the green bracts are increased in number.

HIMALAYAN PRIMROSE SEED.

MANY packets of seed of Himalayan Primroses were distributed at the beginning of this year. Some of us are now being much puzzled how to make our seedlings fit the names which came on the packets. Excepting three or four weak kinds, such as *P. glabra*, *P. pusilla*, *P. sapphirina*, which came up late, and seem already to have made up their minds not to survive the winter, the main crop seems to be divided between *P. sikkimensis* and different forms of *P. capitata* (Hooker). I search in vain for any to answer to the leaf characters given in Hooker's *Indian Flora* for *P. reticulata*, *P. Kingii*, *P. bellidifolia*. The crop of *P. Elwesiana*, of which we had abundance of seed, seems to have failed universally,

all the seed having first mildewed, and then rotted. But time will show what the others are. One variety, however, has made such a rapid development here as to be worth recording. The packet was labelled—(Mixed.) *P. capitata* (Hooker) and *P. bellidifolia* (King). Above Lachoo, at 13,000 feet." This was sown about the beginning of March, under glass, but without any artificial heat. It soon came up in great abundance. When pricked off the seedlings showed two very distinct varieties, each of them perfectly constant. One has long leaves, very mealy beneath, broadest at the end, and soon narrowing into a long winged stalk. The other, which has grown more than twice as fast, and of which nearly all are in bud, the first having opened a flower at the end of August, has the scape and umbel only mealy, and has broad flat oval leaves, with hardly any stalk. I feel no doubt that both are forms of that very variable species *P. capitata* (Hooker), though not one of the former variety shows a symptom of a bud. It is remarkable, however, if two varieties so distinct and so constant were found together, as the label seems to imply. I have often been struck by the vagaries of these polymorphic species. Some forms flower here early, some late. They are generally in flower in this garden from May to October. *C. Wolley Dod, Edge Hall, Malpas, Sept. 8.*

The Rosery.

ROSE SHOWS.

THE remarks of "Wild Rose" (see p. 296) on this subject deserve the serious attention, not only of all horticultural societies but of every individual rosarian. While most of the latter will agree with "Wild Rose" that Rose-showing has greatly increased the interest felt in the growth of Roses, yet not a few of us are inclined to think that Rose-showing manifests some dangerous tendencies towards forcing genuine Rose culture into seed; the fever heat of excitement thrown into Rose struggles for the mastery are perhaps as fatal to the wellbeing of rosarians as to their Rose blooms. Almost everything within the wide kingdom is also coming to be judged mainly or chiefly from the show point of view. This is a serious evil, for Rose showing should be looked at as a mere episode—a useful stimulus, it may be, in Rose culture—rather than the be-all and end-all of the same. The primary object of growing Roses should be the furnishing of the garden outside and under glass with their beauty and fragrance all the year round. Subordinate to this greater purpose, the more Rose shows in season the better.

But not only is Rose-showing responsible to a great extent for raising a wrong issue in Rose culture, but likewise for limiting the Rose season to the narrowest limits. It attempts to crowd its most perfect Roses into the month included between the last fortnight of June and the first of July.

It may be said that this is the natural season for perfect Roses in England. But art changes seasons in other plants, and the demand for good show Roses in August and September even, would doubtless bring forth a sufficient supply of perfect blooms to prove that autumnal Rose shows—which I have often advocated with a view of fostering continuous blooming Roses—are practicable and possible. Rose shows out of season is a field that the National Rose Society ought at once to enter and cultivate to the full. True, at first they might not prove popular, nor paying; but a National Rose Society on the right tack ought to be sufficiently strong and wealthy to be able to disregard either or both these considerations. On the ground of popularity of classes or prizes I would beg respectfully to differ from "Wild Rose." For example, the prizes for Roses grown within eight miles of Charing Cross, ought to be continued. If four or more compete, the Society is none the poorer; whereas, if one more attempts to grow Roses, stimulated thereto by the prizes offered, floricultural taste and practice is so much the further extended or improved. Experience has proved that it is possible to grow Roses—especially Teas—whose smooth leaves shoot off the London smuts almost in the heart of London; and the National Rose Society or others can hardly turn their resources to better account than by stimulating cultivators by liberal prizes to overmaster the obstacles of fogs and smuts in the cultivation of their Roses. It is only necessary to

attend an artisan Rose show in Nottingham to be convinced by the irresistible logic of facts, what perfection of Rose form, colour, finish, fragrance, are possible in a crowded town.

Neither can I quite agree with "Wild Rose" in recommending the omission of the prize for the baskets of Tea and Noisette Roses. What if some exhibitors mounted their sprays on wires, and others decorated the legs of their baskets with panting, fading Rose blooms. The basket form of massing Roses, in the hands of persons, controlled by cultured taste, is capable of yielding harvests of Rose grace and beauty, unapproachable by any other mode of showing. A few failures should not result in the abolition of basket showing, but in the withholding of the prizes offered until success is reached; thus gently compelling exhibitors to act up to the stimulating and wholesome spirit of the nursery rhyme, "If at first you don't succeed, try, try, try again." Assuredly, more awfully dreary things than some of those baskets of hybrid perennials shown—three or six dozen of A. K. Williams, flat as pancakes, in round hampers—could not be conceived; but undersized baskets, in which Rose sprays could be set in water, all such contrivances being hidden in green moss, consisting of buds in all stages of development, from small buds to three-quarter opened Roses, with abundance of foliage, ought to produce a richness and chasteness of floral effect such as single Dahlias, useful as they are, could never attain to. (See "Wild Rose's" third and fourth paragraphs.)

As to the prizes for the best six dozen Roses for amateurs, it may be useful in stimulating the latter and add novelties to their collections—a practice which experience is rather apt to check than foster. It may also have other uses. It is not always that what may be termed trade Roses prove successful under amateur culture. New Roses that the latter can grow up to show standard may be said to be doubly certificated, and hence stand a better chance of selling freely after appearing in perfection in the stands of amateurs.

Most of the difficulties arising out of the best box prizes might be obviated by the sensible specification that only boxes of the same number should compete: thus, 72's against 72's, 36's against 36's, and 24's against 24's, &c. Such prizes, where they can be afforded, are useful in rewarding all-round merit in Rose growing—one of the most praiseworthy features in the products of some exhibitors, and sadly lacking in those of others. However fairly Roses are judged it would neither be fair nor possible to prevent a few extra good blooms from carrying almost undue weight in the awarding of the prizes; whereas in the best box prizes, the all over good Roses would stand a better chance of obtaining the prize. I quite agree with "Wild Rose" as to the difficulty, not to say absurdity, of putting a box of 24 against one of 72; though the plan recommended of dividing the number of points awarded to each box by the number of Roses it contained, is probably the fairest and soundest that could have been adopted.

Finally, the best Roses in the show prize should not be abolished, but extended. It often creates more interest than all the other prizes put together. But I quite agree with "Wild Rose" that two or more such prizes should be given. The phrase "two or more" is used advisedly, for ultimately a prize might be offered for the best Rose of each type of form recognised by the National Rose Society. But in all cases Teas, including Noisettes, should be separated for this prize from hybrid perennials; for though the difference may not be so great as that between horses, bullocks, and sheep, it is sufficiently wide to set any fair contrast or comparison between them at defiance. Besides, prejudices or predilections come in to complete the matter. No logic of reason or of fact will convince a lover of Tea Roses that any hybrid perpetual can compare with or come into the running with them for a best Rose prize. Hence the wisdom of letting at least these two classes only compete with their peers in the best Rose class.

Not a few rosarians think the time is at hand, if it has not already come, when Teas and Noisettes shall be excluded from the general collection, or that separate classes for hybrid perennials only should be established. Much as we love Tea Roses, agreeing with "Wild Rose" that they are emphatically the Roses of the future—that they must vastly increase, while the so-called perennials are doomed to decrease—yet it seems something akin to undue favouritism to give Teas no end of special classes all to themselves

at our great Rose tournaments, and then permit them to enter other classes *ad libitum* as well, and sweep off most of the cups and chief prizes. For it has almost passed into an axiom in Rose showing and judging, that the more and better the Teas in the mixed collections the more certainly shall they win 1st honours. Not, possibly, till a stand wholly of Teas shall sweep off all the chief honours will the practice, now so general, of allowing any number of Teas in the larger collections, be checked or regulated. The present mixed mode of exhibiting Roses for the larger prizes not only gives double honours and chances to the Teas—which they deserve—but introduces a distracting and disturbing element into the judging of the large collections. D. T. F.

ROSE W. F. BENNETT.

While I can scarcely go the length of saying that this is the best of Mr. H. Bennett's new Roses, I have no hesitation in stating that a great future is in store for it, and this opinion is heartily endorsed by Mr. Harry Turner. A number of pot plants at the Royal Nursery at Slough may be truthfully said to be laden with flowers; and it looks as if it would be a perpetual flowerer, for Mr. Turner states it does not make a shoot without producing a bloom at the end of it. It has colour and size of flower also to recommend it; it is described as deep velvety-crimson, and it will no doubt take on this colour in the spring; now, owing no doubt to the drying winds, it was rather paler in tint. Its habit is undoubtedly vigorous, and this, added to its free blooming character, should lead to its being largely grown for forcing and cutting purposes. Mr. Turner sees that it will be in great request, and is working up a large stock of it in consequence. R. D.

PRESERVING FRUIT, FRUIT-JUICES, MUST, AND FRUIT WINE BY SALICYLIC ACID.

DR. F. VON HEYDEN'S successor, manufacturer of salicylic acid at Radebeul, near Dresden, writes as follows:—

Fruit and fruit juices can be preserved in a variety of ways by means of salicylic acid, and which permits of being employed in all the various methods, jam making and preserving, &c.

1. Cherries, Currants, Raspberries, Green Gage Plums, common Plums (*weitschagen*), Peaches, Apricots, &c., are placed in wide-mouthed glass bottles holding about 1 kilo. (2 lb. English), without water being added, putting alternately a layer of fruit and one of sugar. The upper layer must be of sugar. Above this last half a gramme (about half a teaspoonful) of dry crystallised salicylic acid is strewn. The bottles are then covered with parchment paper in the usual manner and placed in a water bath, and the water allowed to simmer for fifteen to thirty minutes, according to the size of the fruit—small fruit requiring less time than large; berries about thirteen minutes. When cool it is advantageous to cover with a piece of salicylic acid paper, and make fast. Fruits treated in this manner have and retain constantly the appearance of fresh fruit.

2. If it be desired to preserve large fruits, such as Quinces, Melons, Gourds, also Rose haws, in great earthen cooking vessels, put into the usual sugar and water syrup, half a gramme of salicylic acid per kilo. of fruit.

When filling the bottles a good fitting piece of salicylic acid paper, which must be saturated with a concentrated solution of salicylic acid and rum, must be laid on the surface.

3. When preserving Melons, Gherkins, Pears, Plums, &c., in vinegar, a little more than the proportion of salicylic acid given above can be added to the boiling vinegar and sugar, and the rum-paper can be omitted.

4. Russian rum compote.—The making of this is begun at the new year, and ends late in autumn, all sorts of fruit being placed in a large vessel as they come into season. The following is the process adopted in this kind of preserving:—Strawberries, for example, are placed in a layer, bestrewn with sugar, and a glass of rum is poured over the mass, and as this kind of compote easily ferments, half a gramme of salicylic acid per kilo. of fruit must be added each time anything is put in.

5. In making marmalade (must) and some other particular kinds of fruit, as well as the so-called

tutti frutti, the salicylic acid is added towards the end of the operation, and preferably in the form of the rum solution.

6. Freshly pressed fruit juices, with or without sugar, are preserved in excellent condition in a cool place in resined bottles, by the addition of half a gramme of salicylic acid to 1–2 kilo. of juice. Such kinds of fruit juices, free from alcohol, and not over-sweetened, make agreeable drinks, mixed with water, for children and convalescents. The raw juice of small fruits require in the warm season, when they are made, about 50 grammes per hectolitre put into the vessel when no spirits are added, so that fermentation be prevented. Complete exclusion of the air, and a cool storing place are absolutely necessary conditions of preservation in this case. Attention must be paid to the equal division and mixing; and if the acid be dissolved in spirits of wine, ten times the quantity of juice can be diluted, and then be well stirred about. In the wholesale manufacture, when a large addition of spirit is made with the intention of increasing the quantity, and therefore the use of salicylic acid does not appear to be necessary, the m-h remains several days in the tubs before it is pressed, exposed to the risk of an injurious fermentation. This evil can be avoided, and the fine aroma preserved, by means of an addition of salicylic acid, dissolved in alcohol in the proportion of 5 to 10 grammes for every 50 kilos. of raw fruit as it is put into the vessel, or after the same is filled. By this means the juice will be more thoroughly and quicker clarified than by the usual method by means of spirit, because all kinds of fermenting organisms, owing to their absorption of the salicylic acid, remain inoperative.

7. Grape juice continues sweet and clear for a whole year, when 20 to 30 grammes of salicylic acid per hectolitre (= half a teaspoonful) per kilo. are mixed with some stout into a sort of thin dough, free from lumps, and added to the unfermented must immediately after it has left the press. In fourteen days later the juice after becoming clear can be put into bottles. The latter must be washed out with a watery solution of the acid, and the corks should be boiled in the same.

8. Cyder and perry can be kept for long periods by the addition of 10 grammes per hectolitre. If the articles are preserved in casks, 5 grammes are given in the spring and 5 grammes in the summer. Complete exclusion of the air from the contents of the casks is essential, and by partial opening of the same the air should be passed through a cotton-wool plug saturated with salicylic acid, or, better, through prepared salicylic acid wadding.

Apples and Pears remain in good condition and can be layered in large quantities when each fruit is wrapped in paper impregnated with salicylic acid. This last is readily made by soaking blotting or tissue paper in a mixture of alcohol and acid and hanging it over a string to dry. The complete purity of the acid is essential to success. *Deutsche Garten Zeitung*, Sept. 22.

THE SEED TRADE.

FOREIGN GRASS SEEDS AND CLOVERS.—Advices are to hand from the principal seed-growing districts of Germany, and they are in the main favourable, as they indicate that more satisfactory crops of grass seeds are general than for some seasons past, and prices will in all probability range low for most of the leading kinds. The quality of the seeds also is above the average, and this can especially be said of *Dactylis glomerata*, *Festuca pratensis*, and most of the Poas—all of which show very fine and heavy samples. Poa trivialis, and especially Poa nemoralis, however, are scarce, the harvest of these being small. *Festuca duriuscula* and *F. ovina* have yielded a fair crop, and the quality is generally satisfactory; and it is expected that prices will be lower than last season. *Festuca ovina tenifolia* has been harvested in but small quantities, and it will no doubt be dear in price. The crop of *Cynosurus cristatus* has been harvested in fair quantities; the samples, however, do not exhibit such a fine colour as they did last season, in consequence of the continuous rains which fell during the time of harvest; but the growth of the seeds is reported to be quite satisfactory. *Anthoxanthum odoratum* has supplied but a quarter of an average crop, owing to having been affected by late frosts at a critical period of growth. The German crop of Timothy-grass is reported to be somewhat better than last year; in the United States of America it appears to have been harvested in smaller quantities than was anticipated, and prices have in consequence risen considerably above those which ruled at the close of last season. The prospects of the harvest of Clover seed is by no means a favourable one. The yield of Alsike, white Clover,

yellow Clover, and Sainfoin is but a very moderate one. Red Clover, not yet gathered early in September, did not promise beyond a moderate crop; and the same can be said of Lucerne.

THE HOME HARVEST.

As far as the home harvest prospects can be realised, the Irish crop of Rye-grass promises to be heavy, and samples satisfactory. English red Clover there is every reason to believe will be a large crop; America it is expected will show the same result, and in all probability home prices will be cheaper than ever; Alsike is expected to be an average crop; while white Clover will be but a short yield. The late spring frosts and cold winds appear to have injured the plants in some way. A great quantity of yearling white Clover was held over, and as this is likely to prove of good germinating power, the scarcity of this season's crop is scarcely expected to affect prices very much.

English Tares are very low indeed in price, scarcely realizing more than 4s. per bushel. Ten years ago they fetched 14s. to 15s. per bushel. Kent Tares especially are very plentiful. It is supposed that the Kent farmers finding little sale for their green crops, set their Tare seeds much more largely than usual, with the result that there is something like a glut in the market. All round trade is reported to be greatly depressed, and travellers return home with spare orders, and these generally at prices that are scarcely remunerative. The great difficulty appears to be to sell at a profit. *Fisim.*

The Flower Garden.

THE BEDS.

In order to keep the flower garden gay as long as possible, as many of the larger leaves as can be conveniently spared would be better removed to secure a free circulation of air as well as to allow the sun's rays to mature the stems. The plants may now have their tops removed to a flower-bud. Edgings generally grow more freely now, and they will require looking to. Plants which are easily injured by frost may now be lifted from the beds. Pot them up at once, or lay them in pans and boxes, giving them a good soaking of water, and which will be sufficient for a long time.

CUTTINGS.

Keep all early struck cuttings free from decaying leaves, and scratch the surface of the soil occasionally to keep the it sweet.

BULBS AND CORMS.

Crocuses, Snowdrops, Anemones, Narcissus, and Liliun candidum may now be planted. This is the most suitable time to move the latter. If shifted later on they sometimes remain dormant for a whole year, or if the bulbs get dried great injury is done. Snowdrops and Crocuses look well planted in designs on grass. They may be planted to denote names or coats-of-arms, or to represent animals, by drawing a design, with chalk and then following the outlines carefully with a dibber. If the bulbs be dropped into the holes, and a little sandy loam be put on the top to fill up, that is all that is necessary. A succession of flower may be secured if holes of various depths be made from 2 to 5 inches. Very pretty effects may also be secured by planting Crocuses and Snowdrops round shrub beds in three lines of various depths. This can be done by having a wire put through the dibber at the requisite depth. The Erythroniums, or Dog's-tooth Violet, should also be planted in abundance. These have a charming appearance with their mottled foliage and pink flowers.

VIOLAS.

Cuttings of Violas should be secured as soon as possible. The best places to strike them are under hand-lights or turf-pits; and a sunny situation will suit them best at this season of the year. Secure a hard bottom; on this place a couple of inches of half-decayed leaves, then from 2 to 3 inches of leaf-mould, loam, and sand, in equal quantities, passed through a 3-inch riddle. Select young growths from the roots. It does not signify how small they may be, they are certain to root, and are to be preferred to old flower-shoots which are hollow, as the latter do not root so freely, and never make such healthy stock. Put in cuttings in a similar situation, and under similar treat-

ment, of the various bedding Chrysanthemums. These will be in fine condition to plant out in the beds in the spring, and will produce better results than if struck and wintered in pots. Preparation will require to be made for the proper protection of bedding plants. In case of sharp frost, which may be looked for any night after rain, Pelargoniums which were struck in the open ground should be potted up at once, and placed under the protection of glass sashes. Do not use too rich a soil at this season of the year, so as to induce them to make large foliage. *Wm. M. Baillie, Luton Flower Gardens.*

PLANTS AND THEIR CULTURE.

CHRYSANTHEMUMS.

THERE is no plant that gives so good a return during the duller parts of the year for all the attention bestowed on it as this. Tying in and giving a few more stakes where necessary must be regularly attended to; and the buds of most varieties should at once be thinned out, if large sized blooms are required. Choice should be made of the strongest and most prominent bud on each shoot; but it sometimes happens that this is a little deformed, and if left, the bloom would be of an irregular form, consequently the next best prominent one which is formed should be selected, leaving only one to each shoot. Now that the pots are well filled with roots, if they are not stood on a hard impervious bottom the roots will soon force their way through the bottom of the pots and get hold of the material on which they are placed; to prevent this they should be turned round at frequent intervals of a day or two, and being gross feeders they will require large quantities of manure-water to sustain them in a vigorous condition, particularly at this stage when they are throwing up their buds, and the soil in the pots is getting exhausted. Those plants which were layered some time ago will now be nicely rooted, and should be lifted and potted in small pots. Plants grown in the open ground during the summer, with the object of saving labour, will now be ready for lifting; and if a spade be inserted at a short distance from the stems about the size of the intended ball, four or six days before this operation takes place, it gives the plants time to recover from the check of cutting their roots, and by this means they suffer very little when potted. The plants must be stood in a cool, shady, and sheltered place, keeping them well syringed morning and afternoon, otherwise they will flag and lose part of their foliage.

PITS.

These structures are very useful for the accommodation of many plants, and it is found that a great many things do better in them than in houses, and require much less attention. The divisions which have just sufficient heat to keep out frost should be filled with early Primulas, late batches of which plants should have their final shift, keeping them up near to the glass, and affording them plenty of air. The early batch of Cinerarias and Cyclamen do well with the same treatment as the Primula. The remainder of the space in the pits may be filled with Solariums, Azaleas, Salvias, Petunias, Mignonette, Godetias, Roman Hyacinths, &c. The cold divisions can be filled with such things as herbaceous Calceolarias, which do much better in cold pits than anywhere else unless the temperature should be very low; late Cinerarias can also be kept in these cold pits for some time longer, admitting air freely on all favourable occasions, to prevent harm accruing from damp.

Keep a sharp look-out for slugs and caterpillars, as these cause great disfigurements. Tree Carnations should have a separate division if possible, and be plunged in cocoa-nut fibre, supplying them liberally with manure-water and giving full ventilation. I find the undermentioned sorts very useful:—White Swan, La Belle, Parity, La Hermione, Vestal, Sir E. Wood, Lady Sefton, Lady Emily, Fire King, Volunteer, Magnificent, Mrs. Keen, Laura, Sir George. A. Evans, Lythe Hill, Haslemere.

FRUITS UNDER GLASS.

VINERIES.

THERE is not much to be done in these other than maintaining a somewhat dry and airy atmosphere, and watering the inside borders two or three times in five weeks with clear water. This should be given in the morning, and if the weather should be dull at the time the fires should be started, so as to heat the water in the pipes sufficiently to prevent the condensation of moisture on the berries, and also to promote a buoyant internal atmosphere. Look the bunches over

once or twice a week, and remove any decayed berries that may be in them. Also remove house spiders, which should have no quarters in vineries in which clean Grapes having a good bloom are aimed at. Here many of the late varieties of Grapes are not yet quite coloured: these include Gros Guillaume, the large 8 or 10 lb. bunches being more backward in this respect, and Gros Colmar; but the foliage being good, there is ample time to lay on a good colour and bloom between this and the date of the Vines shedding their leaves. Therefore a somewhat warm, dry, and airy atmosphere will be maintained: allowing a free circulation of fresh air during bright sunny weather. The laterals of Vines from which the bunches have been cut should be shortened back a little, so as to admit more light among the shoots, that the wood may become thoroughly ripened before the Vines shed their leaves.

MELONS.

Plants growing in frames placed upon hotbeds will require to have the linings made up round them with fermenting material, such as long stable-dung or short grass, so as to impart sufficient heat to the interior of the bed and frame, to prevent the night temperature from falling much below 65° until the crop is secured. And with this object in view, withhold the syringe from the plants; also abstain from giving water to the roots, as the latter can absorb all that is necessary for the ripening of the crop from the manure-heap on which they are growing. Cover the frames at night with mats.

VINES AND VINERIES.

Vines from which ripe Grapes are required at the end of April or early in May next should now be pruned back to a good plump bud as close to the main stem as it can be obtained, taking care that the half inch of wood left beyond the bud is not split in doing so. The wounds should afterwards be dressed with "Thomson's Stryptic" to prevent "bleeding." The house must be thoroughly cleansed in all parts with soap and warm water, the woodwork with clean water only, and the brickwork and plaster washed over with hot lime. The rods of the Vines should then have the loose bark that may be on them rubbed off with the hand, and afterwards be well washed with a well mixed solution consisting of about 4 oz. of Gishurst Compound, the same quantity of sulphur, and 2 oz. of soft soap dissolved in a gallon of warm water. This should be well rubbed into the Vines with a stiff brush, especially into the crevices about the spurs, so as to destroy red-spider or other insects that may be in hiding there. Care must be taken not to injure the buds in this operation. After the Vines are cleaned, the rods should be tied horizontally to the wires at the front part of the house until they begin to break, when they are trained up in the usual way, care being taken to cause no injury to the buds in doing so.

The surface of the border should be pricked over with a steel fork, without injuring the roots, which if in a satisfactory condition will be a perfect network a few inches beneath the surface. Then remove the loose soil and lay on a good dressing of Thomson's Vine Manure, working it into the soil with the fork, and follow this with soil, consisting of three parts loam and one of lime rubble as a top-dressing, 2 inches in thickness, followed by a mulch of a like thickness of horse-droppings. Then a good soaking of tepid water should be applied, which with subsequent applications will wash the substance of the manure down to the roots. If the border be an outside one rotten dung might be substituted for horse-droppings, and over this a bed of 20 inches in the absence of leaves and fermenting manure (about one part of the latter to three of the former), well mixed, should be laid. This by heating the surface of the border will have the effect of attracting the roots thither, and in the top-dressing and mulching they will help to induce a network of rootlets. The bed of dung and leaves should, according to circumstances, be freshened up two or three times during the interval from the middle of November to the middle of February. As soon as the internal arrangements have been completed the ventilators should be kept closed at night, and the process of forcing be commenced in the second or third week in November by applying sufficient fire-heat to maintain a night temperature of 50°, and 55° to 60° by day, running up to 10° higher with sun-heat. Syringe the Vines with tepid water two or three times a day, more or less frequently according to circumstances. *H. W. Ward, Longford Castle.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Oct. 4	Sale of Dutch Bulbs at Stevens' Rooms.
		Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
TUESDAY,	Oct. 5	Clearance Sale of Nursery Stock at Cranston's Nursery, Hereford, by Protheroe & Morris (ten days).
		Sale of Nursery Stock and Greenhouse Plants at the Nursery, Upper Tooting Park, by Protheroe & Morris.
WEDNESDAY,	Oct. 6	Crystal Palace Autumn Fruit Show (four days).
		Sale of Plants and Bulbs, at Protheroe & Morris' Rooms.
THURSDAY,	Oct. 7	Sale of Choice, Named Indian Azaleas, Camellias, Gardenias, Dutch Bulbs, &c., at Stevens' Rooms.
		Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
FRIDAY,	Oct. 8	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
		Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
SATURDAY,	Oct. 9	Sale of Dutch Bulbs, at Stevens' Rooms.

IN continuation of our remarks on the PRICES OF GARDEN PRODUCE in our issue of September 18, p. 368, we may remark, respecting the CUT FLOWER TRADE, in which so many are now engaged, that it generally happens that there are a few odd kinds, sometimes of one thing and sometimes of another, that are scarce, and consequently fetch fair prices; but the deficiencies that occur in this way are accidental, as it usually happens that when there has been for a time an insufficient supply of any particular flower, the next season it is so much overdone as to be all but unsaleable.

It is scarcely necessary to say that the growers of outdoor flowers in this country, except in the case of the commonest kinds—which never fetch much—are virtually forestalled by the foreign growers, whose climate enables them to be always first in the market. Aided by cheap labour, cheap land, a cloudless sky, and an absence of changeable weather, which the home grower has to battle with, the foreigner is in a position to make light of the one disadvantage he labours under—cost of carriage, the extremely low rates of which for things brought here do not seriously affect him. Neither is it the home growers of outdoor flowers alone who suffer from the influx of foreign produce; the best kinds grown here under glass often do not fetch a third of the price they should and would do were the foreigners absent. The Hyacinth and Daffodil flowers, that come over by the ton in spring, are a case in point; for several weeks each season these are now so plentiful as to bring down to zero the prices of the tender indoor flowers which the home growers have to offer.

With pot plants of nearly all kinds, the same lowness of price prevails. During the last two or three seasons hundreds of thousands of Hyacinths and other bulbs have been sold at prices so little above what was paid to the Continental growers for them as to barely be enough to cover the cost of fuel, pots, and labour, leaving nothing for profit or interest on the capital invested in the houses required to grow them, and which, by the way, is money sunk in stock of the most perishable nature. What has been said respecting Hyacinths and other bulbs holds good with far the greater portion of the different sorts of plants which are cultivated in pots for market. Pelargoniums, which for so long held the leading place amongst flowering plants, have become of so little value that some of the growers who have been the most successful with them have within the last year or two given them up, and taken to things that take less time. Such things as Cinerarias, Primulas, and Fuchsias now often do not fetch more than 3s. per dozen—a price about which it is not necessary to speak further than in remarking that, if the principles of trade unionism existed amongst the hands engaged in growing them either as regards the speed at which the work has to be got through, or the length of hours the workers have to keep at it, the price would not pay for the labour, leaving everything else out of the reckoning.

Those unacquainted with the subject, or who

take a selfish view of it, and jump to the conclusion that if things of all kinds are only cheap enough all is right, regardless of who suffers in the struggle to produce them, may be disposed to offer to the market growers the advice that JUPITER vouchsafed to the waggoner, namely, that they should "put their shoulder to the wheel." This they have done, and continue to do, but it is terribly uphill work when they have not only to fight against over-production at home, but, in addition, have to contend with

will give an idea of the size and stately aspect of this plant, a near relative of the lowly Lords and Ladies of our hedges. The stem or rather the leaf-stalk forms a stout shaft of a green colour mottled with white or yellowish spots, and bearing at the summit a huge leaf-blade, divided primarily into three main branches, and subsequently into a mass of smaller ones, the ultimate subdivisions being ovate-lanceolate. The spathe is thrown up from the tuber at a different period from the leaf, and has not as yet been produced at Kew. One huge leaf here does the work of many.



FIG. 88.—*AMORPHOPHALLUS TITANUM*.

foreign competition in the struggle in which they are unequally handicapped.

— *AMORPHOPHALLUS TITANUM*.—Some time ago Signor BECARI forwarded us an account of the most gigantic of Aroids yet known, and discovered by him in Sumatra. Referring to the account in vol. x, 1878, pp. 596, 788, under the name of *Conophallus Titanum*, for the full details of this very remarkable plant, we now place before the reader an illustration, by Mr. ALLEN, of a specimen growing in the Victoria-house in the centre of the T-range at Kew, and which has been a striking object in the house for a long time past. This and our other illustration (figs. 88 and 89)

— RICHMOND.—We are pleased to hear that the Vestry have been empowered to purchase the Duke of Buccleuch's estate, with the view of converting it into a public garden. There was a feeling of dread lest the speculative builder might get hold of the property, and so deface the most lovely view of the kind that England has to show. Thanks to the public spirit of the Richmond people, this gigantic piece of vandalism has been averted, and the many attractions of Richmond will be enhanced rather than defaced. Well done, Richmond!

— SEMI-DOUBLE FLOWER OF *ODONTOGLOSSUM WILCKEANUM*.—Mr. JAMES sends us a flower of this species, projecting from the column of which, on



FIG. 89.—A GIANT AROID AT KEW, AMORPHOPHALLUS TITANUM. (SEE P. 432.)

either side, is a small petal, exactly like the true side-petals, but smaller. There is little doubt that these supplementary petals represent two of the outer rows of stamens which an Orchid has *in posse*, and sometimes *in esse*. According to the Darwinian scheme of notation, this flower then has the stamen A 1 perfect, A 2, A 3, petaloid, while the remaining three, a 1, a 2, a 3, are absent.

— CAUCASUS BOXWOOD.—Vice-Consul GARDNER reporting from Poti, says, that the Boxwood forests in the vicinity of Poti are exhausted, and supplies are now drawn from Abkassia, which province has lately been opened to cutters by the Russian Government. About 2000 tons were cut and exported during the year 1885 to the United Kingdom. This wood is of fine clean growth, good colour, and great thickness, many pieces being 15 inches in diameter.

— THE RIPENING OF GRAPES.—The first rudiments of the flower, like those of a Rhododendron, are always produced in the autumn previous to the expansion of the flowers. The lowest buds appear first. Upon the general vigour of the Vine, and more particularly of the bud itself, depend the abundance and condition of the flower. Sometimes the absence or the enfeebled condition of the bud is dependent upon the weak state of the nearest leaf. M. MÜLLER, from whom we quote, says the leaf is a slip; the flower-buds of a Vine are not axillary, but opposite to the leaf. The flower-bud once formed grows very slowly in autumn, and not at all in winter. Growth recommences in spring, and is more active then even than in autumn, when there is a higher temperature. Self fertilisation is preferred by M. MÜLLER to cross-fertilisation, as affording better and more certain results. The swelling of the berries is facilitated by nitrogenous manures—an indication for the use of liquid manure after the berries have set.

— ADIANTUM CUNEATUM ELEGANS (see *Gardeners' Chronicle*, p. 134, August 1, 1885).—Mr. C. KERSHAW, of Brighouse, sends us plants of this variety of Adiantum, described in our columns last year in the number for August 1, and there spoken of approvingly. It still retains the elegant character which suggested the name, and we observe from the plants now before us that it is particularly dwarf and compact in habit, and therefore capable of being kept in a state fit for furnishing and decorating purposes for a long time with little trouble. When we say that it is pleasing and graceful in appearance, we only say what is true of the type form and of most other species of this genus. The remark is quite true of this variety, but besides it has the dense stocky habit above alluded to as an additional recommendation. Mr. KERSHAW informs us that it is a very hardy variety, and that the plants produce an enormous quantity of fronds, of which, indeed, the examples before us bear full evidence.

— GRAPE SEEDS.—Microscopical examination shows that these seeds have on the outside a layer of cells filled with hard woody matter; this is the protective layer. Beneath it is a layer of cells, which have the faculty of absorbing and retaining a large quantity of water, and this overlies a layer of cells containing tannin. The substance of the seed (the perisperm) contains much fatty matter, albumen, and aleurone.

— NEW COMMERCIAL BOTANY CLASS AT THE LIVERPOOL UNIVERSITY.—There is now, says the *Chemist and Druggist*, every probability that with the commencement of the autumn term a commercial botany class will be formed, having as its teacher, Mr. R. J. HARVEY GIBSON, M.A., F.R.S.E., who is at present demonstrator of biology in the college. The aim of the class will be to impart a sound knowledge of the nature and the methods of preparation of the principal commercial products of the world which owe their origin directly or indirectly to the vegetable kingdom. The subjects will be discussed under five heads—viz., food material, drugs, clothing, &c., architecture and general purposes. In regard to the second of these, it is announced that "the characters of the plants employed, and the mode of extraction of the active principles and oils, &c., will be the points more especially dealt with." Of the fifth subject—"general purposes"—it is said that the section "will embrace a discussion of such products as gums, dyes, &c., not conveniently classifiable

under any of the other headings." The classes will be held in the evening, and the fees are to be based on a low scale, with the view of securing the attendance of those persons who are most interested in the different subjects, to whom ordinary fees might present a difficulty.

— CANADIAN NEWS.—The first steamer with Canadian fruit for the Colonial Exhibition sailed for London on September 24, and the second was to sail on September 30. The fruit has been carefully selected, and of only such a degree of ripeness that it will be in good eating condition at the time of arrival. The steamers are fitted out with specially constructed refrigerators. — The Canadian correspondent of the *Liverpool Journal of Commerce* says that the report prepared for the Canadian Grand Trunk Railway Company of the crops in the section of the Dominion traversed by that line is generally of a very encouraging kind. The yield of fruit alone is expected to be poor, and only in some localities. On the main lines between Toronto and Montreal the yield of Wheat is estimated at 15 to 20 bushels per acre west of Morrisburg, and 20 to 25 bushels east of that town. Barley is a magnificent crop, averaging about 30 bushels. Root crops west of Belleville are good, but eastward Potatoes are, to some extent, rotting. The hay crop is variable, but good in most places. On the Midland main line Wheat will average 20 to 25 bushels per acre, and Barley and Oats 30 to 35 bushels. In the section covered by the Cobocoonk branch Wheat averages 20 to 30 bushels, Barley 30 to 35 bushels, and Oats 40 bushels. Roots are good and fruit fair. The quantity of grain to be "shipped" during the present season from this part of the country will be 30 per cent. more than that of last year, and on other portions of the line 20 per cent. more.

— NATIONAL CHRYSANTHEMUM SOCIETY.—A general meeting of this Society will be held on Monday, the 11th inst., at 7 o'clock, P.M. at the "Old Four Swans," 84, Bishopsgate Street, City, when E. SANDERSON, Esq., President, will occupy the chair.

— THE BOTANICAL EXCHANGE CLUB.—We have received a copy of the report for 1885, which gives some notion of the doings of a small but devoted band of British botanists. Among other things, we note that one contributor has collected a series of varieties of the common Shepherd's Purse, *Capella bursa pastoris*. This practice is likely to be of great value in enabling us to estimate the limits of variation in any one species, and in ascertaining the lines in which natural selection might possibly operate. We hope Mr. MOTT's specimens are accompanied by notes as to the circumstances and conditions under which the varieties grew. The importance of such observations in ascertaining what characters are of physiological and adaptive nature, and what of more direct genetic significance, can hardly be overestimated, and they would add special interest to the mere discrimination of forms, separated by very slight or by inconstant barriers.

— EDWARDS' DESICCATED SOUP.—Messrs. F. KING & CO. (Limited) forwarded us a sample of their soup for trial. The packet contained 1 oz. of the dry material, and made three-quarters of a pint of good soup, being very nicely flavoured with vegetables. It would be very handy in a house where soup might be wanted in a few minutes, and it is inexpensive, the sample we tried being a pennyworth.

— ORIGIN OF THE BLOOD ORANGE.—A correspondent sends us the following cutting from the *Tropical Agriculturist* respecting the origin of the Blood Orange, in the hope that its appearance in our columns may lead to a discussion tending to confirm or refute the ideas suggested in it:—

"The Blood Orange.—Another very curious and popular Orange is the Blood. The general appearance of the tree, leaf, and flower, differs only from other Orange trees in the absence of thorns. Its fruit is distinguished by a colour of blood which develops itself gradually as the fruit begins to ripen. Little by little the blood-coloured spots appear in its pulp; as it advances to maturity these enlarge, becoming a deeper blood colour, finally embracing all the pulp, and spreading to the skin, which becomes a brighter blood colour, the longer it is allowed to hang on the tree. This variety

of Orange has provoked much discussion, and many theories have been advanced as to its origin, some claiming it was produced by grafting the Orange into the Pomegranate tree; others that it was simply a freak of Nature. From conversation with Mr. ROSE, manager of the New York Fruit Exchange, who spent twelve years in Orange culture on the island of Sicily; and from Mr. G. AMOROSO, one of the most experienced growers in Sicily; and other Orange importers and growers, I am positively assured that the Blood Orange is as distinct a variety as is the Baldwin Apple from the Greening, and as a graft from a Baldwin Apple tree upon a Greening tree will produce a red Baldwin Apple, so the product of a bud or graft from the Blood Orange tree, when grafted or budded into any other variety, will surely be a Blood Orange, thus proving beyond a doubt that the Blood Orange is not a freak of Nature, but a distinct and separate variety, produced by hybridising the Orange with the Pomegranate. (1) In the start the Blood Orange is grafted from the Orange to the Pomegranate tree, and in two years time is again grafted from the Pomegranate to the Orange, so as to secure a regular supply of bloods which otherwise would soon die out, the Pomegranate being short-lived. I have given this species special attention owing to the various opinions—purely guess-work or theory—expressed both upon the street, among the fruit trade, and in the newspaper columns; for that reason I have interviewed the above-named gentlemen, whose opinions I accept and present by permission as indisputable authority."

Of course no gardener would admit the preposterous notion that a Pomegranate would either graft or hybridise with an Orange.

— APPLE BISMARCK.—We noticed at Stanstead Park Nursery, Forest Hill, this new Apple, of which great quantities are grown, fruiting well in pots, and in the open ground. It appears to be very prolific, and to take after the Nonsuch, but more highly coloured.

— EUSTOMIA EXALTATUM.—This is the *Lisianthus exaltatus* of LAMARCK, or the *L. glaucifolius* of JACQUIN, and is inferior in size and showiness to that of the more lauded *L. Russellianus*, which flowered some time ago in Kew and had the same erect, rather stiff habit, with the shoots terminated by a huge solitary flower. The plant under notice, however, is altogether smaller and comparable in habit to our native *Blackstonia* (*Chlora*) *perfoliata*, with blue flowers, however, instead of yellow. The flowers being all produced at the apex of the branches, give the upper part of the plant a naked and somewhat leggy appearance, a fault noticed by other observers. The cordate or ovate leaves are opposite, and together with the stems have the same glaucous appearance as *Blackstonia*. The corolla is of a tint approaching to the blue colour seen in *Excaum affine*, and is accordingly much less intense than that of *E. macranthum*, one of the best of all *Genianthos*. Both the latter have been in excellent condition for many weeks in the Begonia stove at Kew, and are likely to be so for weeks to come. *Eustoma exaltatum* is figured in the *Botanical Register*, 31, 13, and occurs wild in many parts of North America, Mexico, Cuba, and St. Domingo. It is the practice to grow the plant as a biennial from seed, but if cuttings were taken off early enough the plant might be perpetuated in that manner just as many other *Genianthos* are treated, which are otherwise often difficult to procure from home-raised seed. Sandy peat has been found a good medium in which to grow it, watering freely when fairly into growth.

— GARDENING APPOINTMENTS.—Mr. WALTER VINCENT, late Head Gardener to HOWARD GILLIAT, Esq., Cecil Lodge, Abbots Langley, Herts, has been appointed Head Gardener to THOMAS BEVAN, Esq., Stone Park, Dartford, Kent.—Mr. JOHN WILKES, late Gardener to GEORGE MEAKIN, Esq., The Hayes, Stone, Staffordshire, has been appointed Gardener at Creswell Hall, Stafford, Mr. MEAKIN's present residence. Mr. JOHN BATES, late Foreman under Mr. WILKES, to be Head Gardener at The Hayes, Stone.—Mr. WILLIAM FRY, Foreman at Lower Castle, Penrith, has been appointed Head Gardener to L. C. SALKELD, Esq., Holme Hill, Dalton.—Mr. R. WOODWARD, late of Woodbridge Park, Guildford, Surrey, has been appointed Gardener to H. MICKLEM, Esq., Rose Hill, Henley-on-Thames, Oxon.—Mr. C. W. BAYNES, late Gardener to General McDURDOCK, Rosebank, Fulham, as Gardener to D. WALKER, Esq., Wolverton, Beckenham.

SCOTCH NOTES.

THE INTERNATIONAL EXHIBITION,
EDINBURGH.

THE continuous horticultural display has been well kept up by Messrs. Dickson & Co. of Edinburgh; Cocker & Sons, Aberdeen; Dobbie & Co., Rothsay; Campbell, High Blantyre, Glasgow; Lamont & Son, Edinburgh; and D. MacDaniel, Boskoop, Holland. The last-named exhibitor put up a limited selection of Apples and Pears and Dutch bulbs; Williams' Bon Chrétien, Durandeau de Tongres, Beurré Merode, and Beurré Goubault were the best and most striking amongst the Pears; and Dantziger Kaut Apple, a large handsome dessert sort, was the most notable of the Apples.

Messrs. Lamont & Son, in addition to their attractive display of single and Cactus Dahlias, have had a very fine exhibit of choice Gladioli, Phloxes, and other florists' flowers. Mr. Campbell maintains daily the superior quality of his Dahlias, Hollyhocks, Pansies, Carnations, and Picotees. Messrs. Dobbie & Co., in addition to the specialties recorded in a former note, set up magnificent samples of their selected Parsnip, Leek, Blood-red Onion, and Parsley. These are all very good in their way—scarcely a fault or blemish to be found about any of them. The Onion and the Parsley may be described as specially excellent. Messrs. Cocker & Sons were most attractive with their massive bank of Rose blooms, chastely relieved by elegant small Palms, such as Kentias and Cocos, and Maidenhair and other Ferns in pots. Amongst their collection of hardy herbaceous plants very fine spikes of Lobelia Tupa, a Chilean species not usually accounted hardy in the North, were seen from time to time. Messrs. Cocker find this distinct and remarkably handsome plant perfectly hardy with them.

Messrs. Dickson & Co.'s collection of Apples formed a point of very considerable interest to the general public. Upwards of 150 varieties were exhibited, all of which were grown in the open quarters of the firm's nursery at Liberton, near Edinburgh. The aspect is a north-west one and rather exposed, certainly not the most favourable conditions for successful Apple cultivation. Here Messrs. Dickson & Co. have laid out a stock ground with about 300 varieties of Apples procured from many sources with the view of testing the fitness of each for cultivation in Scotland. That the test is a severe and conclusive one is clearly shown in the collection put up in the exhibition during the last fortnight. Many sorts well known in the more favoured parts of England are to be seen in the collection in the most forbidding condition—small, hard, green, and so palpably sour that the most reckless urchin would pass them by without regret. Some of these would, no doubt do well in Scotland on walls with a good warm aspect, but the object of the experiment was to test and make known to the public those varieties that might be relied upon for good cropping and marketable qualities when planted in the orchard as standards or in pyramid and bush form in the kitchen garden. Comparatively few of the 150 sorts exhibited appear to stand this test satisfactorily. The following are some of the best as noted from the collection:—

Keswick Cod in (St. George).—A variety of Codlin from Nottinghamshire strongly resembling the Max Codlin, but the fruit is larger and the tree is said to be a more healthy and vigorous grower. Duchess of Oldenburg; fruit a good size, but later and not so well coloured as it usually is in the South. Ecklinville; fine fruit and one of the most reliable in any situation. Hawthornden, both the new and the old variety, were fine fruit, but somewhat spotted. Golden Noble, though smaller than it is usually seen in the South, was yet of good size, clean and attractive. Professor, a seedling from Royal Codlin, raised by Messrs. Dickson & Co., is a very superior looking early kitchen Apple. Greenup's Pippin has rather a strong resemblance to Yorkshire Beauty, but appears to be a later variety. Lord Suffield; this was in splendid size and form, and some branches exhibited with the fruit attached showed admirably its enormous cropping qualities. Royal Codlin; very fine. Messrs. Dickson consider this the best of the Codlins for Scotland, and always recommend it when referred to by customers for advice; Stirling Castle very good; Pott's Seedling, fine, but not up to the standard of size and quality it attains in better

situations. Cellini, very good, but not so large as in the South; Messrs. Dickson look upon this as a very desirable sort for Scotland, though it is somewhat liable to canker where the subsoil is cold and ungenial. Worcester Pearmain, very fair in quality, but rather undersized, compared with southern samples, and lacking the high colour characteristic of the sort, though this was ascribed to the cold sunless season. Warner's King, splendid as to size and quality; King of Pippins, very fine, and at Liberton an abundant bearer; Oslin Pippin, comparatively small, but of choice quality, bears fairly well in the open ground, but would, no doubt, be much better from wall trees on which it is usually grown in Scotland; Grenadier, handsome, and of good size; Messrs. Dickson say this promises to be one of the very best. Early Julien does well evidently at Liberton, the samples being good; Ringer, good samples, said to bear profusely at Liberton; Brown's Summer Beauty, a very attractive medium-sized Apple, said to bear well; Small's Admirable, a handsome Apple of good size; Summer Strawberry, very pretty and attractive, and said to be very prolific. Robert Black; this is given as a provisional name to one of the most notable Apples in the collection. Its history is not known to Messrs. Dickson, and though samples have been submitted to leading authorities they have failed to identify it. It is a beautiful early yellow Apple, of considerable size and handsome shape, and is said to be a free bearer. Jacques Lebel, a large handsome fruit, and said to be a valuable late sort; Lord Grosvenor, very good samples, and the sort is regarded as a promising one for extended cultivation in Scotland; Irish Peach, fair samples—this is regarded as by far the best early dessert Apple for Scotland; Court of Wick, small as compared with southern samples, yet good and desirable; Dredge's Fame, of medium size, but handsome, and said to be a good and reliable bearer.

It is not implied that the foregoing selection comprises all that were worthy of being noted in the collection, they are merely the more notable of those that do well in the severe conditions under which they have been tested. There were many others that were above ordinary merit, and many which in more favoured localities in Scotland, are known to be of first-rate quality and altogether desirable. X.

THE FERNS OF THE ALPS.

We have in the chain of the Alps a certain number of interesting Ferns whose culture would not be attended with any difficulty, especially in a damp climate like that of England. I have for the most part raised them from spores in the Jardin Alpin d'Acclimatation. These Ferns may be, from a cultural point of view, divided into two sections—the purely terrestrial species, which grow in and cover the soil of the forests and coppices, and the rock species which belong to the rocky regions. The first group is met with more particularly in the wooded or mountainous regions; the second in the higher zones. Terrestrial species are, however, found in the high regions and vice versa.

Botrychium virginianum, Eastern Switzerland, Bavaria, Tyrol; *B. simplex*, Engelberg; *B. rutefolium*, Bormio, Chamounix; *B. lanceolatum*, in the Upper Engadine, near Pontresina (Boissier's herbarium, in a manuscript note of Milde); and lastly, *B. Lunaria*, common in all the high regions of the alpine chain, are six perfectly distinct species of one genus, all very interesting, and of easy cultivation. They are essentially terrestrial, requiring a deep, rather light soil, slightly peaty, and moist. They all prefer sun to shade, but do not like to be too dry. In order to have them as fine plants they must be planted rather deeply in ground covered with turf and rich in humus. The most beautiful of these species, to my mind, is *B. rutefolium*, the rarest *B. lanceolatum*, which I have not yet cultivated like the rest. *B. Lunaria* is the commonest of all, and is also the most easy to raise. It is quite a simple matter to grow it from spores. I have found it on the summit of the Pointe du Plan, in Savoy—large forms, of a height of 9 inches, more or less.

Gnophochlena Marante (*Gymnogramma Marantae*) is not, strictly speaking, an alpine species; it grows on walls in the low regions of Tessin, in Valteine, and in the valleys of Aosta; it is essentially a rock-loving species, and requires a warm and moist situation. Its foliage is stiff, but at the same time elegant, and the fronds are of a red-brown colour beneath.

It is one of the most interesting Ferns of Northern Italy.

Allogrus crispus (*Cryptogramma crispus*) of the high granitic Alps at an altitude of from 6500 to 8000 feet. This charming little Fern is met with on the stones of the Alps, which it envelopes by its presence when all around it is dead and withered. Only this summer I have seen it but a few steps from the Hotel Weisshorn-Anniviers, in the rubbish of granitic rocks which possessed no other vegetable life than it except lichens. It is one of the prettiest alpine Ferns; it has, like *Osmandas* and *Ophioglossums*, both fertile and sterile fronds. The sterile fronds spread themselves on the ground, and are wonderfully graceful, while the fertile fronds are stiff, and stand erect in the centre of the others above which they project. It is a purely rock plant, and a granite-loving one. Under cultivation it assumes a much finer appearance when it is planted deeply in the *débris* of crystalline rocks; it also likes a sunny exposure.

Blechnum spicant is found chiefly in the woody and mountainous region. Its leafage is stiff, of a sombre and glossy green colour, and it is very decorative, at least, as far as its sterile fronds are concerned. As to the fertile ones they are stiff, not very graceful, and much narrower. This is a terrestrial plant, liking shade, a light soil, rich in humus, and rather more dry than wet.

Asplenium septentrionale, Hoffm., is a plant belonging to the granitic rocks and erratic boulders. It is a native of the sub-alpine zone, and will hardly grow at a greater elevation than 5000 feet, but, all the same, it is sometimes found in the plains attached to erratic boulders. Has it been maintained on these rocks (which are sometimes met with at enormous distances from the place where the *Asplenium* grows) since the time when they were transported, perhaps by glaciers, or by landslips from the heights down to the lower levels, or, has it been introduced by means of its spores, which certainly float about in the air to great distances? It is a question. A very interesting fact has just been made known at a meeting of the "Société Helvétique des Sciences Naturelles," by Professor Forel, of Morges. The learned Professor has been exploring, for several years, the waters of the Lake of Geneva; he has even made a very curious map of the depths of our lake. When sounding at Yvoire, the Professor got from the bottom of the lake, at a depth of about 500 feet, on a glacial moraine beneath the surface of the lake, some little calcareous pebbles on which he has demonstrated the presence of mosses. Moss at this depth seemed to him to be extraordinary, and he had the species determined by Professor Schaezler, of Lausanne, who has referred it to *Thamniun Alpeorum* of Schimper, a terrestrial species growing on damp rocks. This species was probably fixed on the rocks at the time of the glacial period and was held fast and maintained there during their breaking up and melting. It has remained at the bottom of the lake, and, little by little, has habituated itself to its new conditions; there it has sustained itself, probably reproducing itself by spores, although as yet there is no proof of that, and it has produced the form called by Schnetzer Bociol. This determination has been confirmed by the celebrated bryologist, Limpricht, of Breslau. It need not, then, astonish us that *A. septentrionale*, which decorates the erratic boulders of our plains, should have accompanied the *débris* of the granitic mountains in their course, and have been able to exist on them up to the present time. How can we otherwise explain the fact that *A. septentrionale* is found on the erratic boulders of the Jura, a district essentially of limestone, especially when it is known how far apart are these two chains of mountains? This species is very characteristic; its fronds are elongated, slender, linear, having only from two to four segments, sometimes incised at the summit; it is decidedly rock loving, and likes the sun. It succeeds admirably in the chinks of walls.

A. viride appears to be merely an alpine form of *A. trichomanes*. *A. viride* is, however, a distinct and real species, distinctly characterised by the green colour of its rachis, by its herbaceous habit, not winged, its segments having short petioles and more deeply crenate than in *A. trichomanes*; it likes shade and moisture, and a limestone soil mixed with a quantity of humus.

A. germanicum (*A. Breynii*).—The Alps of Eastern Switzerland and of Tyrol. Some botanists think

that *A. germanicum* is only a hybrid between *A. trichomanes* and *A. septentrionale*. I ought to acknowledge that, until the contrary is proved, I am inclined to that idea, for I have never seen *A. germanicum* in fructification, and I have not had the opportunity of growing it. If any of my readers could send me any information on this subject it would be received with many thanks. *A. germanicum* is nearly always found in company with *A. trichomanes* and *A. septentrionale*, and in granitic rocks. Its cultivation is the same as that of *A. septentrionale*.

A. fontanum (*A. Halleri* var. *pedicularifolium*).—Eastern and Southern Switzerland, Tyrol, in limestone rocks, Jura, and Salève, near Geneva. A very pretty species, with finely and delicately cut fronds. The plant should be grown in the shade, in a stony soil, or in the chinks of old walls.

A. adiantum nigrum.—A rather rare plant of the sub-alpine and mountainous region. Leaves 8 to 12 inches in length, rachis dark brown. The general colour of the plant is dark green, and very glossy. It likes a light porous soil, mixed with a few stones, and a warm though shaded situation.

A. Seelitzii.—A rare plant of the high dolomite mountains (Tyrol), at an altitude of more than 6500 feet. Fronds of three segments almost triangular, and but slightly developed, a rock plant, liking the sun and moisture.

Athyrium rheticum.—Of the lower Alps and Jura. A graceful plant, very finely cut, and showing much analogy to *A. Filix-foemina*, from which it is only distinguished by a very small indusium, visible only in its very young state. A terrestrial plant, which wants a light and deep soil and a shaded situation. Its foliage is caducous.

Aspidium lonchitis.—Alps and Jura, in the limestone regions; it is one of the most beautiful of the Ferns of our part of Switzerland. Its aspect is truly noble and royal, and is very effective in our gardens. It likes a light peaty soil, and a cool and shady spot. Its foliage is permanent in winter.

A. lobatum is one of our most beautiful species, which should be grown in every garden. Its leafage, which lasts through winter, is of a very dark glossy green; it is a fine noble plant, of great beauty. This and the preceding species are the plants which, *par excellence*, are used by the ladies of Geneva to decorate their houses. Unfortunately both these plants are likely to disappear from our country, on account of their being hunted after in winter for decorative purposes. No longer can a single specimen be found on the mountain of Vonache, where formerly it abounded. It is strongly to be wished that people who decorate their rooms with Ferns and then throw them into the street as soon as they are over, would replace the plants by cut fronds with no roots stuck in wet moss; they sometimes last as long as the plants do. The Association for the Protection of Alpine Plants has taken these two plants under its special protection. *A. lobatum* is cultivated in the same way as *A. lonchitis*.

A. angulare comes very near to the preceding species, but is distinguished by the softer texture of its leaves, by its less acuminate segments, and by being strongly attenuated at the base. It is a rare plant of the Bernese Oberland and Tessin. For culture, see *A. lonchitis*.

A. rigidum is found in the calcareous rubbish of the Alps and Jura. The fronds are stiff, upright, and closely crowded. It is of greyish-green colour, and is caducous; it likes very rocky soil and a sunny exposure.

A. spinulosum is a plant belonging to the mountainous region. It is stately, with very broad and reflexed fronds, and is very elegant in appearance. It is a terrestrial species, liking shade.

A. dilatatum is a variety of the preceding species, with broader and more spreading fronds, and the scales on the rachis are of a very dark brown. It grows under the same conditions as the preceding.

Phlegopteris polypodioides and *P. Dryopteris* are two very elegant species, which are found in the limestone *débris* of the Alps and of Jura. *P. Dryopteris* especially is pretty and graceful. The appearance of both is elegant, and their cultivation easy. They prefer a very rocky soil, a shaded but not too moist position.

Cystopteris montana.—Rocky and mossy retreats of the Alps, the lower Alps, and the Southern Jura. It greatly resembles *P. Dryopteris*, with which it is often

confounded. It likes the same conditions as the *Phlegopteris*.

C. alpina (*C. regia*).—Alps and Lower Alps (Dole in the Jura). A very graceful species, greatly resembling *C. fragilis*, from which it differs by the teeth of the segments being notched and by the nerves which end in these notches. A truly rock species, liking moisture and shade.

Woodsia glabella, of Southern Tyrol; *W. hyperborea*, of Eastern Switzerland and of Tyrol, at a higher elevation than 6500 feet; and *W. Ivensii*, a very rare plant of Eastern Switzerland and of Tyrol, are three very pretty, very graceful and remarkable species, which are rarely cultivated in our gardens. They are among the smallest of the Ferns, but these charming little plants are, however, among the prettiest. All three belong to the granitic flora, and are only found in clefts of rocks or between blocks of stony refuse. They like a very stony soil, a little humus, and a rather moist sunny exposure. *H. Correvon*, Director of the *Jardin Alpin d'Acclimatation*, Geneva.

FOREIGN NOTES.

VEGETABLE PRODUCTS IN TUNIS AND TRIPOLI.—Dundee, it seems, has ceased to have the entire monopoly of the trade in juice. In a report from Tunis it is said that the jute sacks required for its grain export are no longer drawn from the Scotch town, but are now purchased second-hand from Belgium for 4*d.* each, instead of 8*d.* or 9*d.* as formerly. The large shipments of grain from India put at the disposal of European importers huge quantities of these sacks, and last year 200,000 were imported into Tunis at half the prices formerly paid. Olive oil is of course the most important article of export from Tunis, though there was a considerable falling off last year. The quality of the oil is inferior to that of Italy and Spain, but superior to that from Morocco and the Levant. By far the greater portion comes from the district of Susa, and Italy and France were last year the largest buyers. Besides olive oil there is a large export of olive refuse, which is what remains of the berry after undergoing the imperfect pressing in vogue among the Arabs. By hydraulic pressure a considerable quantity of oil can be extracted from this refuse, which is worked up into soap, and utilised in other ways. A factory for squeezing this refuse has just been set up at Susa by a French capitalist, which promises to be a financial success. While grain has been freed from the export duties which formerly fettered the trade, olive oil is still subjected to a duty of £5 per tun, which is a direct discouragement to agriculture.

The export of Esparto-grass or Alfa, as it is locally termed, has been more active during the past year. This valuable fibre, nine-tenths of which is shipped to the United Kingdom for paper making, affords a livelihood to the Bedouin Arabs, who load their camels with it and bring it a distance of 100 miles from the interior. The Government has not relieved it from the oppressive duty which for the last nine years has weighed upon it, amounting in the northern districts of the Regency to 12*s.* 6*d.* a ton, and to 17*s.* further north at Susa. The largest shipments take place from Sax. The Alfa from Susa commands somewhat higher prices than that farther south. The unusually large quantity of the fibre which was exported from the Regency in 1881 was owing to a failure of the grain crops in the south, which drove the Arabs to Esparto plucking as the almost sole means of obtaining a livelihood. In 1882 the Arab tribes in the south fled over the border to Tripoli to avoid the French, and that year showed the lowest point to which the export of this grass has sunk. In 1883 shipments of Esparto began to be made from another little port to the south of Sax, called Skira, which would under ordinary circumstances have found an exit at Sax. Skira has been selected as the port of exportation by the Franco-English Esparto Company, which has obtained a concession to export that fibre from a certain district inland from Sax, and which began its operation in 1883.

From Tripoli it is stated that business in Esparto, which had become very slack in 1884, had so far recovered itself as again to be in the position it occupied in more prosperous years. Notwithstanding the low range of prices—10*s.* to 15*s.* per ton below the usual rates of the last two years—the supply of this fibre has not diminished, but flowed steadily into market in even greater quantities than before. The

quality of the grass is better, as would appear from the general satisfaction it has given in England; and it is anticipated that both the quality and quantity in 1886 will be above the average. Freight for Esparto kept low, ranging from 9*s.* to 12*s.* the ton for hydraulic pressed bales, and from 16*s.* to 20*s.* for those mechanically pressed.

PRODUCTS OF NEW CALEDONIA.

The following notes on the products of New Caledonia are from a recently issued report by Consul Layard. Under the head of sugar, he says this article is chiefly grown by the Government by the aid of convict labour on the plantations of Koe and Nembra, and at the convict post of Bouril, all situated on the west coast. About 300 tons per annum are produced, but the fabrication of rum, to be used for convict rations, is the chief object. The sugar is not refined. The locust pest, which in past years was the great drawback to this industry, has not reappeared for the last two years; nevertheless private enterprise has not ventured to resume the cultivation of the cane. Lucerne also grows freely and yields a good return. Hitherto the chief supply has been from the Australian markets, but the Conseil-Général recently placed a tax of 3 francs (2*s.* 6*d.*) per 100 kilos. on this, straw, Oat hay, and all other forage in order to encourage and protect the growth of native produce.

Tobacco has been grown in large quantities about Ourail and Moindow on the west coast, but the supply has rather fallen off of late. It is of very superior quality, and is chiefly used up in the country, but it is an industry that might be much extended.

Banana cultivation should be a paying business seeing that it grows well in New Caledonia, and always finds a ready market in Sydney, where vast quantities are consumed. From its geographical position, Noumea being half the distance from Sydney compared to Fiji, should command the market, and yet what are the facts? Every steamer in the bi-monthly service between Sydney and Fiji, carried on by the Australian Steam Navigation Company, brings from 10,000 to 20,000 bunches of fine fruit, each of which pays 1*s.* freight, an average of 15,000*s.* This amounts to £750, which, multiplied by 24, the number of bi-monthly trips, gives £18,000 for freight alone. The value of the whole of the fruit exported from the colony during the last year amounted to only 1030 francs, or £41 4*s.*

IMPROVEMENT OF PEAS AND OTHER PLANTS.

In the trial grounds of a well known firm of seedmen there were growing in the summer 167 varieties of garden Peas which were sown side by side, so that the merits of different sorts might be tested by comparison. It is by such experiments as these that improvements are secured, and the Ringleaders, Alphas, and other Peas perfect of their kind, developed. A useful modification of this particular vegetable which is now in progress is the diminution of the haulm of the taller sorts. The value of a Pea depends on the character of its pods and the seed contained in them, and the height of some of the tall growing sorts is obviously a disadvantage. The firm in question therefore have set themselves the task of reducing the height of the crop without diminishing the number of pods. They employ their own hybridisers in the prosecution of this task, but like all others in the trade who undertake improvements of any kind they avail themselves of the labours of amateurs. There are enthusiasts and experts in every branch of plant improvement who devote their attention to a few, or perhaps to only one subject, and who attain such success as the professional experts employed by the various firms could hardly expect to accomplish, their attention being generally too much divided. It has happened, therefore, that the most noted breeders of fruits, flowers, and vegetables have been amateurs, and in the case of the Pea the most skillful manipulator who has outstripped all rivals in the work of improvement is a lady. By the magic of the various methods known to those who practise cross-breeding and selection, she has altered the Pea at will, both in reducing the superabundance of the haulm and also by enlarging the pods and seeds.

It can easily be imagined that a breeder of plants will desire, like an author of books, wide publication or distribution, and as he cannot be his own adver-

tiser, on account of the expense, he leaves this special business in the abler hands of one of the great firms of seedsmen. This explains the large number of Peas in the collection just referred to. The firm we have in view employ their own hybridisers in various departments, but they are always anxious to acquire the best of everything by whomsoever it may be originated, and from one source or another they have become the possessors of from thirty to forty sorts of cross-bred Peas of recent date. These have, in fact, been raised during the past three or four years, and all of them were grown last summer in the trial grounds, and subjected to a searching examination.

Among them is a sugary Pea of great merit, which grew side by side with the Duke of Albany, which is a good "all round" Pea, of excellent quality, and profitable for market. But the sugary Pea is not a productive kind. It is exquisite in flavour, but the haulm is deficient, and the pods and seeds are small, so that this incomparable Pea on the table is unfortunately a shy bearer and therefore unprofitable.

In the improvement of such a variety by the increase of the haulm and enlargement of the seeds, without loss of flavour, the breeder finds his opportunity, and when we consider that the marrowfat tribe have in some cases been reduced from 7 feet in stature to the much more convenient height of between 2 and 3 feet without any diminution of the size of the seeds and the yield of the crop, we may hope that the sugary dwarf will be enlarged and rendered more productive without loss of quality.

In passing along the rows, several sorts claimed notice, such as the little early Pea Bijou, which does not exceed 18 inches in stature, and the still more dwarfish American Wonder. By cross-breeding with such varieties as these the giants of the Pea tribe may be readily reduced to a moderate size, for if you cross a "first early" Pea with a tall late marrowfat, you will naturally be landed between two extremes both in regard to superabundant haulm and to the size of the pods; and perhaps the reduction of the size of the pods may cause them to be better filled and more numerous and productive as they are in some of the most prolific sorts whose pods hang invariably in pairs and almost break down the stems that bear them.

Many of the diversities we observe in different varieties of garden plants—both fruits, flowers, and vegetables—are entirely due to the skill of breeders and selectors in availing themselves of a universal law of Nature. They have observed what Mr. Darwin calls the "slight differences" between individuals and turned them to account in the artful moulding of a new variety. We need not confine ourselves to culinary plants. The history of the Fuchsia affords as good an example of the results of cross-breeding as that of the Pea. About half a century ago the only Fuchsia familiar to gardeners was *F. coccinea*, an old sort, which is still common in the gardens of farm-houses and cottages, in the southern counties. About sixty years ago new varieties of this flower were received from the seaboard of the Pacific, where the genus is very widely distributed.

The well-known Fuchsia fulgens of our green-houses, with exquisite long tubed flowers, is one of these, and another is the splendid Fuchsia Riccartonii, a hardy specimen, whose great bushy flourish in the West of England and in Scotland. Many persons must be familiar with Fuchsia corymbiflora, introduced by Messrs. Standish from Peru, a conservatory plant which is sometimes moved out-of-doors in summer when its long and waxen corymb of flowers impart a tropical aspect to the garden.

These are varied sorts, but the Fuchsias of the present day are unnumbered, and they have been produced by the skill of the same class of experts who have modified most of the cultivated plants in turn, amateur and professional hybridisers and cross-fertilisers.

The seed of a superior hybridised Fuchsia has been sold at the rate of 50 guineas an ounce, though no one ever possessed an ounce of such seed, the yield of an "improved" plant being in inverse ratio to the monstrosity of the blossoms, for artificial modification is usually the reverse of that natural modification which sustains a plant in its struggle for existence; and the more highly plants are bred, the greater the disturbance of the reproductive system, and the greater the tendency to modification in their seedlings.

Our modern flowers are not like the old ones, and the gardens of the last century wore raiments widely different from those of to-day. We have shown how the

Fuchsia has been changed and its forms multiplied within a short period, and those who have not given much attention to this subject would be surprised at the number of flowers of which a similar story might be told. Most persons know the Anfrithium or Snappdragon, but the "good old-fashioned" English flower known by that name will hardly be found now except in old-fashioned gardens. An eminent florist has preserved a plant of the old sort, for the sake of comparing it with the modern forms which owe their smart appearance to the arts practised on this and other flowers by himself. His unimproved specimen of this plant is a rampant straggler, with few blossoms—the Snappdragon of our boyhood, well adapted for large flower-beds, or a front position in shrubberies, where it might do battle with the Foxglove and the Phlox, or the Michaelmas Daisy. Modern Anfrithiums, on the contrary, consist of several "sections"—dwarf, intermediate, and tall, ranging from 1 to 2 feet in height, all of them having a compact habit, with many distinct colours in each section.

It would be a long story to relate the modifications of each particular florist's flower, and it seems needless to do so, since the same process of selection, with or without cross-breeding, has been applied to each one of them. Among the much changed plants are China Asters. Some plants are far more stubborn than others, but it is no wonder if Asters readily become mutable, considering the predisposition to change which repeated acts of cross-breeding invariably introduced by occasioning a mixture of breed and such a varied parentage that none can tell what freak of reversion a seedling may display. The Aster is one of those popular flowers which has been coddled by florists with wonderful solicitude. We examined half an acre of them growing last summer in a series of beds. Among the varieties were the Asters, known as Chrysanthemum-flowered, Peony-flowered, having the petals curved inwards, the pyramidal section, and some wonderful dwarfs not more than 7 inches high, and most profuse in the number of their blossoms.

As a rule, Aster seed is grown abroad, but an eminent firm of seedsmen are making an attempt to deprive foreign countries of the monopoly by producing it in England, their immediate object being the improvement of the flower, since the blossoms of home-grown seed have proved both brighter and more durable than those from German seed. The growth of Aster seed, even in our driest district, requires special care owing to the damp weather of autumn, which sometimes rots the blossom of this late ripening seed crop. The blossom may be saved, however, by protecting the beds with a light roof covered with some such material as Willesden paper, to prevent the ball of petals from becoming soaked by rain. With this reference to an incidental method of improvement, we conclude without having by any means completed what is in fact a "story without an end." H. E.

POMPON DAHLIAS.

I HAVE heard it remarked on several occasions of late that the pompon bouquet or Lilliputian Dahlias are taking the place of the single varieties. That the last-named are being cultivated much less than they were two or three years ago there can be no doubt: the flower-loving appear to be tiring of them. I do not wonder at it. New varieties have been raised, regard being paid only to the flowers, and nothing to the habit of growth, consequently those who purchased them found not a few to be of very tall growth, taking up a great deal of room, and hardly repaying the labour and trouble bestowed upon them. A few days ago I looked through the collection of single Dahlias grown at Slough: they had been planted out about the same distance apart as the show and fancy varieties, but they had grown so tremendously and so high that it had become necessary to pass cords along each side of a line of plants, to keep them within bounds, so that a person could pass along between the rows. Many an amateur has purchased single Dahlias only to find them smothering and overpowering everything else planted near them.

Pompon Dahlias have been cultivated in this country for over thirty years, but their beauty, usefulness, and value have never been considered so fully as they deserve to be. What I remember of the earliest varieties were plants of tall growth but always free flowering. Efforts were made

to secure varieties of dwarf growth and with success: Continental and English raisers essayed to do this, and one result has been the addition of some German varieties of great beauty and usefulness, and now there are over fifty recognised varieties in cultivation. At recent exhibitions we have seen pompon Dahlias shown in bunches, and they have been deservedly admired; but cut blooms, however beautiful in themselves, afford no means of judging of the habit of the plants from which they have been taken, which is a matter of great importance. To make a selection of varieties, one should see a collection in bloom.

A few days ago I had an opportunity of looking over Mr. Turner's fine collection at the Royal Nursery, Slough; and I could not help noticing that there were two distinct habits of growth to be perceived, and also two styles of flower—one small and compact, the other larger. Now, my ideal of a pompon Dahlia is a plant growing from 2½ to 3½ feet in height, compact and erect in habit, and throwing a profusion of flowers, erect and well displayed above the foliage; the flowers small, symmetrical, and freely produced. I made a note of the following varieties as coming up to my ideal, and I can confidently recommend them for decorative, cutting, or exhibition purposes. They are:—Garnet, bright orange-scarlet; Comtesse von Sternberg, yellow tipped with white—very pretty; Grüss an Wien, shaded buff or lively terra cotta—a very pretty variety; Princess Sophie Sophiea, wine-crimson, the reverse of rays lilac; Henriette, yellow ground, tipped and suffused with crimson-purple; Hedwig Polwig, crimson, tipped with white; Professor Bergaert, bright or rosy-crimson; Little Duchesse, bluish ground heavily edged with crimson-purple, a little tall, but a very good; Fanny Weiner, yellow, edged with red, a little tall, but very good, and wonderfully free; Nemesis, maroon, tipped with white, good free habit; Titania, yellow, strikingly tinged with brownish-red; Thomas Moore, yellow, deeply edged with red; Mdle. Valentine Faconet, white, striped with purple, erect, and very free; Fashion, orange and buff; Ernest, maroon, with rich crimson shading on the edge, erect habit; E. F. Jungker, amber, rather tall, erect, and very free; Louis Kodani, deep shaded lilac on a white ground, a little tall; Little Princess, bluish, tipped with bright rose; Favourite, rich bright crimson shaded—a little tall, but perfect in form; Gem, a little tall, bright scarlet, perfect shape; Isabel, bright scarlet, petals slightly reflexed—a charming variety, a little tall; Lady Blanche, a perfect white, a little tall, very free; White Aster, with charming fringed petals—wonderfully free; Hilda, pale citron, with slight tip of rosy lilac—small, very free, a little tall; and Ivanhoe (new), the white rays having a lemon reverse, in some cases tipped with white.

Now I will defy any one to name an equal number of single Dahlias as dwarf and compact in growth, free, varied, and pleasing, as the list just given, and as satisfactory in all respects. All the foregoing throw their flowers erect and well above the foliage, not hanging them down as do many of the single sorts, and so mingling them with the leaves. I had only to pass from the collection of pompon Dahlias to that of the single varieties to know how certain is the challenge I have thrown out; and I can go the length of stating that grown in ordinary soil scarcely one in the aforementioned list would exceed to any appreciable degree a height of 4 feet. Then there is a group of pompon Dahlias not quite so compact and certainly taller in growth, though it can scarcely be said of any one that it is too tall for garden culture that have larger flowers not quite so good in habit, yet very free, and admirably adapted for general garden cultivation. The flowers being a little large are, in my opinion, too large for exhibition purposes as pompon Dahlias, though several of them can always be found on competing stands. They are Golden Gem, clear yellow; Rosetta, rosy-purple; The Khedive, white, heavily suffused with deep crimson; Fair Helen, white and lilac; Prince of Lilliputians, very dark maroon; Dora, pale primrose and white; Darkness, crimson maroon—very dark; Amelie Barbrière, flesh, tipped with rose; Little Willie, deep flesh colour; Rosalie, pale primrose, tinted with rose; Profusion, crimson, tipped with white; Wilhelm Nitsche, red, tipped with white; Carl Mendal, bright rich crimson—a line of twenty-one plants of this is worth going miles to see; and Lady Jane, very bright pale red.

The pompon Dahlias have one claim upon the

flower-loving public that the single varieties cannot put forward—they are much more lasting in a cut state, and while the newer single Dahlias appear to be increasing in size to a degree that robs them of a good deal of their decorative value, we are having produced by Mr. Turner and others, small, compact, exquisitely formed pompon varieties that seem to be perfect in their way; and that they are destined to become increasingly popular I have no doubt. *R. D.*

THE ALPINE GARDEN.

Polygonum sphaerostachyum.—Ever as autumn returns we have a profusion of *Polygonums* in flower, but none are more welcome or charming in their way than those that are truly alpine, or sufficiently dwarf and ornamental to secure their admission to the alpine garden. The species under notice is characterised by a more upright habit than *P. affine*, generally known in gardens as *P. Brunonis*, and if less adapted for creeping over banks and ledges than the latter it compensates for this deficiency by its dense, short, oblong spike of deep red, nodding, or pendent flowers. Owing to its erect habit it never forms broad, spreading patches like *P. affine*, but is if anything more accommodating to a restricted area, and deserving of cultivation even in a limited and select collection. There is a figure of this species in the *Botanical Magazine*, t. 6847. It is synonymous with *P. affine angustifolium*, and it has been cultivated in this country even under the name of *P. affine* var. *Brunonis*. The plant, in a wild state, is widely distributed throughout the Eastern and Western Himalayas, at elevations ranging from 11,000 to 15,000 feet, consequently cultivators may invest in it without hesitation on the score of hardiness. The *Polygonums* generally are so easy to grow and require so little attention after being established that growers are on that account apt to undervalue them, although in doing so they are computing them according to a false standard. Any moderately good garden soil will suit them, provided it is tolerably moist, with a proper exposure to light.

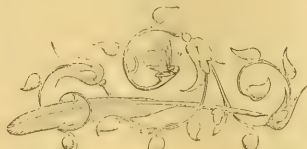
Polygonum vacciniifolium.

There are few probably who would not reckon this the best of the genus for rockwork purposes pure and simple, for although it lacks the intensity of colour peculiar to *P. sphaerostachyum*, the delicate pink hue of its slender cylindrical inflorescence coupled with the miniature leaves, resembling, as the specific name implies, the foliage of some species of *Vaccinium*, all combine to give the plant that refined appearance to which it justly owes its popularity. Like the above species it appears to be a common and widely distributed Himalayan species, ranging at an altitude of 11,000 to 13,030 feet. According to the experience of some cultivators it seems to lose its leaves to some extent in exceptionally severe winters, but beyond this its cultivation is attended with no difficulty whatever. The plant will grow in either sun or shade, but seems to flower much better if freely exposed to the sun. Cuttings taken off at a node root readily in sandy soil under a hand-light or other similar protection, and this they will do the more readily if the shoots employed have been in contact with the soil, or if the weather has been moist some time previously. This applies to a great many herbaceous plants, and may be explained on the principle that such shoots under the conditions mentioned are generally disposed to throw out roots spontaneously, if the plant producing them is of creeping habit. The species under notice is figured in the *Botanical Magazine*, t. 4622, and flowers continuously from August to November.

Cyclamen neapolitanum.

Notwithstanding the fact that this plant habitually throws up its flowers unaccompanied by the foliage in the autumn months, it is, nevertheless, a highly ornamental and desirable plant when well grown. Large tubers grown singly and dotted about in somewhat shady nooks in the rock garden prove very attractive as summer gives place to the cooler and waning days of autumn. Large clumps, however, are more desirable where they can be accommodated, as such are more conspicuous and decided in their effect. A shady position is the most natural, and growth will be most satisfactory, and the foliage will put on its most attractive colours if the plants are well exposed to light, but screened, of course, from the direct rays of the sun. They do not require much moisture if so

shaded as to maintain a cool soil where the tubers are planted. Good drainage is also requisite for the better keeping of the tubers. The foliage succeeds the flowers later on, and is very handsome and highly marked with grey on a deep green ground. If a mild winter succeeds an open autumn the leaves are a special feature in themselves where the plants are grouped, and exhibit much variety in the marbling. The flowers are white or rosy with a bright purple spot at the base of the petals, but exhibit a tolerable amount of variation from deep rose to pure white. Some individuals are more or less distinctly seined. The plant is figured in the *Botanical Register*, xxiv, t. 49, and here belongs *C. hedifolium*, naturalised in some parts of Sussex and Kent, and figured in Syme's *English Botany*, 1136, 1137. *J. F.*



HOME CORRESPONDENCE.

The Autumn and Winter Crocuses.—At a time when the delicately tinted flowers of *Crocus speciosus* and other autumn varieties are expanding their blossoms it may not be amiss to remark on their extreme beauty, and their value in adding interest to the rock garden and the front row of the herbaceous border. From the time that the first large purplish blossoms of *C. nudiflorus* open, about the middle of September, until April, a succession of flowers may be obtained. They are not sufficiently plentiful to be sold at a cheap rate, and no doubt the reason for this is that they are not sufficiently known, else there is no doubt that a demand for them would arise, which would go on increasing until the trade would be compelled to propagate them in quantities in the same way as they do with the Dutch spring flowering varieties. Besides the two I have named *C. longiflorus* is pretty common, and all of the above are moderately cheap; but the handsome *C. hadriaticus* and *C. Boryanus*, the very pretty lavender-coloured species, *C. pulchellus*, and others which were well known to Dean Herbert upwards of forty years ago, have now, I suppose for lack of interest in them, to be sold at half a guinea a dozen bulbs, whereas they ought, if sufficient interest could be aroused in their culture, to be sold at less than a hundred. The winter flowering varieties must have the shelter of a frame or pit. There are not a great many winter flowering species or varieties but *C. Aucheri*, orange, and the violet and purple saucelones, are the easiest to obtain. The remarks on Crocuses are naturally followed by some reference to the *Colchicums*. *C. autumnale* and its numerous varieties are well known, but the much more beautiful *C. speciosum* is not so well known as it ought to be; we have it planted in various positions, but it has done best on a ledge of a dry sunny bank facing the south. Here the bulbs produce grand flowers followed by immense foliage, almost as large again as on those planted in the borders. Three bulbs planted on this dry ledge, two seasons ago, have now produced twenty-nine blossoms which have a gorgeous effect. We have yet to learn a good deal about the best positions to choose for the autumn and winter flowering Crocus. Damp shady positions do not suit them any more than such positions do *Colchicum speciosum*. *J. Douglas.*

Prizes for Cottager's Gardens.—I can bear personal testimony to the excellent practical results accruing from the system of awards for the best kept and furnished gardens in the different districts around Bury St. Edmunds, described by our able secretary of the Bury and West Suffolk Horticultural Society in a recent issue. As a stimulus to cleanliness and improved and increased produce nothing could have worked better; the society by its awards to cottagers' produce at each of its shows encourages the special culture of each fruit and vegetable, as Apples, Pears, Plums, Rubarb, Potatoes, Carrots, Onions, Parsnips, Peas, Cabbages, Marrows, Runner Beans, and a general collection comprehended in the best basket. But as Mr. Grieve truly says, all this might be accomplished, and yet the general culture, order and keeping of the entire garden be considerably neglected. The prizes for gardens are considerably neglected by competent judges each season which used to be the condition attached to the prizes rendered slovenly culture or unprofitable cropping impossible to those that contended for and would win first honours. So

marked was the influence of this stimulus to good general culture in the gardens of the cottagers that after a little practice the judges seldom drew up at a garden that was not entered for competition. The difference in favour of the competing gardens was so great that the judges could read their driving, thus receiving a new illustration of the old adage, that those that run may read. Besides, in awarding the prizes for the best gardens, other influences are considered besides those of mere utility. Under the prize system for produce alone the latter is apt to be unduly developed, and to lead to Potatoes, Cabbages, Peas, or Beans literally surrounding the front door or climbing in at the windows. Now, while utility, must ever hold the first place in the cottager's garden, there is no need for it to be the only principle recognised. By a very small sacrifice of space—if, indeed, it be a sacrifice—beauty may be made to drape the cottage and fringe the main path up to it. The judges were among the first to recognise, suggest, and even demand a certain proportion of flowers in the gardens of the cottagers. And in a few cases the smaller areas, as conditions of successful competition, have expanded into admirable flower beds and borders, skilfully designed and admirably filled. First-rate Roses and other flowering plants and climbers and fruit trees may also be found on cottages and outbuildings. The cottagers have also found what some one has well said comes true in their experience, that beauty has proved even more profitable than utility. Even in rural districts, especially within an easy distance of large towns, there is mostly an active and profitable demand for choice flowers, as well as for good fruit and sweet, crisp vegetables. And thus the beauty prize of the cottager's garden is twice blessed—blessing his wife and children and neighbours, and also the less fortunate denizens of our towns, and bringing back yet another blessing, in the needful necessities, or even luxuries of life, from the neighbouring grocer's or draper's. Needless is another primary necessity with prize-takers. No measure of the value of large towns, there is no produce, nor cumulative amount of yield, will compensate for the presence of weeds. Absence of weeds or dirt lies at the base of success. Only those conversant with the enormous loss of produce, of manure, and of labour incident to the growth of weeds in field or garden can appreciate the advantages of the lessons learned in and the examples given by those prize gardens of cottagers. *D. T. Fish.*

Aster and Stock Seed-saving at Forest Hill.—That seeds of Stocks and Asters saved in this country from good strains produce as fine a progeny as any saved in Germany has been abundantly proved during late years. The finest strains of quintessential German Asters grown in this country are English saved. Recognising the fact that there is no deterioration in strains of Stocks and Asters when the seed is saved in this country, as is sometimes supposed, Messrs. Carter & Co. are largely seeding these two important annuals in their nurseries at Lower Sydenham. A large breadth of fine strains of Asters was planted out for this purpose, the leading types being the pyramidal, the Peony-flowered, and the Chrysanthemum-flowered, and the flowers of large size of each. The present fine weather is very favourable to the production of fine seed, and it is being gathered daily. Wooden frames covered with light canvas are provided to place over the flowers by night, and in the day also when rain is imminent, but while it is fine the plants are fully exposed by day. The Asters are all planted in the open ground. The Stocks for seed are grown in pots, and they occupy raised stages so that the air can frequently circulate among them. A sloping boarded covering is permanent overhead, but so fixed as while it can ward off the falling rain, it does not obstruct the sun. There is a good crop of Stock seed which will be soon fit for harvesting. When grown in pots in this way on raised stages, mildew does not attack the seed pods as is too often the case where plants are growing in the open ground. There is no reason why, with proper care, a great deal of Aster and Stock seeds should not be maturing in this country instead of being imported from Germany and elsewhere. *R. D.*

Wasps.—What good news to those that have them not, though somewhat tantalising to those that have them in full average numbers or in excess; for the plague of wasps, like the terrors of sea-sickness, is the more endurable when widely shared. It therefore affords us scant consolation to read of some happy cultivators who have not seen a wasp for months, nor a wasp's nest this season, while they have been preying on our Grapes, Peaches, Plums, Figs, as usual, and we have been bottling them by myriads for weeks, and have already destroyed fifty nests in a small circuit round the gardens. I am not able to write with authority about the wasps to the north or the south of us, but here in the east they are all alive and seeking what they may devour as usual. As a new proof alike of their presence and presump-

tion, I may mention their raids on the sugar basins as being so persistent as to necessitate their being covered while at tea and their attempts to force fruit pies with us in the dish, and in the transit from dish to mouth. Possibly these bold marauders are some of "R. D.'s" hungry emigrants from the South. Not finding our Plums and Peaches sufficiently luscious to their taste they have gone in for sugaring them out of our tea and cooking basins. Be that as it may we have, as already stated, a full average supply of wasps distinguished by abnormal temperance, and also an average supply of hornets. But the greatest plague of this month is the bluebottle fly. For every wasp there must be a hundred of these devouring buzzing abominations that bring about such wholesale desolation and destruction among choice fruits. As a rule the bluebottles wait till wasps, hornets, or birds break the rinds. Then the bluebottles congregate in such masses as to drive the first aggressors and stronger game quite out of the field; wasps and all other creatures either so much dislike the company of the bluebottle, or their buzzing, or as volunteers reluctantly relinquish their holdings to them, or are driven forth from them by the mere force of numbers. Either way, as a rule, the bluebottles finish what more powerful mandibles begin, but this year the flies mustered in such force, and were so impatient as to take the initiative on luscious Plums, Peaches, and late dead ripe Gooseberries. A row of Warringtons, carefully protected from birds, intended for late dessert, on a cool border, were skeletonized in mere rinds in a few days under the combined forces of wasps and bluebottles, the entire row presenting much of the appearance of a wasps' nest and a bluebottle hive until the work of destruction was completed. Neither is it an exaggeration to add that we have caught pecks of wasps and bushels of bluebottles in decoy bottles primed with beer. Were such successful traps more generally set, a sensible reduction might be made on those troublesome pests, not only in our gardens, but in our homes. So soon as the north-east winds pinched them out of our gardens they flocked into our houses, and from main and cottage lood complaints have been raised against the plague of bluebottles this autumn. D. T. Fish.

Variation.—I send plants of the common variegated Ribbon-grass, which turns green here under an arch or bower of Laurels some 30 feet high, where I do not think direct sunshine ever reaches them. Is it because plants have greater difficulty under such circumstances in forming a sufficient supply of chlorophyll (and so oblige all the available leaf-surface to be devoted to making it) that makes variegated plants lose or lose their green coloration?—for example, many of the inner leaves of *Aucuba japonica*, as compared with those most exposed to light. In the variegated common Rush, the flowering stems of which almost invariably lose the yellow stripe below the inflorescence (while retaining it above), there appears to be another instance of absence of variation where additional vigour is required. A record of peculiarities in variation, many of which must be under the notice of all gardeners, might be of considerable use to future workers as the subject of variation, especially as its laws seem to be as yet so little understood. The enclosed *Aucuba* leaves are from the same plant. C. M. Owen. [Some very important questions are here raised. A dark green colour externally (associated with an internal development of palisade cells filled with green colouring matter) is usually taken to indicate the necessity for full exposure to sunlight. That this is not universally true, is shown by the fact that *Holly* and *Ruscus* and other dark-leaved plants do as well and generally better in shade than in full sunlight, and this is in accordance with our correspondent's statements. Perhaps in the shade a larger amount of chlorophyll is required to do the same amount of work as in the direct sunlight, where a lesser amount is necessary. E.D.]

Azalea Deutsche Perle.—Any one desirous of having a thoroughly good early flowering white Azalea, should grow *A. at the Royal Nurseries*. Slough may be seen a large batch of it, Mr. Harry Turner states that he shall grow it largely for cutting purposes, the flowers being well double, pure in colour, and very early in flowering. It is a fine decorative variety also, the flowers being freely produced, and of perfect form. Next in point of value as a white flowering Azalea, Mr. Turner puts *Narcissiflora*; it is a good grower, very fine also, a good forer, and in point of time follows *Deutsche Perle*. The latter is a Continental variety. R. D.

Bees and Colour.—It is asserted by many that colour has no influence on bees—that, in fact, they are colour blind; while others, with a little more reason on their side, maintain that they are not influenced by any particular colour or colours, which, in other words, means that they have no preference for flowers of any particular hue. Looked at from various points of view the question is one which is

attended with serious though not perhaps insurmountable difficulties. At first sight it would seem an easy matter to enumerate an exhaustive list of flowers frequented by bees (calling for these flowers, for the time being, if you like), and then calculate by their relative number of visits what flowers they most preferred. In all probability the figures would be calculated to mislead, and most likely confirm the impression that bees are absolutely indifferent to any particular colour, or almost so. That the hues of flowers as contrasted with the green foliage serve to attract bees as well as insects in general, few, probably, would venture to dispute. But why are we assume the apparent indifference to flowers of particular hues? I am thoroughly convinced it is no choice of theirs, but urgent necessity, in order to eke out what must be to them a precarious subsistence, of which we have ample evidence in light hives in the autumn, with insufficient food to support the inmates till the following spring. There are various reasons to account for and support these statements.

In the first place there has been a wholesale destruction of one of the chief sources of drainage, and other minor and concomitant influences. It is true the fields are occupied with flowering plants, but either they are not melliferous (Wheat, Oats, Barley), or they are not permitted to flower (Turnips, Cabbages, honey-bearing weeds), or our hive bees are more or less unable to extract honey from them (Lucerne, red Clover, Peas). On the other hand, our woods and plantations are filled with many exotic trees, our gardens and shrubberies replete with herbaceous plants, and the mass of which are foreign to British insects. The bee population has increased under man's care, but with the increased competition and the decrease of their familiar flowers, it is no wonder that bees in general have been driven to their wit's end and obliged to fall back upon their intelligence for increased resources and application of means to an end. Having admitted a certain amount of intelligence (and who would deny it?), it is easy to conceive they have to a great extent lost or abandoned the sense of being the original instinct with regard to their preference for the particular colours by which they were wont formerly to detect the flowers most suited to their requirements. Bee-keepers would do well, where flowers are scarce, not only to note this fact but to act upon it by growing in quantity some of those honey-producing flowers where hive bees have no difficulty in getting at the nectary. In all these statements it will be inferred that our hive bee (and the same applies to many of the wild ones) has perforce to get educated to an artificial kind of existence. Rustics can remember in their early youth that wild bees once swarmed where it would now be difficult to find a nest to plunder. Bees have other powers of discerning what flowers contain honey, such as the faculty of smell, and this is evidenced by their habit of perforating the base of those flowers containing honey, but which they are unable to reach in a legitimate manner, owing to the length of the tube of the corolla. Attracted first, doubtless, by the colour of the flowers of *Erica Evertiana*, and then probably by the smell of honey, I have witnessed bees struggling in a vain endeavour to gain admittance both by fresh and withered flowers. The Poppy and the Crocus are two instances of highly coloured flowers that contain no honey, but which are frequently visited by bees for the sake of their pollen. As their odour is more often disagreeable than otherwise (at least to our olfactory nerves) or altogether scentless, it is more than probable that bees are attracted by the gay colours alone, but as in the case of *Crocus vernus* they exhibit no preference for any particular hue. Roses, with their large and showy flowers, are also visited for their pollen, and British species at least do not appear to be melliferous. A rather striking instance of the secretion of nectar is exhibited by the huge ephemeral and brilliantly coloured flowers of *Tigridia pavonia*. The narrow inner segments of the perianth are strongly revolute longitudinally along the sides and again involute at the extreme margin. In this latter fold the honey is secreted, and may with great difficulty be extracted. Hive bees (it would be rash to deny) are first attracted by the brilliantly coloured and spotted flowers, and becoming aware of the presence of honey, struggle with great persistency to reach it, and are reluctantly induced to quit the flower if any one shakes it violently, or employs other rough treatment. J. F.

Bulbs that are Cumulative beneath ground.—Of these I have noted the following:—*Arum crinatum*, *Narcissus papyraceus*, *Lilium candidum*, *Ophrys apifera*, as likewise the roots of *Noctua nidiviva*, *Epipactis latifolia*, and *Epidendrum acaule*. A. D. W.

Messrs J. Cocker & Sons' Roses.—Permit us to refer to the report of the Royal Caledonian Horticultural Society's show as contained in your issue of the 18th ult. It is there stated that we were surprised at being awarded the 1st prize for thirty-six Rose blooms. We are at a loss to know on what authority

your correspondent makes such a statement, for in the opinion of competent judges our exhibits were a good many points ahead of the 2d prize lot, and we would indeed have been greatly astonished had we been placed 2d. Had the judges' decision been otherwise than it was, we would certainly have protested against it, and done so simply on the merits of our Rose blooms, and the fact that they were distinct and properly named, as required by the schedule. It may be mentioned that the larger class contained a box of thirty-six Rose blooms, and not twenty-four as reported. We trust you will take an early opportunity of correcting these misrepresentations. James Cocker & Sons.

Germination of Seeds.—With respect to the germination of seeds of *Primula*, it is noteworthy that in the case of all garden kinds, such as *sinensis*, *Primorosa*, *Polyanthuses*, *Auriculas*, &c., the better the germination, and the quicker, if seeds be sown as soon as well ripened. I believe that principle will be found to hold good with most seeds. These will regard our species, we have but to note what is the common habit of such seeds in Nature. The bulk of these bloom in the spring, and without doubt it is in the natural course of things that the seed falling on to the soil around the plant, literally on the surface, soon germinates, and thus a succession of plants is produced for each blooming season. I think it is probable that very much of the failure incidental to sowing seeds of *Primulaceae* and some other similar things arises from the common practice of holding the seed over for a year before it is sown, or perhaps purchased and sown. As to whether seeds should be buried or otherwise, I think all experience goes to show that, from lack of some proper covering vast quantities of seed are destroyed. One rule as to the seed being covered to a depth equal to its own density may not be always correct, but in the case of small seeds it is fairly so, hence I think those who cover all *Primula* seed just about its density with fine sandy soil, will be right. Very possibly when sown in pans, too much water may be given, perhaps too little. It requires considerable care to make artificial conditions accord with those found in Nature, and doubtless that lack of care leads to many failures. A thin layer of clean moss laid over a seedpan very often produces natural conditions which lead to success; especially does this covering tend to counteract the evil effects of injudicious waterings, and indeed materially helps to render frequent waterings of the seedpans needless. A. D.

Calandrinia umbellata.—A recent reference to the value of this pretty dwarf perennial induces me to point out that, when raised under glass, seedlings are extremely liable to damp off, unless the seed be very thinly sown, and in sandy soil. I have found that the best method of procuring a stock of plants is to sow a packet of seed in the open ground, in sandy soil, scattering the seed rather widely, and leaving it to chance. A moderate number of seedlings may always be reckoned on, and these should be carefully transplanted, before they get too large, to any desired position. Solante.

Vale Royal Gardens.—This, the Cheshire estate of Lord Delamere, is about 2 miles from briny Northwich. I have on a former occasion drawn attention to the way the gardens are kept up, and a recent visit convinces me that the estimate I formed a few years ago about these gardens and the able gardener was a correct one. I stated then that I had visited nearly all the celebrated gardens in this country and on the Continent, but had not seen anything to surpass the high-class gardening carried out at Vale Royal. About ten days ago I paid another visit to this well kept place, and found it impossible to detect a weak spot. The flower gardens and borders contained all the elements that go to make up a perfect picture—things new and old are to be seen in abundance—all harmoniously blended, and giving abundant evidence of foresight and the picturing the far-off effect of present work. The new conservatory is admirably adapted for the purpose intended, which is more than can be said of the majority of such structures, inasmuch as they are usually erected after the design of an architect who is altogether ignorant of the necessities of plant life. The *Celosia pyramidalis* formed a magnificent feature in this building. This plant is invaluable for decorative purposes when grown in the way I saw it at Vale Royal; the rich oriental colours mixed judiciously amongst other flowering and ornamental plants presented a picture which was worth travelling many miles to see; but perhaps the most striking effect was to be seen in the conservatory, which was covered with *Allamanda Hendersonii*. Mr. Milne pointed out the three plants which had produced this marvellous result; they are in 32-sized pots, which are filled with roots, and this appears the only way of flowering *Allamandas* successfully. These three plants must have produced some thousands of blooms. *Calanthes* are done in grand style, and must have a fine effect when in bloom. Fruits of all kinds are

equally well done, and I am sure that I am not exaggerating when I say that it would be impossible to find a finer house of Grapes in the country than that now to be seen at this place. Peaches and Nectarines have also been very fine, and I feel sure that any person who has seen these gardens lately will say that I have not used the language of hyperbole. *Bruce Findlay.*

Grapes at the Last Meeting of the Royal Horticultural Society.—In reading the criticism on Grapes by "Vitis" in your last issue of the *Gardeners' Chronicle*, I see he is displeased with the position of the 1st prize bunches of Mrs. Pearson. I may inform him they were not Mrs. Pearson, but Royal Vineyard; that accounts for them being so much out of character with the other exhibits. *M.*

A Large Emperor Alexander Apple.—I gathered a few days since a large Apple Emperor Alexander that weighed 1 lb. 3 oz. and which is 15 inches in circumference. Is this not rather an unusual size? *J. Hopkins, High Cross, Framfield.* [In the Horticultural Society's minutes, October 7, 1834, E. G. Barnard, Esq., is stated to have shown one of 17 oz., so that your fruit is the heaviest of which we have any record. *Ed.]*

Orchids with Abnormal Flowers.—I know of a woodland in which, perhaps, one half the plants of *Listera ovata* (the Twayblade) have two flowers instead of one issuing from the axils of the bracts. In some cases as many as half a dozen twin flowers were counted on a single plant. A specimen of the Butterfly *Habenaria* (*H. bifolia*) with six pollinia instead of two, and all perfectly formed, I likewise secured during the present season. *A. D. W.*

TRIENTALIS EUROPÆA.

A VERY charming little plant, nowhere very common, but occurring in woods in the North of England and Scotland. In its manner of growth it is not unlike Herb Paris, especially in its whorl of leaves just beneath the umbel of white flowers. The stem, however, is more wiry, the leaves are much smaller, and the flowers are those of a *Lysimachia*. The root-development is very curious, as may be seen from the accompanying illustration (fig. 90), where A represents the seedling plant with the radicle and caulicle; B shows the seed, with the seed-leaves still enclosed; C shows the formation of a horizontal runner, at the end of which is developed a small tuber, as at D. This tuberous development at the end of the underground branches is similar to that of the Bindweed, *Convolvulus*, and is a special provision for ensuring the distribution and perpetuation of the species analogous to that afforded by the Potato. A tuberous Primrose, for such this plant is in a broad sense, will perhaps excite some surprise; but, better still, it may induce some of our amateurs to study the habit of the plant, and so ensure its successful culture. Cribbed and cabined in a flower-pot, as it is sometimes seen in botanic gardens, it certainly is not seen to advantage.

WILLERSLEY CASTLE, CROMFORD.

No one having a *penchant* for the picturesque should fail, when he finds himself in that most charming part of Derbyshire, Matlock Bath, to pay a visit to Willersley Castle, the residence of F. C. Arkwright, Esq. From Matlock to Cromford is a pleasant walk of under 2 miles, along the valley of the Derwent, the river running almost by the side of the road the whole of the distance. But before the visitor leaves Matlock the cliffs, which rise up abruptly and almost perpendicularly on the left hand, and close to the river, mark the outline of the pleasure grounds attached to the Castle. The Castle is situated on the summit of a high limestone rock; below winds the silvery Derwent, at the foot of another cliff on the opposite side of the river. The carriage drive enters from the road leading from Matlock to Cromford, at the foot of the cliff and between it and the river, and then passing over Cromford Bridge, which spans the Derwent, turns to the left, and so reaches the Castle by a winding route under the shade of lofty trees. On one of the stones forming the parapet of the bridge it is recorded that in June, 1697, a frightened horse ran away with its rider, and leaping the parapet on to the rocks forming the bed of the river, both were dashed to pieces.

The manor of Willersley is of ancient origin. Its

records date back for a considerable period. In the reign of Henry VI. it belonged to Richard Milner, Esq., who conveyed it to Sir Robert Leigh. In 1595, so the local records inform us, Henry Talbot, a youngson of Gilbert, Earl of Shrewsbury, died seised of the manor; Gertrude, one of his daughters and co-heiresses, married Robert Pierrepont, Earl of Kingston. Then by marriage it fell into the hands of Edwin Lassels, Lord Harewood. In 1778, Lord Harewood sold it to Edmund Hodgkinson, who resold it to Thomas Hallet, Esq.; of the latter gentleman the late Sir R. Arkwright purchased it in 1782.

The Castle stands on the south side of a commanding eminence, which runs from west to east, and terminates the extensive range of rocks that form the eastern boundary of the Derwent in its course through Matlock Dale. Round the foot of the hill the river flows in a grand sweep for some distance to the east, but afterwards resumes its former direction to the south, and pursues its way through a more open country to its junction with the Trent.

Immediately opposite the front of the Castle on the south side of the river runs an immense perpendicular limestone rock, which forms the western barrier of the Dale; through it a passage has been made to admit the entrance of the new road from the south. From this spot the building is seen to great advantage, its castellated appearance, judicious proportions, exact symmetry, and the surrounding scenery, form a *coup d'œil* that is but seldom witnessed.

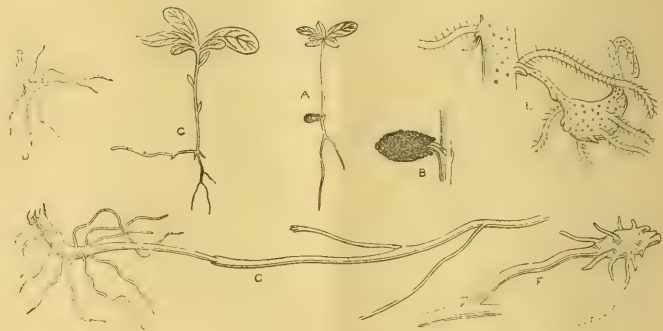


FIG. 90.—TRIENTALIS EUROPÆA.

The Castle consists of a body in the form of an oblong square, having a circular tower rising from the centre of the roof, and a semicircular tower projecting from the front, on each side of the entrance, and two wings, with a round tower at each angle. The whole structure is embattled, and the eastern walls are of light freestone. The spot on which it stands was originally occupied by a large rock, in the removal of which about £3000 was expended by the late Sir Richard Arkwright. The edifice was covered-in some time in the year 1786, and before it was inhabited it was set on fire, by means of a stove that was over-heated, and all that was combustible in it was consumed. This accident happened on August 8, 1791.

The town of Cromford is distinguished by the founder, Sir Richard Arkwright, that most ingenious mechanic, having established the first cotton mill, in 1771, erected in the county, and the first upon so large a scale in England. His astonishing and wonderful penetration may be discerned in the very choice of a situation so suitable to carry on his extensive plans and operations, which laid the foundation of that immense wealth now enjoyed by his family. The mills are supplied from a never failing spring of warm water, which also proves to be of great advantage to the Cromford Canal in severe seasons, as it rarely freezes, in consequence of a portion of water from the spring flowing into it. The mills are now worked by the grandson of the eminent founder. Close by and near to the bridge is the church, which was begun by Sir Richard and completed by his son.

The gardens and pleasure ground of Willersley Castle, extend over a space of about 8 acres. They

grounds have great variety and beauty. Between the Castle and the Derwent is a verdant lawn, which slopes somewhat precipitately from the house, but afterwards inclines more gently towards the river. The east end of the river extends to Cromford Bridge, which stands about a quarter of a mile from the Castle, near to the entrance to the grounds, which opens by a small but very neat lodge. The summit of the Cromford Rock, which has been noticed as rising directly in front of the Castle, is beautifully fringed with trees and underwood, and though towering to a considerable height, it does not terminate the prospect from the Castle, which being elevated in situation almost at the top of the rocks, commands a view of the hill that rises beyond it, called Barrel Edge or Cromford Moor.

The hill behind the Castle rises to a considerable height, and is covered with wood to its summit, as is also that portion of it which extends eastwardly. The coach-houses, stables, &c., which stand near the mansion on this side, though in a more elevated position, are concealed by trees. In the midst of the wood are several romantic rocks, round which, and on the acclivity of the hill, the principal walk runs in a circle of nearly a mile. The walk leading from the Castle to the west gradually turns to the north, taking a direction parallel to the course of the river, and passes under semi-perpendicular rocks, though yet elevated to a great height above the stream. The rocks are in some part bare of vegetation, but are

occasionally fringed to the tops with trees, particularly the Yew and Ash, the roots of which insinuate themselves into the clefts and fissures in a singular manner. Advancing up the walk towards the point called the Wild Cat Tor, the eye is delighted by one of the finest scenes that Nature has produced. It consists of a long rampart of rock, opposite Matlock, down upon which the visitor looks from a great height, and from this elevation magnificent views of the country can be had both to the right and to the left. The walks were laid out under the direction of Mr. Webb.

The flower and kitchen gardens are situated on an elevated slope in the rear of the Castle; on the west side, nearest to the river, is the flower garden, divided from the kitchen garden by a lofty wall; against this, on the flower garden side, are trained various creepers and flowering shrubs; among them were specimens of the charming *Tropeolum speciosum* in full bloom. It is an old-fashioned flower garden of a delightful character, with annuals, biennials, and perennials; a garden in which there is always something in flower, from early in the year until near Christmas. At the top of the slope is a spacious conservatory filled with flowering plants, conspicuous among them some large specimen Fuchsias of ancient character, that are reported once in two years or so. It would be almost impossible to imagine *Tasconia xoniensis* in greater freedom and more ravishing beauty than it is to be seen here. Two plants of it are in pots, one at each end of the central bed, the pots standing on the soil into which the roots have penetrated. Mr. Borlase, the gardener at Willersley, considers it superior to T. Van

Volxemi for the purpose, as it blooms with marvellous freedom. It is trimmed back pretty closely at the end of the autumn each year.

Entering the kitchen garden, there is seen at the top of the incline a series of vineries, plant and Melon-houses, running north to south, and opening at the back into a glass-covered wall of considerable height, and some 8 feet or so in width. A portion of this glass wall is planted with Vines—on the front of course. Peaches and Nectarines are trained to the walls at the back, and over curvilinear trellises in front. Very nice fruit of Stirling Castle, Violette Hâive, Early Beatrice, and other Peaches are grown, and of Elruge, Violette Hâive, and other Nectarines. In the late house were trees of Chancellor Peach at the back, with Royal Kensington Peach and Lord Napier Nectarine in front. In one portion Figs are doing well, the Brown Turkey being particularly noticeable.

The early vinery is a small span-roofed house, not more than 9 feet in height, planted with Black Hamburgs, and from this house as many as 400 serviceable bunches are cut. The main crop vinery is planted with Muscat of Alexandria, Barbarossa, Alicante, and Muscat Hamburg. The late vinery contains Lady Downe's principally, and Alicante. Melons and Cucumbers, also Tomatoes, are largely grown. The collection of plants is a limited one, fruit being preferred.

From the vineries the walled-in kitchen garden slopes southwards, and it is well stocked with good crops of leading vegetables. In this locality, excepting Plums and Pears, outdoor fruits on walls are a somewhat precarious crop, and this has led to such an extension of fruit culture under glass.

The grounds are admirably kept by Mr. Borlase, and every part of the gardens and grounds is maintained by him in a highly satisfactory manner. Grand timber trees are here. Beech in magnificent proportions, Oak and Elms also, and some of the Fir tribe. The grounds are well furnished with dense bands of shrubbery, evergreen predominating, consequently the grounds are well clothed with leafage in winter and spring. On Mondays during the summer the grounds are thrown open to visitors, and a great many of the excursionists to Mallock avail themselves of the privilege of visiting Willersley, undoubtedly one of the most charming and picturesque places in this district of Derbyshire. R. D.

COLONIAL NOTES.

WINTER FLOWERING PLANTS IN VICTORIA, AUSTRALIA.

WINTERS here are of course very mild in comparison with those of Britain, yet we feel the cold perhaps as much as do many of our countrymen in the dear old land, owing to the fact that our summers are so much hotter, and consequently more debilitating to us, leaving the blood poorer; hence we now observe people clad in winter garb, all anxious to keep as warm as possible. True we have to go many miles inland to see (or feel) snow and ice—say, to Macedon ranges, to those in Gippsland, or to the great dividing range. We cannot, as a rule, see anything here to remind us of our English schoolboy days, and we are content—the frost is sufficient. Several recent frosts have left their marks on susceptible plants, such as *Asplasia excelsa*, *Aralia papyrifera*, *Araucaria Bidwillii*, *Fourcroya gigantea*, *Solanum Warscewiczii*, and *Wigandia urens*. Still the plants named, though disfigured a good deal, will recover after the commencement of spring.

Our winter, so far, has been a very dry one for garden operations, much of the ground now being trenched or dug shows no sign of the penetration of moisture; this is to be regretted, as work becomes all the more expensive, besides being longer delayed. We are just emerging from cold and short days, and will soon be in a position to hail and welcome beautiful Spring. Indeed, signs of her approach are not wanting; for the *Acacia dealbata* trees fringing the Yarra River are already flowering, or, rather, they are showing occasional sprays of their golden-yellow blossoms, whilst *A. podalyrifolia* and several Australian and other plants are in a fairly advanced state, so far only as flowers are concerned.

Soon the chill and muffled figure of the winter maiden will give place to that of her cheery sister

queen amongst the flowers from many climes, all of which will soon be rejoicing together in friendly rivalry in our gardens, and which are so soon to yield of their abundance to flower lovers, owing to her genial influence!

Passing up Swanston Street a few days since, I came to the shop of a well-known florist, Mr. William Paton, in the windows and on the counter of which, were some very choice winter flowers in good variety as well as in quantity, and as it may possibly interest some of your readers at home to know what we are fond of here (and all of which find a most ready sale), I will enumerate them:—A large bouquet of Violets, 1 foot across, also many smaller bunches of the same—The *Czar* being in principal favour and use; then *Hycanthus* and *Narcissus* in good variety; *Camellias*, *Snowflakes*, *Cyclamens*, some well grown varieties of the last in pots; also in large quantities the beautiful English wild yellow *Primrose*, and some good pot specimens of Chinese *Primula*, in full flower.

In the Melbourne Government Botanic Garden, and also in some private gardens, may be seen plants, still in flower, which have been doing good service during the whole, or in some few instances only in the latter part of the winter; they are:—

<i>Adenand uniflora</i>	<i>Grevillea oleoides</i>
<i>Agave celestis</i>	" <i>punica</i>
<i>Aloe arborescens</i>	<i>Hovea longifolia</i>
" <i>clavata</i>	<i>Kennedyia Comptoniana</i>
<i>Armeria splendens</i>	<i>Lavandula stoechas</i>
<i>Banksia ericifolia</i>	<i>Lantana lanuginosa</i>
<i>Borago officinalis</i>	<i>Lonicera capitata</i>
<i>Buddleia madagascariensis</i>	<i>Narcissus</i> , in good variety
<i>Calla ethiopica</i>	(inclusive of <i>N. calathinus</i>)
<i>Chorozema cordatum</i>	<i>Olea la panosa</i>
<i>Chrysanthemum</i> (Pyrethrum) coronarium	<i>Oralis</i> , various
<i>Cineraria</i> (several varieties)	<i>Poligala grandis</i>
<i>Correa speciosa</i>	" <i>myrtilloides</i>
<i>Cydonia japonica</i>	<i>Prostanthera microphylla</i>
<i>Daphne Fortunei</i>	<i>Pultenaea subumbellata</i>
" <i>indica rubra</i>	<i>Saxifraga ciliolata</i>
<i>Echeveria retusa</i>	" <i>orbiculata</i>
" <i>secunda</i>	" <i>rotundifolia</i>
<i>Epacris impressa</i> (pink and white varieties)	<i>Tritonia aurea</i>
" <i>pachyloba</i>	<i>Veronica Andersoni</i> var.
<i>Erica arborea</i>	" <i>luteoloides</i>
" <i>Downsea</i>	<i>Viburnum tinus</i>
" <i>croceola</i>	<i>Violets</i> , The <i>Czar</i> , also the
<i>Eucalyptus myoporsoides</i>	ordinary, including white varieties; then we have
<i>Grevillea alpina</i>	<i>Wallflowers</i> (<i>Cheiranthus</i>)
" <i>buxifolia</i>	Ch- in good form and variety
" <i>ericifolia</i>	
" <i>macrostylis</i>	

In transition from winter to spring the following, now beginning to flower, are worthy of notice:—

<i>Acacia cultriformis</i>	<i>Magnolia speciosa</i>
" <i>dealbata</i>	" <i>superba</i>
" <i>podalyrifolia</i>	" <i>Yulua</i>
<i>Arbutus Unedo</i>	<i>Micromyrtus microphylla</i>
<i>Boronia megastigma</i>	<i>Myosotis palustris</i>
<i>Kennedyia monophylla</i> alba	<i>Protea cynaroides</i>
<i>Lhotskyia genetyloides</i>	<i>Spiraea prunifolia</i>

I may state that our winter months are June, July, and August, so of course we actually commence with spring early next month.

HEDGE PLANTS IN VICTORIA, AUSTRALIA.

It may interest some of your readers residing in similar latitudes to ours to know the kinds of plants so extensively used for ornamental hedges in Victoria; they are:—

Pittosporum eugenoides.—The only truly successful plant for growing near front fences of rather small gardens.

P. eugenoides requires more space than the others, and bears cutting equally well, but it has this additional quality, its ability to withstand road dust, which does not seem to injure it at all.

The following do well enough simply as hedge plants, though not to be considered ornamental:—*Ligustrum vulgare*.—Ordinary garden soil.

Lycium horridum.—Ordinary garden soil and sandy places.

Leptospermum levigatum.—Sandy places.

Acacia armata.—Sandy places. A. C. N., South Yarra, Melbourne, July 28.

HURRICANE IN JAMAICA.

Mr. D. Morris, late Director of Public Gardens and Plantations, Jamaica, now of Kew, has received the following account of the damage done at the Botanic Gardens, Jamaica, by the late hurricane. Mr. Hart, who is at present in charge of the several gardens, writes as follows:—

"I have again to be the recorder of bad news. Almost to the day—six years after the storm of 1880—we were visited by a terrific hurricane. We had noticed indications of it by the barometer at mid-day. By 3 P.M. the mercury was pulsating so as to render the movement quite visible to the naked eye. I

issued orders at once, and had everything secured as far as possible, and the buildings in consequence suffered but little damage—two washes and a few of the zinc covers to greenhouse being the largest extent of damage. But oh! the poor Coniferæ. You would be indeed grieved to see them; all the work of the last six years nearly destroyed. *Cinchonas* down by the thousand and large landscapes. Mr. Sullivan and myself have both lost our ponies. On the day of the hurricane we had 12.10 inches of rain, and the three following days made up a total of 35 inches, equal to over 40 inches for the month, or a total of 160 inches since September 30, 1885.

"The Hope Nurseries have suffered greatly, while the fine Teak plantation is nearly destroyed, many of the trees being snapped off in the middle like matchwood, others blown over whole, several standing without a leaf. All the Cacao down, and Nutmegs also; but E. Campbell has done well—he had them all up and well stalked immediately. King's House has suffered more than in 1880, but the trees are of little value that are down, and some of them are perhaps better off of the way. Mr. Griffin has done his best to clear up.

"Mr. Harris writes, 'Castleton is a wreck.' Many of the finest Palms have fallen, and also large numbers of other valuable trees. He sends also a list of damages covering four pages of foolscap. 'Cartshed blown away; thousands of cuttings and plants washed away, and the garden generally totally demoralized; parade and palisades have fortunately suffered no damage.'



STATE OF THE WEATHER AT BLACKHEATH, LONDON FOR THE WEEK ENDING WEDNESDAY, SEPTEMBER 29, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.		HYGROMETRIC DEGREES FROM GLASSER'S TABLES 5th Edition.		WIND.	RAINFALL.
	Mean Reading to 10 P.M.	Departure from Mean for 10 years.	Highest.	Lowest.	Range.	Mean for Day.		
Sept. 23	30.02	+0.14	58.0	49.0	9.0	53.5	8t	N.E. 0.00
24	30.01	+0.25	57.0	46.0	11.0	50.0	4	N.E. 0.00
25	29.96	+0.21	61.0	47.0	14.0	53.3	7	S.W. 0.00
26	29.93	+0.10	61.5	46.0	15.5	54.0	6	S.W. 0.01
27	29.80	+0.07	63.0	48.5	14.5	55.5	5	S.W. 0.30
28	29.99	+0.26	63.5	48.5	15.0	56.0	2	S.W. 0.00
29	29.86	+0.14	60.5	53.0	7.0	56.0	8t	S.W. 0.00
Mean	29.93	+0.18	61.0	47.8	13.2	54.1	8t	N.E. 0.31

Sept. 23.—Fine, but generally dull, bright at times.
24.—Fine day but overcast throughout.
25.—Fine, thin mist in early morning, generally dull, but bright at times.
26.—Fine rain falling in early morning, and frequent light rain during the day.
27.—Fine till 5 P.M., but wet afterwards.
28.—Bright in the morning, dull afterwards.
29.—Fine and bright day throughout.

LONDON: Atmospheric Pressure.—During the week ending September 25, the reading of the barometer at the level of the sea increased from 30.09 inches at the beginning of the week, to 30 inches by 5 P.M. on the 19th, decreased to 29.66 inches by 1 P.M. on the 21st, increased to 30.10 inches by the afternoon of the 23d, increased to 30.20 inches by 9 A.M. on the 25th, and was 30.10 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.98 inches, being 0.22 inch lower than last week, and 0.01 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 66°.1 on the 19th; the highest

on the 24th was 57°. The mean of the seven high day temperatures was 61°.7.

The lowest temperature in the week was 42° on the 23d; the lowest on the 21st was 52°. The mean of the seven low night temperatures was 46°.8.

The greatest range of temperature in one day was 23°.6 on the 19th; the smallest was 11° on the 24th. The mean of the seven daily ranges was 14°.9.

The mean daily temperatures were, on the 19th, 55°.9 on the 20th, 56°.9 on the 21st, 54°.6 on the 22d, 49°.2 on the 23d, 50°.9 on the 24th, and 52°.3 on the 25th. These were all below their averages, with the exception of the 20th and 21st, which were 0°.1 and 1°.4 above, by 1°.9, 0°.7, 6°, 4°.1, and 2°.5 respectively.

The mean temperature of the week was 53°.4, being 4°.7 lower than last week, and 2° below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 115°.5 on the 20th. The mean of the seven high readings was 104°.6.

Rain.—No rain fell during the week.

ENGLAND: Temperature.—During the week ending September 25, the highest temperatures were 70°.2 at Cambridge, 67° at Truro, and 66°.1 at Blackheath; the highest at Sunderland was 59°, and at Sheffield and Hull 60°. The general mean was 63°.2.

The lowest temperatures were at Wolverhampton 34°.4, at Bristol 38°.6, and at Cambridge 39°.7; the lowest at Plymouth was 45°.5, at Newcastle 45°, and at Truro 44°. The general mean was 41°.4.

The greatest ranges were at Cambridge 30°.4, at Wolverhampton 29°.5, and at Bristol 26°.2; the smallest ranges were at Newcastle 13°, and at Sheffield and Hull 18°. The general mean was 21°.8.

The mean of the seven high day temperatures was highest at Truro 62°.9, at Cambridge 62°.4, and at Blackheath 61°.7; and lowest at Sunderland 53°.8, at Newcastle 55°.3, and at Bradford 56°.1. The general mean was 58°.6.

The mean of the seven low night temperatures was highest at Plymouth, 50°.3, at Truro 49°, and at Leeds 48°.1; and was lowest at Wolverhampton, 41°.1, at Bristol 43°, and at Sunderland 43°.1. The general mean was 46°.

The mean daily range was greatest at Cambridge, 18°.6, at Bristol 17°.1, and at Wolverhampton 16°.3; and was least at Newcastle, 8°.2, at Liverpool 9°.6, and at Bradford 9°.8. The general mean was 12°.6.

The mean temperature was highest at Truro and Plymouth, 54°.8, and at Blackheath 53°.4; and was lowest at Sunderland, 47°.3, at Wolverhampton 48°, and at Hull 49°. The general mean was 51°.1.

Rain.—No rain fell at several stations. The largest falls were 0.58 inch at Liverpool, 0.55 inch at Truro, and 0.25 inch at Sunderland. The general mean fall was 0.1 inch.

SCOTLAND: Temperature.—During the week ending September 25, the highest temperature was 63°.5 at Glasgow; the highest at Leith was 56°.9. The general mean was 60°.4.

The lowest temperature in the week was 36°.5 at Glasgow; the lowest at Leith was 41°.4. The general mean was 38°.7.

The mean temperature was highest at Glasgow 50°.9; and lowest at Aberdeen 48°.6. The general mean was 49°.9.

Rain.—The largest fall was 0.1 inch at Dundee. No rain fell at Glasgow. The general mean fall was 0.05 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, September 27, 1886, issued by the Meteorological Office, 116, Victoria Street, London, S.W.—The weather has been very cloudy or dull in all parts of the kingdom, but excepting in the extreme west and north-west the amount of rainfall has been slight.

The temperature has been below the mean in all districts; the highest of the maxima, which were registered on irregular dates, ranged from 58° in "Scotland, N.," to 68° in the "Channel Islands," and 70° in "England, S." The lowest of the minima were generally recorded on the 23d, when the thermometer fell to between 31° and 32° in Ireland, 36° and 39° in Scotland, and 34° and 41° in England.

In the "Channel Islands" the minimum was no lower than 51°.

The rainfall has been rather more than the mean in England, N.W., and "England, S.," and about equal to it in "Scotland, N.," and "England, S.W.," but in all other districts it has been less than its normal amount.

Bright Sunshine shows a very general and decided decrease, the percentage of the possible amount of duration ranging from between 15 and 21 over the greater part of England to 33 in the "Channel Islands," and 35 in "Scotland, E."

Depressions Observed.—At the commencement of the period a small depression lay near the mouth of the Channel, while pressure was highest over the north of our islands. By the 23d, however, this disturbance had dispersed in the neighbourhood of Brittany, and the high pressure system in the north was moving slowly down our western coasts, so that the wind, which had previously been fresh or strong from the eastward, backed gradually to the northward, and moderated. Towards the end of the period the high pressure had backed to the southward, the wind in our islands had backed to the southward, and depressions skirted our western coasts. The disturbance shown on the 27th was large and deep, and caused fresh or strong south-westerly gales on nearly all our coasts.

Enquiries.

"He that questioneth much shall learn much."—BACON.

GRAPE.—Will "Vitis" (the writer of the article in last week's issue, p. 395) kindly say what he thinks the best black and also white Grapes to graft on Golden Queens growing with Black Hamburgs which are not wanted to ripen until September? I find it the same as "Vitis" says—Golden Queen will not do in the Hamburg-house, but with Muscats it finishes well. J. S.

Answers to Correspondents.

CELERY LEAVES DISFIGURED: D. P. The specimens sent are affected with the Celery-fly (Tephritis oenopodinis). The Celery-fly lays her eggs on the leaf, from

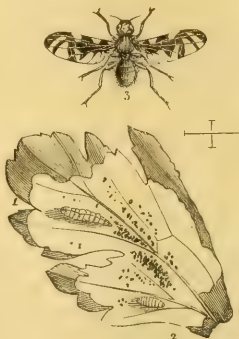


FIG. 91.—THE CELERY-FLY.

which maggots hatch out. These feed between the upper and lower sides of the leaf. When the insect is present in great numbers much injury results to the plants. Never throw the damaged leaves on the rubbish-heap, as that would be on a par with the Russian peasants who threw the eels into the river to drown them; but they should be burned. Sprinkling the leaves and the ground during June, July, and August, with a mixture of soot and lime will aid in keeping the fly away. After bad attacks, skimming off 4 inches in depth of the surface soil, and mixing it with salt and lime, will destroy many of the pupae.

BAROMETER, FRENCH & ENGLISH: T. T. P. —

1 millimetre = 0.039 inch	1 inch = 25.39 millimetre
0.1 " = 0.0039 "	0.1 " = 0.253 "
0.01 " = 0.00039 "	0.01 " = 0.025 "
0.001 " = 0.000039 "	0.001 " = 0.0025 "

Some of the makers supply instruments with both scales. The following plan is sufficiently simple, and will answer for ordinary purposes.—The height of the mercurial column being given in millimetres, find the difference between the given height and the standard height of 762 millimetres; divide this difference by 25, or (which amounts to the same thing) multiply it

by 4, and point off two figures for decimals. Then, as the case may be, either add this difference to 30 inches, or subtract it from the standard height. Example:—766 mm. = 762 + 4 = 30 inches + 16 inches = 30.16 inches. The true value is 30.157 inches. This rule is taken from Kämtz's *Meteorology*.

BOOK ON CHURCH DECORATION: Miss H. You have been misinformed. We have never published a book dealing with the subject of decorating churches, and neither do we know of one; but we have published in our columns a few articles on the subject. The following are the references:—In 1869, at pp. 1205, 1255, and 1307; and in 1870, at p. 496. These numbers, however, are now out of print.

BOOKS: *Worral Seed Stores. Insects Injurious to Fruit Crops*. By J. Whitehead, Esq. (London: E. & S. Spottiswoode, price 7s.). The book on silkworm culture is *Mulberry Silkworm*. By C. V. Riley, M.A., Ph.D. (Washington, U.S.A.: Government Printing Office). We do not know the price of this work. It forms one of the United States Department of Agriculture, Division Entomology, Series, and is Bulletin No. 9.

DOUBLE GLADIOLUS: W. H. Two flowers growing side by side have by some means become inseparably united, like the Siamese Twins. You will see it is a different case from true doubling.

FUNGUS: C. W. D. Clavaria pistillaria; not very uncommon. W. G. S.

GARIBALDI (SYN. VICOMTESSE HERICART DE THURY) STRAWBERRY PLANTS DYING-OFF: E. F. We assume that you give all your Strawberry plants liberal supplies of liquid-manure of some sort at the roots during their growing season, and again when they are swelling their crops, and that this is sometimes, if not frequently, applied indiscriminately over the "crowns" of the individual plants; thereby causing, in connection with the action of the sun on the plants when so saturated, the injury now done; and under these circumstances it is only reasonable to assume that plants of the Garibaldi Strawberry are more susceptible of injury from this cause than the other varieties which you grow satisfactorily are; and the fact of the 'venter leaves flagging' prior to the plants dying off, while the roots are "grand combed," point to this conclusion. Therefore the remedy is obvious,—avoid wetting the "crowns" of the plants in giving them liquid-manure at the roots. Underhill's Sir Harry would make a good substitute for Garibaldi. H. W. W.

LARGE ELM TREE IN AN UNHEALTHY STATE: T. S. In your case there is not much to be done. The moss encrusting the tree can be killed during the winter with strong brine, or by dusting with powdered quicklime when the moss is moist. The active feeders of a large tree are at an unknown distance from the stem, so that your plan of supplying them with manure or fresh soil would present great difficulties, and cause much labour. If the tree is not very old we should think that an undrained bad soil is at the bottom of the mischief.

MILDEW ON PEAS AND ON VINES: W. E. P. Peas are very subject to mildew on cold clayey soil, and on other descriptions of soil too, if water be not supplied abundantly during hot weather, and a much of decayed manure placed on either side of the row. The mildews of Peas and of Vines are not identical. The Vine mildew will attack your Vines only when the conditions favourable to its development exist in your vinerias, and you seem to be too good a grower of Grapes to permit that to happen.

MUSCAT OF ALEXANDRIA GRAPES: X. C. F. The berries of this Grape do vary somewhat in shape, some being long ovate, others short ovate, never round. Those you allude to were certainly not round.

MUSHROOMS: F. P. A. The example sent is a true Mushroom. Such instances of spontaneous growth are frequent.

NAMES OF FRUITS: F. R. Haig. Plums: 1, Jefferson; 2, Reine Claude de Bayay.—W. R. Apples: 1, Hambleton Deux Ans; 2, Ribston Pippin; 3, Pomme Poire Blanche; 4, Ribston Pippin; 5, Fear, Williams' Bon Chrétien.—Joseph Green. 1, Passe Colmar; 2, Althorp Crassane; 3, Huyshe's Bergamot; 4, Marie Louise; 5, Flemish Beauty; 6, Fondante d'Autonne; 8, Doyenné du Comice; 9, 13 and 14, Passe Colmar; 10, Autumn Bergamot; 11, Beurré Hardy; 12, Triomphe de Jodoigne; 15, Williams' Bon Chrétien; 16, Beurré Superfin.

NAMES OF PLANTS: W. E. Humphreys. The rose and white flower is *Onchium incurvum*; the yellow and brown, *O. spheculatum*. Please number specimens in future.—*Pagabond*. *Pittosporum revolutum*. We do not remember to have seen it in fruit before.—*F. O. U.* *Lonicera Ledebourii*.—A. R. *Rosa lucida*, a North American species.—W. B. H. 1, *Clematis tubulosa*; 2, *Cimicifuga elata*? specimen insufficient.—*Bruse*. Should address the Editor. 1, *Rosa bracteata* (single Macartney's Rose); 2, *R. chinensis*; 3, *Rosa excelsa* (probably); 4, *Fuchsia microphylla*; 5, *Bambusa gracilis*; 7, *Jasminum grandiflorum*. We have named six of the plants sent—our usual number.—*J. E.* 1, *Desfontainia spinosa*; 2, *Hibiscus schizopetalus*; 3, *Zygopetalum Mackayi*; 4, *Phyllanthus niruri*; 5, *V. F. Vanda tricolor*;—*Beauchamp*.—*H. W.* 1, *Vaccinium Vitis Idæa*, Cowberry. Leaves with small scales on the under surface, and with small pointed calyx-lobes at the top of the berry; 2, *Arctostaphylos Uva-Ursi*, Bearberry, with oblong or rounded calyx-lobes beneath the berry.

NOVA SCOTIA: A. T. S. Good Apples are grown in

Government Stock.—Consols closed on Monday at the final figures of the previous Saturday—viz., 101 to 101 $\frac{1}{8}$ for delivery, and 101 $\frac{1}{16}$ to 100 $\frac{3}{16}$ for the account. The final quotations of Tuesday and Wednesday were 101 to 101 $\frac{1}{8}$ for both delivery and the account. The closing record on Thursday was 100 $\frac{3}{8}$ to 101 for delivery, and 100 $\frac{3}{8}$ to 101 $\frac{1}{16}$ for the account.

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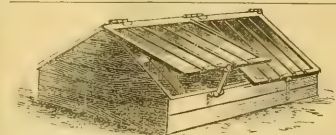
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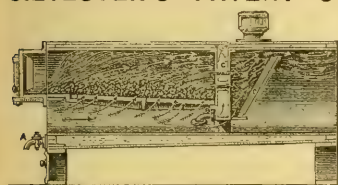
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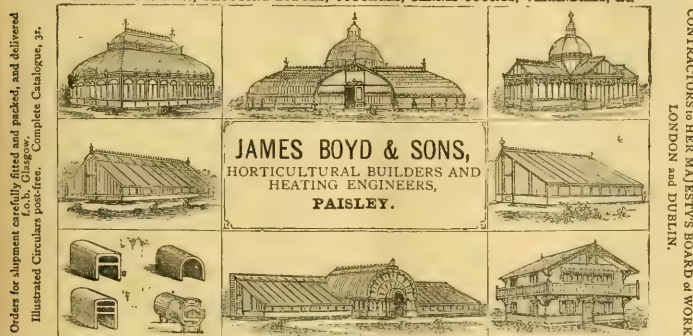
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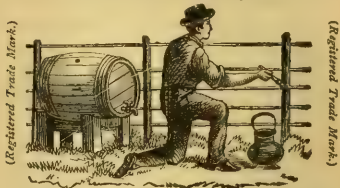
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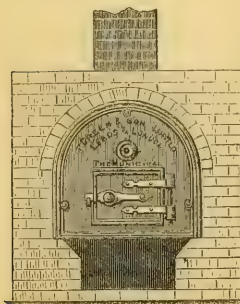
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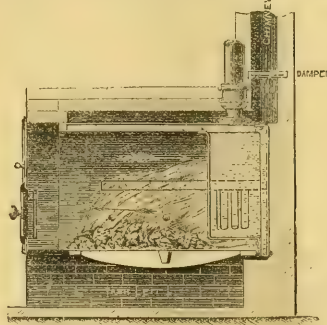
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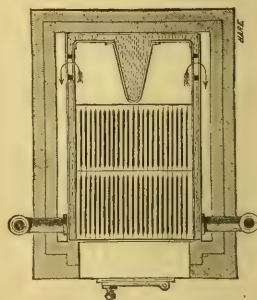
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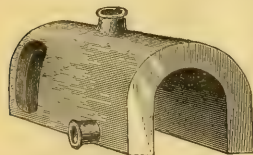
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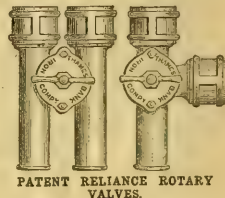
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ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.

NOTICE!—COMMITTEE MEETINGS, Fruit and Floral, at 11 A.M., in the Conservatory, on TUESDAY NEXT, October 12, and WEDNESDAY, October 13.

SHOW OF HARDY FRUITS. N.B. Open to Fellows at 12 o'clock on Tuesday, and the Public at 1 o'clock, on Wednesday at 10 o'clock A.M.

RICHMOND (Surrey) CHRYSANTHEMUM SHOW.

THE SIXTH AUTUMN EXHIBITION OF FLOWERS, FRUIT, AND VEGETABLES, will be held at the "Castle" Hotel, THURSDAY and FRIDAY, November 11 and 12. Prizes, nearly ONE HUNDRED, of various kinds, apply to Mr. J. H. FORD, Hon. Sec., 22, George Street, Richmond.

WATFORD CHRYSANTHEMUM SOCIETY.

President—The Right Hon. the EARL OF CLARENDON. THE FIRST ANNUAL SHOW OF CHRYSANTHEMUMS and other AUTUMNAL FLOWERS and FRUIT will be held in the Agricultural Hall, Watford, on TUESDAY and WEDNESDAY, November 16 and 17. Schedules can be obtained on application to the Hon. Sec. and Treasurer,

CHAS. R. HUMBERT, Watford.

Entries Close on November 11.

CHRYSANTHEMUM SHOW, YORK, 1886.—Held in the Fine Art Exhibition Building on NOVEMBER 17, 18, and 19. Liberal Prizes for Plants, Flowers, Fruit, and Vegetables. Schedules to be obtained of J. LAZENBY, Spuiergate, York.

Notice.

King's Acre Nursery, Hereford (Established 1763). **JOHN CRANSTON** begs to announce that having Purchased the Business from "Cranston's Nursery and Seed Company, Limited," these Old-established Nurseries will, on and after NOVEMBER 2, 1886, be carried on by him under the name of **JOHN CRANSTON AND CO.** King's Acre.—September 29, 1886.

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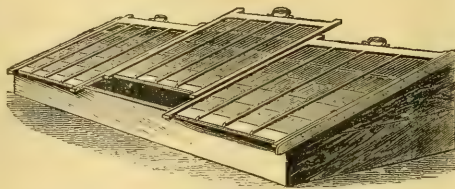
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 " WORLEVII, Standards, 12 to 14 feet.
 ASH, Mountain, 10 to 12 feet.
 BEECH, Common, 10 to 12 feet.
 " Purple, Pyramids and Standards, 9 to 16 feet.
 BIRCH, Purple, 14 to 15 feet.
 " Silver, 12 to 14 feet.
 CHESTNUT, Horse, 14 to 16 feet.
 " Double White, 10 to 12 feet.
 " Scarlet, 12 to 16 feet.
 " Spanish, 12 feet.
 ELMS, English, 10 to 12 feet.
 " Guernsey, 12 feet.
 LINES, 10 to 16 feet.
 " EUCHLOA or DASYSTILA, 10 feet.
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THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 9, 1886.

**FROM AN IRISH GARDEN—
A RETROSPECT.**

JULY 14.—In these days of fiery sunshine white flowers in the garden are very welcome, they seem so fresh and cool when all around is hot and dry. Especially so is the old Campanula persicifolia, not planted in dots or martyred by being tied to a stake, but growing in a wide mass that somehow makes one think of a ship's white sail spread to the wind. White Pinks (Mrs. Sinkin) are very sweet and fair—large and beautiful, like a snowball, but the old-fashioned smaller kind has a soft feathery aspect that pleases unconsciously, while its fragrance is like the breeze from some spicy Isle. To-day the long plumes of Spiraea filipendula fl.-pl., rising up from their nest of Fern-like leaves, are moving gently in the wind, and the white Rose of Provence is weighed down with its wealth of blossoms. One has to raise the flowers to see how exquisite is their purity, the petals being of such delicate texture that they give the idea of translucency. Nicotiana affinis, that looks so dusky in the full daylight with its blossoms tightly shut up like a little hand in a brown glove, will open out towards sunset; and through the twilight and such darkness as a summer's night may bring, gleam forth in starry brightness while other blossoms can barely be distinguished. This starry aspect is greatly enhanced by a dark background, and to see the scattered branches with hundreds of blossoms open against a deep green hedge of Escallonia macrantha is a picture in the gloaming.

At last I have found where the Orange Lilies look best. It is just in the front of the dark grey wall where the stones are large, and when wet after a shower are exactly the colour of a thunder-cloud, having even the purplish tinge of a lurid sky. Against this deep background the strong warm colour of the Lilies is delightful. They do not look like Orange Lilies any longer, they have the glow of Fire Lilies, and with a cluster of white Marguerites at their base, and the feathery wands of Spiraea Aruncus close by, and dark-leaved Jessamine climbing over part of the wall, this spot is at present the most attractive in the garden.

July 17.—After long days of burning drought and sunshine, soft rain has come and birds and blossoms alike are rejoicing in the delicious bath. Looking out early this morning I perceived the old Arbutus tree beneath all astir with a crowd of blackbirds. As there were no ripe berries to be devoured I stood still to see what the eager fuss was about. I could not for a few seconds discover what the fluttering on the top of the thick tufts of green leaves meant; but suddenly I saw it all. They were taking a bath in the tree! So long deprived of moisture, they had flown at once to the old Arbutus,

whose thick foliage held the raindrops, and there, with outspread, fluttering wings, were busy dashing the warm rain-spray over their feathers. No doubt others have noticed this sight before, but as it was new and delightful to me, I remained to watch until, at some signal of their own, away they all flew to the garden to breakfast on Strawberries.

August 25.—Again the robin sings! There is no mistaking that plaintive autumn note, that tells us the summer is gone. The black-bird is singing too, not with spring's early song of hope, but as if recalling the joys gone by. The hill is wrapped in its royal mantle, the blue sky itself looking grey where the deep purple Heather leans against it. There are golden fronds showing among the dark green Bracken, and the new growth of the Gorse is of a lovely blue-green. As rain clouds pass and gather, the sea is purple in their shadow, and in the sun's rays gleaming with the indescribable light that is seen in an opal. While sea and land are alike so rich in colour, what a little spot the garden seems! And yet, when wintry storms again shall sweep the hill, it is to this little spot we shall turn for comfort. It is this little spot that will cheer and light us through many a darksome hour.

Just now the Japanese Roses are at their best, and seen in the morning sunshine nothing can well be prettier than the clusters of large crimson berries, shining among the glossy foliage with wide-open blossoms and bunches of ruby buds breaking through the berried branches. The hardness and vigorous growth of this Rose makes its culture the simplest. Each summer it sends up new branches, which are cut back in February to 6 inches or so, every bud of which in turn shoots up strongly some 4 or 5 feet high, covered with blossoms and fruit from early summer until the first frosts of October turn the whole bush to amber and crimson, as beautiful when passing away as in its May-day freshness. The white variety does not appear quite so vigorous, but is more beautiful; the berries no longer crimson, but of a ruddy orange, remind one of the little Mandarin Oranges one gets at Malta, and clustered among the glistening milky-white blossoms are charming.

The Japanese in their paintings make free use of this most picturesque shrub. Happening to show the crimson Ramanas Rose to a decorative artist some days ago, he was silent for a few seconds, then exclaimed, "Now, I understand it all," and went on to say he had been that morning examining a beautiful Japanese screen, but [unheeding the leaves] felt completely puzzled to know why they drew their Apples with blossoms on the same branch! Now he recognised the large fruit of the Rose in what he had mistaken for Apples, and carried away a branch to design from.

The Japan Knotweed, *Polygonum sachalinense*, set in the grassy lawn, has tossed its wide branches around and sending up a lacy spray of flowers from the base of each leaf, looks as if a white veil of blossoms had been cast over the branches. Some of the large leaves are changing to a golden hue, and the lower ones have fallen off through drought, leaving the quaint cane-like stems visible beneath.

This year the Apples are not half so rosy as usual, but there is one tree that is very pretty even without the crimson touch; Golden Pippins, with sprays of deep purple Clematis, wandering through the branches. The growth of the Clematis is so fragile that it in no way interferes with or shades the ripening fruit, and the unpruned branches just give the needful support, while the Clematis follow its own will. The Austrian *Convolvulus* has in like manner climbed over an old Pear tree, but it is too self-asserting for any fruit tree of value, as it com-

pletely clothes and enwraps it with a tangle of leaves and blossoms.

The draughty porch is not a pleasant place at any time for flowers, but *Campanula pyramidalis* seems quite indifferent to the position. Two plants of the white variety have been pillars of blossom in it for the last month, and will still remain covered with bloom for weeks to come, as by clipping away the blossoms every few days when they wither, the stems remain fresh and fair, new flowers replacing those that have faded. A plant of this *Campanula*, bearing three or four stems 8 feet high, clothed with snowy flowers from top to bottom, is hardly recognisable as the same when grown in the open air, where comparatively few blossoms are expanded at the one time. At all events, when serving as tall guardians of the threshold their greeting to visitors is a very welcome one. L. A. L.

THE KINVER SEED AND FLOWER FARMS.

EFFECTS OF HYBRIDISATION ON GARDEN PLANTS.

MESSRS. WEBB & SONS, of Wordsley, Stourbridge, stand high among the great seedsmen of the present time, and in point of usefulness, as growers of cereals and especially as breeders, or selectors and distributors, of improved varieties of Wheat, Barley, Oats, and Peas. Messrs. Webb devote their great farm of 1600 acres to the improvement of the plants of the farm and garden, carrying into the agricultural department the practice of the same arts which in horticulture have transmuted our gardens and wonderfully altered both flowers and vegetables. If any young gardener has not particularly considered the new garb of modern flowers, and the far more homely appearance of the flowers of old gardens, let him compare the small *Fuchsia coccinea* with the magnificent blossoms of the hybrid sorts, which are never far to seek, and which are tenfold the size of their parents, and much more brilliant both in flower and leaf. Modern *Antirrhinum*, Sweet Williams, Asters, Pansies, Stocks, and almost every other hardy flower, as we saw them growing in great beauty and perfection in the department devoted to flowers at Kinver, bear no comparison to their old types. Is it possible to imagine a greater change than that which has overtaken the *Tropaeolum* since it became a florist's flower? We might add, without forgetting Messrs. Webb's improved cereals, is it possible to imagine a less change than that which (speaking generally) Wheat, Barley, or Oats have undergone? The same metamorphosis which we recognise in flowers has occurred in the case of numerous vegetables, such as Peas, Potatoes, Tomatoes, Carrots, and the Cabbage tribe, including Cauliflowers; they have all been modified and moulded at the improver's will, with immense advantage to growers and consumers. On the one hand the skill of experts has effected wonders; on the other, that is, in agriculture, comparatively few efforts have been as yet recorded for the improvement of the plants of the farm.

IMPROVEMENT OF THE PLANTS OF THE FARM.

Messrs. Webb, however, have for years past laboured to remove this blot, and the appearance of the crops at Kinver, both corn and flower crops, bespeaks a brilliant success. We shall mention the former first in a few words of admiration. We had seen at Wordsley an enormous new five-floored warehouse, built two years since for seed corn alone, and said to be the largest building in the kingdom devoted to such a purpose. On the open ridge of sound soil at Kinver—an admirable site for the production of seed corn—we had the opportunity of inspecting, not for the first time, the corn crops, which are accommodated, when necessary, in the big stores, and which feed a rapidly increasing business in seed corn.

WHEAT.

The area of Wheat is 185 acres, comprising the Kinver Giant, a very popular and productive sort, selected some years since; the Challenge white Wheat, another prize winner, widely appreciated on the white Wheat soils; Square Head, a selected strain of a widespread variety; Golden Drop, Hardcastle White,

and Rough Chaff. Last, not least, except in the small existing stock of it, Hybrid King ought to be introduced with pomp and ceremony. It is a cross-bred Wheat of three years since. I must not pause to supply the pedigree of this august variety; it is very early, and will be harvested in August usually; I will only say that the monarch is most promising.

BARLEY, &c.

The extent of seed Barley is 206 acres, of Oats 168 acres, and of Peas 82 acres; but the sale of Peas is so large in the green-Pea growing districts of Worcestershire and adjacent counties, that a very large quantity of Peas is raised for Messrs. Webb every year, by farmers on suitable soils elsewhere.

The whole of the seeds and seed corn sent out by the firm are either grown by them on their own land, or grown specially for them elsewhere, by careful farmers, from "stock" seeds raised at Kinver, the crops in all such cases being properly "rogued" by qualified experts and their assistants, so that the breed may be kept perfectly pure.

PEAS.

The trials of Peas in the grounds at Kinver this year, included 140 sorts, amongst which are Chancellor, Wordsley Wonder, Kinver Gem, Electric King, and many others. Every thing here is tried, tested and compared in near neighbourhood, cereal against cereal, according to the kind, root against root, and flower against flower. The competitive examination is most severe, and indeed cruel, since it occasions the destruction of many a plant in each department, which has failed to attain more than a moderate degree of excellence, instead of the pre-eminence which is required of all before they are catalogued and offered to the public.

With these remarks I must now dismiss all the agricultural crops at Kinver, cereals, "roots," pulse, Cabbages, and grasses for permanent and temporary pastures. I must reluctantly abstain, too, from more than incidental mention of Tobacco, which is here grown in twenty kinds, including all the best varieties that are cultivated in America.

FLOWER RAISING.

I have often endeavoured to describe a flower garden, and always with such ill success compared with my desires that I will not mar in that way the beautiful plots at Kinver. In the floral department the eyes grow tired among the numerous beds of blossoming annuals, including 250 sorts, and a large bed of each. The brightness of the flowers and the uniformity of each mass of colours are surprising. The fixity of the type of each variety is proved by the fact that many flowers, such as Pansies, which could formerly be reproduced true only from cuttings or by division, now yield seed which a gardener may thoroughly rely upon.

Among the flowers a few names of some of the most charming specimens can alone be given, such as these:—Brilliant *Petunia*, Carnations, and Picotees; several new varieties of *Mimulus*, giant and dwarf Mignonette, a gigantic Sunflower used as a screen and to feet high; Exhibition, double Zinnia, gold-striped French Marigold; Premier, single *Dahlia*; Asters of varied colours and sections, miniature, quilled, Victoria, and *Chrysanthemum*-flowered; many Stocks, and new Sweet Williams—and what flower at the price is better worth pondering over than the Sweet William for its peculiar beauty, which has been greatly increased in the best new varieties. Where shall this list end? I must just name, first, Challenge *Antirrhinum*, Canary Bird Wallflower, and show and fancy Pansies.

The various garden vegetables are well attended to here, but I had only a day for Kinver, and I have found by experience that a careful examination of the trial plots of one vegetable only—Lettuce, Carrot, Turnip, or any other, the plots being numerous—takes several hours; I cannot, therefore, venture to discuss the merit of Messrs. Webb's vegetables, but I would willingly take them on trust nevertheless.

In the various catalogues devoted to flowers, bulbs, seed corn, farm seeds, and special manures manufactured by the firm, and in the treatise on the formation of permanent pastures issued by them, an immense amount of reliable information is collected. Details, which want of space forbids my inserting here, will be found in these publications, with much good advice as to mixtures of manures, and the character of varieties as tested by wide experience. H. E.

ON THE PROPOSAL TO ESTABLISH A PERMANENT COLONIAL MUSEUM IN LONDON.

THE proposal to continue the present Colonial and Indian Exhibition at South Kensington having met with a good deal of support, it is worth while to examine it on its merits, quite apart from the popular accessories of music, illuminations, &c., the continued existence of which depends upon altogether different considerations.

The first point for examination is whether such a permanent exhibition or museum would materially and usefully supplement or form a real addition to the existing public institutions of London, for upon the determination of this question the decision ought largely to depend.

On a general review of the vast collection of objects exhibited in the present Exhibition, they are seen to be mainly included under the four following categories:—

(1) Natural history objects, or specimens of the animal, vegetable, and mineral kingdoms of Nature.

(2) The raw products derived from them, and their economic applications.

(3) Art of every description, with which may be included objects bearing upon archaeology and ethnology.

(4) Manufactures of all kinds.

1. With reference to natural history, it can scarcely be a public desideratum to attempt to form a new museum of this kind when there exists, within a few hundred yards of the Exhibition, the finest collection in the world in the great national Museum of Natural History. There the animals, plants, fossils, and minerals, not only of the British colonies but of the whole known world, are exhibited with a fullness and in a manner that there could not be a possibility of in any way approaching.

2. Then as regards the economic uses of the vegetable kingdom at least—such as food-products, drugs, timbers, &c.—the nation possesses in the Museum of Kew Gardens a probably unrivalled public collection, admirably exhibited. Many years of energy and a very large expenditure of time and money would fail to make up again such a collection as this has now become.

3. Objects of art both ancient and modern form a very striking and important portion of the Exhibition. It is probable, however, that the best part of those which are not on loan have been sold or otherwise disposed of, and thus are not available for future exhibition. But with the South Kensington Museum at our doors the initiation of a new art collection cannot be needed; whilst as for objects illustrative of ethnology and archaeological specimens, they are, it is needless to say, magnificently displayed in the galleries of the old British Museum in Bloomsbury.

4. There remains only the commercial products and manufactures of the colonies and India, and so far as I am aware, there exists at present no general public collection of such articles. Here, then, it appears to me, we have a reasonable basis for the formation of a permanent museum. A public collection of trade samples is a real want in London.

It appears, then, from the above observations, that no necessity exists for a new general museum of colonial and Indian productions, inasmuch as the public is already amply provided with other museums which illustrate fully nearly all the objects and articles proposed to be exhibited in the new one.

There is also good reason to think that the multiplication of museums is undesirable as well as unnecessary. We are not without experience of this, and the history of the late Indian Museum is quite to the point. The vast collections brought together by the Honourable East India Company were quite similar in kind to those it is now proposed to form, and illustrated very thoroughly the productions of India. But the Museum never attracted public interest or proved of much practical utility; many departments were neglected, the specimens badly conserved, and not available for consultation or study, and at last, its condition having become somewhat of an official scandal, it was, six or seven years ago, broken up and dispersed. It bears strongly on the remarks above made that the collections had to be distributed among the very museums which I have there enumerated. No doubt additions of much value thus accrued to them; but there was also an immense mass of duplicate and damaged material, some of which, at least, was destroyed. After this

experience it seems scarcely credible that a proposal to form again another general Indian Museum in London will be seriously entertained, whatever may be the case as regards the colonies. But in the latter, as in the former, it is almost certain that from similar causes a few years would witness the same history and a similar termination.

It is then, I believe, in a permanent museum of trade samples and of the commercial products of our colonies that a really useful outcome of the present Exhibition is to be sought. The precise scope and character of such a museum would, of course, require careful consideration; but there is a great and increasing want of some central emporium of a public character where authentic samples, accurately determined and labelled, can be readily inspected and examined by those interested in commercial pursuits. The collection might well be arranged geographically, and should be accompanied by maps, trade statistics, and other aids to inquiry. Under able management such a museum would be capable of rendering great service to the commerce of the Empire, and be the means of bringing into trade the numerous neglected products of the world. I may add, parenthetically, that it would also relieve the staffs of our chief scientific establishments of a good deal of work, involving often much sacrifice of time, which now falls upon them, though outside the scope of their duties.

The situation of such a museum should, however, be readily accessible to business men, and would be preferably in or close to the City rather than in the West End of London. *Henry Trimen, in "Nature."*

FLOWER SHOWS AND THEIR USES.

FLOWER shows, it must be admitted, are becoming to many lovers of a garden, and especially to such as are directly responsible for their management, a weariness of the flesh. There is so much anxiety involved with reference to subscriptions, furnishing the stages, the weather, and securing a good attendance on the exhibition day, that even their most sanguine supporters begin to ask themselves the homely but pertinent question—"Is the game worth the candle?" Considering the importance of the question, however, and the opportunities for usefulness afforded by an exhibition, the problem should rather be that suggested in the columns of the *Gardeners' Chronicle*—"In what way can flower shows be made of greater use in the interests of horticulture, or rather the interests of the entire community?" The Temple of Flora is haunted by enthusiasts, as all must know; but there are others besides the enthusiasts to be considered, and especially the large middle class of tradesmen, shopkeepers, and clerks, to whom gardens and the cultivation of flowers offer just the healthful, interesting, and enjoyable recreation most suited to their circumstances and needs. In by far the greater number of provincial societies, however, the amateur class, which mainly consists of the foregoing, is far outnumbered both by the gardeners and the cottagers. Those who can best afford both the leisure to cultivate gardens and the means to furnish them—who should be the life and backbone of such societies—have no part in them, the question will naturally arise, Why is this? The answer we venture to give is "from ignorance," and this ignorance arises from the lack of opportunity for learning. In what way can the flower show assist? Careful and explicit labelling may help those who already know something of gardening, but far more useful and effective would be a series of lectures given at frequent intervals in the exhibition itself, attention being chiefly directed to the most easily cultivated and eligible classes of plants, discussing in plain language their structure, propagation and treatment. In most committees there are members well qualified for such a pleasant and useful work who would willingly volunteer their services for the purpose.

It is a treat to most people to walk round a well unished, neatly ordered garden; and it is scarcely necessary to remark that the interest and delight experienced are greatly enhanced—chaste and beautiful as the flowers themselves may be—by the description and explanatory remarks of the owner. The visitor pauses to admire an *Auricula*, for instance, and the grower points to it with pardonable pride as one of his own raising, gives its parentage and history, relates its hairbreadth escapes from scorching sunshine, frost, drenching rain, or the attacks of slugs, woodlice, or

aphis; expatiating on the beauty of its even margin, the symmetry and delicacy of its zones of colour, the density and richness of its golden paste, or the powdered silver overspreading its leaves. The little plant has almost a human interest attaching to it, and its growth and development are watched with the care and attention that the mother gives her child. Perhaps a result of the visit is, that the admiring amateur becomes a disciple, and in time a florist himself. The kind of interest elicited under such circumstances is entirely wanting in an exhibition. But there is also room for improvement in the selection and arrangement of the material of flower shows. As a rule, the specimens are "staged" in straight lines or formal groups, and crowded together, so that it is next to impossible to see the *contour* and habit of an individual plant. This is more especially the case with the so-called groups, where as much as possible of foliage and flowers is huddled into a given area. Much of the interest of the large shows is sacrificed to the *coup d'œil*, which, however effective, cannot compensate for the lack of comfort of the plants themselves, or the convenience of the spectator in the endeavour to appreciate their individual and intrinsic excellence. This crowding together for effect, too, is an advantage to the slovenly gardener, in giving him an opportunity of hiding the worse side of his plants. Another defect in the management of the provincial shows, which has an injurious effect upon the *morale* of both exhibitors and visitors, is in allowing the presence of badly-grown plants, the object of the exhibitor being simply to obtain a prize, although he himself must know as well as others that his specimens are obviously unworthy of commendation even, and only secure a prize because there are no competitors. Much cannot reasonably be expected in an educational point of view from exhibitions which only remain open a few hours. They are horticulturally only the exponents of cultural skill. Without some description, however, of the processes employed they simply excite our wonder and admiration, and there is, consequently, a waste of time and opportunity much to be regretted. *T. W. Harrow.*

The Rosery.

THE ROSES OF THE FUTURE.

THESE, as pointed out by "Wild Rose" (p. 296), will mostly be Teas or Roses of similar habit and character, that is, as perpetual or successional blooming Roses in fact as well as in name. I hope "Wild Rose," whose authority is generally reliable, is correct in saying that the Tea Rose is becoming more hardy by being "worked on the seedling Brier," and in consequence of the greater vigour of the newer varieties. My experience of Lady Mary Fitzwilliam, one of this sort, and one of most vigorous of the new Teas, during the past winter, by no means bears this out. Out of about a dozen plants worked on the Brier and protected with a handful of bracken, in the same way as all others, only two escaped. Still, if the uses of the seedling Brier or any other stock, and the dwarfing of Teas, will make them harder, then indeed such an impetus will be given to their growth as will indefinitely extend their cultivation, since not a few of them are more hardy than is generally supposed. The *Gloire de Dijon* and *Homère*, for example may be pronounced as hardy as the majority of hybrid *Perpetuas*. Neither is the absolute hardiness of the tops of Teas in bud of so much moment as many suppose. In warm situations dwarf Teas will pass through our ordinary months un injured, without protection or with a thin layer of dry Fern leaves or of boughs. Where they are not otherwise protected the stems and new branches should be earthed or littered up to a height of 6 or more inches. This preserves the citadel of life, and, should all the extremities beyond pass into the front, the result is simply that you lose the chief part of the first bloom of your Teas, and provide your richest harvest from August till the end of the season. In gardens where many other Roses are grown this backwardness of the Tea Roses proves by no means an unmitigated evil. The first great harvest of perpetual crowns June and July with Roses. Then the Teas follow, and with a few straggling *perpetuals* follow the year to the end with more or less bloom.

Both Roses may be vastly extended and richly supplemented by growing some of the choicer Teas

and Noisettes on walls. Such Roses as Maréchal Niel, Céline Forestier, Triomphe de Rennes, Gloire de Dijon, Alba multiflora, Homère, Madame Van Houtte, Niphetos, &c., bloom in the open on walls from May to November.

The culture of dwarf Teas as herbaceous biennials is simple in the extreme. Take care of the root-stocks in winter and the cold spring, and the summer will furnish them with tops, and the autumn clothe the latter with beauty and fragrance. Teas get used to being cut down by the frost and the knife, and seem so far to like it as to break with greater vigour in consequence, but the final cutting back should not take place till May. The tops are the natural and proper protection of the plants, often proving sufficient of themselves, and in any case adding greatly to the potency of all that may be added thereto. Besides, there is another powerful reason against the autumnal or early spring pruning of Tea Roses. Should they escape injury in winter they will prove the first Roses in the garden to bloom in the early summer; and, provided the flowering shoots are promptly cut back as the first blooms fade, the autumnal and successional blooming will not be greatly diminished. D. T. F.

ROSE M. ABBÉ GIRARDIN.

A friend sent me this as a new Rose to try about three years since. It failed to do well until this year, and I notice just now the autumn blooms seem if anything better than the summer. I cannot find it in any of my catalogues, and do not know who sent it out, or under what class. Though blooming now it has a decided Tea scent, and, when doing well, a delightful shape when opening, like Niphetos. The colour, too, is peculiar—a soft rose-purple, inclining to pink. Will some of your correspondents say what they think of it? Perhaps it has come under the notice of "Wild Rose." The constitution does not seem robust planted out. W. J. Murphy, Clonmel. [In the Rose List of Ketten Brothers, Luxembourg, this sort is classed as a Bourbon; growth strong, floriferous. Ed.]

TOBACCO CULTURE IN NORTH WALES.

KNOWING well that if any part of Great Britain more than another is adapted for the cultivation of Tobacco that part is the maritime districts of Wales, I therefore determined, both in the interests of science and agriculture, to test the matter in as thorough a manner as possible, compatible with the somewhat limited means at my command.

On June 16 of the present year, thanks to the courtesy of Messrs. Little & Ballantyne, of Carlisle, who sent me the plants, twelve kinds of Tobacco, several of each, including acubifolia, Ohio, Engelmanni, Bletia, Maryland, Florida, Shiraz, Virginia, Latakia, viridiflora, and longifolia, were planted in fairly rich soil in a somewhat sheltered portion of my garden. But first of all it may be well to state that Colonel Clarke's instructions, as given in the *Gardeners' Chronicle* of May 1, 1886, were, save in one point, carried out to the letter. The plants when sent me from the Carlisle nurseries were on an average half a foot in height, but stout and stocky, and were planted as follows on June 16. A piece of well-worked, well-mannered soil was thrown up into low ridges almost similar to those which a farmer prepares on which to sow his Turnip seed, and the plants placed at 15 inches apart, instead of 3 feet as recommended by Colonel Clark, for I justly considered that, as we are subject to rather severe south-western gales in Carnarvonshire, the nearer the plants were placed consistently with the allowing of perfect development, the less chance would there be of injury to the leaves and stems; and right I was, for during some stiff breezes I noticed that one plant acted admirably as a stay to the other.

Immediately after planting a spell of dry, sunny weather set in, and although the young plants were duly tended with water, still, for their sake, although not for some Oak bark that I well knew was not fully harvested on an adjoining estate, glad was I when a night of rain came to the rescue. Until this rain came, which was about a full fortnight after planting, the young seedlings made no progress and my spirits were rather damped in consequence; but the manner in which they started away after a dripping week was certainly pleasant to behold. The next bother, and the only one save, perhaps, in curing, was to keep the

shoots that were constantly forming in the leaf-axils nipped out, this being for nearly six weeks almost a daily task, for it seems to me that with these, like the herbaceous flowers grown by ordinary gardeners, it was "cut and come again." The removing of the flowers when just beginning to open was likewise duly attended to, but, I must add, somewhat reluctantly, for several of the kinds had heads of rather quaintly ornamental flowers, that could well hold their own when placed in an old china vase with the black and gold Kudbeckia. After being two months established the plants grew strong and rampant, some of the kinds having attained a height of nearly 5 feet, with oh! such big, broad leaves, about 20 by 12 inches, as the gardener said. When six weeks came round many of the lower leaves were turning of a golden hue, somewhat like those of the Lime tree in the autumn, and after another fortnight, on September 16, or exactly three months from the date of planting, the plants were pulled up to undergo the final process of curing, the leaves. When pulled up the roots were denuded of soil by a gentle shake, and the plants allowed to remain for about two hours in the sunshine, by which time the leaves became wilted or perfectly flaccid, which aided considerably in the next process, that of hanging up the plants. To do this a piece of cord was tied around the stem of each close to the root, and the plants suspended head downwards, on wires stretched along at about 10 feet from the ground. Fortunately a spell of such weather as alpine gardeners detest—east wind with dull sunshine—set in, and the plants were kept on the lines out-of-doors for ten days, or until September 27, by which time some of the lower leaves—those next the root—were becoming of a greenish yellow, but those towards the top of the stem remained almost unchanged in colour although the sap was fast drying out.

A falling glass and inky clouds hastened the ingathering of the plants to an airy shed, but previous to removing them from the lines the leaves were stripped from the stems, and afterwards carefully arranged on lines, by being bent double, under cover. Here they dried more quickly than out-of-doors, but this was, in my own opinion, simply owing to their being removed from the stems, for these latter were so large and fleshy that a great quantity of sap was stored up, which considerably retarded the drying of the leaves. The next process, that of packing, was engaged in from time to time as the leaves assumed the rich golden colour, but the method adopted was not exactly in accordance with that advocated by Colonel Clark. A wooden box was looked out, of sufficient size to hold the leaves, but it should not be too deep in the sides, else the putting on and removing of weights is troublesome, and which we found out from experience. In packing the leaves a dozen were placed a-top of each other, with the tips all one way, and tied with a thread at the other end: they were then placed in the box, layer on top of layer, and weighted heavily. Fearful lest the leaves might contract mouldiness, and so injure the sample, the whole bottom of the box was not covered, but a space left of about 6 inches between the layers on each side, and which I believe has been productive of good, more particularly in leaves like those of the Tobacco, which are so hygroscopic. The box was placed in a dry room not far from the fire, and as a few more leaves became dry the weights were removed, the sample placed a-top of the last, and the weights again replaced.

When little more than a week under pressure a friend or two called one evening, and, of course, Tobacco culture was the text, the final results of which were that the Welsh grown "weed" must there and then be tried. A piece was therefore procured, and, indeed, the appearance of it as regards colour was excellent, quite as good as a few minutes afterwards we found the taste.

It is but fair to add, however, that the smoke was somewhat pungent, more so, at least, than the "Amlwch" and "Golden Cloud" smoked usually by my friends, and another peculiarity noticed by all was that the home-grown was slightly more narcotic in its effects than the foreign, but this we judged was due to the green state of the leaf as compared with the other. How it will ultimately turn out I know not, but from present looks I should say well, and will let you know a month later on.

In conclusion, I have not the least doubt, judging from my own experiments, that the culture of Tobacco in the British Isles is of the simplest description, the only thing I am frightened of is that the harvesting of the crop will be difficult in our sunless climate—unless, when compared with its native land—unless by the erection of light airy sheds in which to store and cure the leaves, for rain, after commencing the drying process, is ruinous to most samples.

This difficulty is, however, readily enough overcome, and if the ultimate weight of Tobacco procured from a given extent of ground be such as to fully compensate for trouble and ground rent, I have no doubt that, should Government duties not be too pressing, the cultivation of Tobacco in Great Britain will go on increasing, for, as prices go at present, the usual crops of our farmers are hardly worthy the expenses connected therewith. A. D. Webster, Llandegai, Bangor.

New Garden Plants.

GONGORA FLAVEOLA, n. sp.*

THIS *Gongora* is near to *Gongora gratulabunda* and *G. pleiochroma*. It bears a rich raceme of distant flowers, which are light ochre-yellow; the lip darker, more yellow; column green. There are brown spots on the base of the long narrow median sepal, and on the petals, lip, and column. The peduncle is angulate, by no means compressed. It was grown and kindly presented to me by Mr. J. O'Brien, of Harrow-on-the-Hill. H. G. Rehb. f.

ARISTOLOCHIA SALPINX, Mast., n. sp.† (See fig. 92, p. 457.)

THIS is not quite so remarkable a species as that lately described by Mr. Brown, and is hardly likely to find favour as an exhibition plant. The leaves are cordate-ovate, lanceolate, subacuminat, glabrous on either side; the perianth is an inch or more in length, cream-coloured, with a network of purple veins, its tube is inflated at the base, then constricted, and abruptly bent back, expanding into a trumpet-shaped tube, the mouth of which is a little oblique, somewhat two-lipped, the lips compressed, so as nearly to close the tube, the upper lip the larger, with a yellow blotch and numerous purplish spots. The margin is slightly reflexed, marked with purple lines and a few short purple hairs. At the junction of the constricted with the dilated portion of the tube projects downwards a trowel-shaped process which, aided by the hairs on the sides of the tube, which also point downward, doubtless hinders the egress of insects from the flower as much as it favours their passage into it.

The staminal column is either four-lobed or five-lobed—an unusual circumstance in the section to which the plant belongs. The species comes near to the South Brazilian *A. triangularis* or *A. Sellowiana*, but differs in the leaves, and especially in the arrangement of the smallest veins, and in the fourfold division of the column, if, indeed, that prove constant. The species is a native of Paraguay, and has been named in allusion to the trumpet-shaped flower. M. T. M.

ROOTS.‡

IT is a fact which has become more and more evident to the practical cultivator that the results of his efforts manifest themselves on the whole in a sort of compromise between the plant and its environment: I mean that although he sees more or less distinctly what his plant should be—according to a certain standard—it is but rarely, if ever, that the plant cultivated perfectly fulfils in every respect what is demanded of it. Of late years this has of course forced itself more prominently before the observer, because the facts and phenomena constituting what is termed variation have been so much more definitely described, and the questions arising out of them so much more clearly formulated.

* *Gongora flaveola*, n. sp.—Aff. *Gongora gratulabunda*, Rehb. f., ungue æqualiter sigmoideæ, hypochilii sinu supra-marginali angulo, angulo anteriori infra aristam mediano (nec basali), cornubus basilaribus angulatis minutis, epichilio humili, gutture in basia inferiori minutissimo. H. G. Rehb. f.

† *Aristolochia (Gymnolobos) salpinx*, Mast., n. sp.—Vulbi glabra: rami gracilibus, foliis lanceolatis, 12 x 7 cm., subcoriaceis ovato-lanceolatis cordato-bilobis, lobis rotundatis, sinu lato separatis, nervis 5 pedatis dispositis, subis prominenter lateralibus margines versus arcuatis, nervis minoribus pluribus approximatis; petalis 3, 4 cm., flore circæ 25 mm. long. colore cremorei venis reticulatis purpureis insignito, basi ventricoso, infundibulum repente resupinato, sessu in limbum lato transverse expansum ad margines revolutum leviter bilobatum, labio superiore incurvo macula fava rupeo-purpureo maculato, tubo intus ad flexum processu trifurciformi densius verrucato; calamina 3 mm. ovoides stipitatae, 6 cm. longa antheris linearibus basin distans attinentibus. Ex Asen. circ., Parauzu, hort. cl. W. Bull. adacta.

‡ A lecture by H. Marshall Ward, M.A., F.L.S., Fellow of Christ's College, Cambridge; Professor of Botany in the School of Forestry, Royal Indian College, Cooper's Hill.

Two points can be asserted without fear of contradiction; first, the plant itself is a variable organism; and, secondly, its environment varies. Now within limits which are somewhat wide, when closely examined, the experience of man leads him to neglect the variations occurring around him, and so no one quarrels with the statement that two individual *Geraniums* belong to the same variety, or two Oak trees to the same species, although an accurate description of each of the two *Geraniums* or of the two Oaks might require very different wording.

THE WATER-SUPPLY.

It has also become more and more evident that although we cannot ascribe all variations to their causes—very often, indeed, we cannot even suggest causes for them—there are nevertheless numerous deviations from the normal, so to speak, exhibited by plants which can be distinctly referred to certain

living. The experiment is easy and conclusive with such a weed as the above. Now it is just such experiments as that above described—some of them equally simple, others less so—that the physiologist devotes much of his attention to, and in just such a manner has been gathered together a nucleus of information around which more knowledge can be grouped.

I may make these points clearer by again quoting an illustration, and, not to confuse or mislead you by going too far afield, I will keep to the same line of investigation, partly because it is quite as simple and conclusive as any other of many that might be selected, and partly because it may be possible to set before you some facts which are interesting or even new to you.

HAIRS.

It has been found that in some cases where two plants are growing in the same soil and under the

hairy, whereas allied species growing in or near water, or even only in moister situations, are devoid of conspicuous hairs, or even quite smooth.

The above peculiarity is not confined to leaves and stems, moreover, for experiments with roots have shown that the root-hairs, which are so important in collecting moisture, &c., from the soil, can be made to appear in enormous numbers when the root is kept in a soil which is very open and only slightly moist, whereas none or very few are developed on the same roots growing in water: this again is in accordance generally with the fact that the roots of land-plants growing in light soils develop innumerable root-hairs, whereas those of water-plants do not thus increase their surface and points of attachment. I cannot here go into all the interesting facts known about these hairs, but it will be sufficient if you bear in mind the main points just mentioned.

DEFICIENCY OF WATER.

Let us now vary the experiments a little. It is obvious that we might suppose any number of differences in the amount of water given to the plants used in the experiments described above; but it would be found, as matter of fact, that however little be the quantity of water given to the soil in which the dwarfed plant is, compared with that put into the soil in which the luxuriant plant grows, the actual weight of water will nevertheless have to be considerable, taking the whole life of the plant into consideration—there will be more used than you probably know, moreover, because the soil itself will no doubt condense and absorb some from the atmosphere during the night. There is a minimum of water absolutely necessary, and if the plant does not obtain this it will die. Its death will be ushered in by drooping and withering of the leaves, stem, and roots, and this condition, in which the functions of the plant are interfered with beyond a certain point, passes into a condition of disease.

EXCESS OF WATER.

Now take another case. We might so arrange the experiment that we poured and continued to pour too much water into the soil. Here again it would be found that a condition of disease eventually sets in—i.e., a condition in which the functions of the plant are again interfered with beyond a certain point. The symptoms and progress of the disease will be very different in the latter case, however, from those in the former. It may also be mentioned that in neither experiment is death inevitable if the disturbing cause is removed soon enough—i.e., if sufficient water be added in the first case before the cells have ceased to be able to take it up, or if the previous conditions of the soil are restored soon enough in the case of the over-watered plant.

Here we come to a matter which is less simple than may appear at first sight. You will note that the problem in the latter case is to restore the previous conditions of the roots and soil soon enough; I put it thus, because the conditions of the roots and soil may soon be very profoundly altered by the over-watering.

To understand this, it is necessary to become a little more fully acquainted with the condition of affairs in what may be called the normal case, where the soil is light and open, and plenty of water, but not too much, is at the disposal of the roots. Such a soil will consist of innumerable fine particles, of different shapes, sizes, and composition. No doubt there will be grains of quartz, particles of broken up vegetable matter, and little rugged bits of stones containing various minerals; each of these tiny fragments will be covered with a thin layer of water, and you would probably be greatly surprised if I were to go into the proofs showing how extremely tenacious of its water-blanket each particle is. It may be enough for our present purpose if you accept the fact that it requires enormous force to deprive the particles of the last traces of their water-layers; they will give off some—or in some cases even a good deal—rather easily, and in fact when the layers become of a certain thickness no more water can attach itself to the particles, but it falls away, and the soil remains saturated, as we say.

AIR IN THE SOIL.

Now these particles of soil, each enveloped in its water-blanket, are not in close contact; there are spaces between them, and these interspaces influence the quantity of water which can be held back by the soil. Let us suppose such a soil perfectly dry; the particles above referred to being irregular in shape and size, and only roughly in contact at various points, the interspaces will be filled with air. If water be then added in some quantity, each of the particles becomes clothed with a layer of water, and some of the air is driven out, though bubbles of air will still exist in the larger interspaces.

(To be continued.)

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FIG. 92.—*ARISTOLOCHIA SALPINX*: FLOWERS CREAM-COLOURED, WITH PURPLE VEINS; THROAT WITH A YELLOW BLOTCH SURROUNDED BY PURPLE SPOTS. (SEE P. 456.)

deviations from the normal on the part of their environment.

To illustrate this we may take the case of two plants of that very common weed, the Shepherd's Purse, growing at different ends of the same small plot of ground: the soil is sandy, and so much alike all over as to be regarded as the same everywhere, nevertheless the plant at one end is large, more than a foot high, and luxuriant, with many leaves and flowers, and eventually produces numerous seeds, whereas that at the other end is small, less than 4 inches high, and bears but a few stunted leaves and three or four poor flowers and fruits. The cause of the difference is found to be the different supply of water in the two cases; and if any one doubts that this may be so, let him try the experiment of growing two or more specimens of this weed in pots: the pots to be new, filled with soil which has been thoroughly mixed, and all the pots exposed to the same conditions—i.e., practically the same—except that those of one series are watered sufficiently often, and those of the other only just sufficient to keep the plant actually

same conditions as above, but where one plant receives less water than the other, that the dwarfed drier plant is more hairy than the larger and luxuriantly growing plant, which has been well watered. On looking more closely into this matter it turns out that the extra hairiness is (in some cases, at any rate) simply due to the fact that the hairs are closer together, because the little cells on the outer parts of the plant which grow out into hairs do not increase so much in length and superficial extent as those on the well-watered plant, and thus the hairs stand thicker together on the same superficial area of the organ—of a leaf, for instance. In other cases, however, the hairs are really increased in numbers and length—the plant is absolutely more hairy. It will be noticed that details concerning growth and turgidity, and of the influence of various minerals, and so on, are not under consideration here. I am not asserting that all cases of hairiness in plants are to be ascribed to this cause; but it does occur, as stated, and the point is a curious one in view of the fact that very many plants which grow in sandy dry soils are conspicuously

MY GARDEN AT FIUME.

BY THE ARCHDUKE JOSEPH.

OWING to the mild climate of this country very little attention has been paid to the acclimatisation of plants till lately, but my garden at Fiume affords a favourable site for carrying on such interesting experiments. In the most southerly part of Hungary, 45° 20' N. lat., 30–75 metres above the level of the sea, 700 metres in a direct line with the coast of the Quarnero, rising above the old citadel of Fiume, on the south declivity of Belvedere, is a rocky waste of Karst limestone, the fissures of which are composed of small pieces of lime mixed with impermeable red clay. In the neighbourhood there are vineyards and market gardens, in which Figs, Olives, Laurels, and Almonds grow. The lower part of my garden was made twenty or thirty years ago by Giovanni Ciotta, Mayor of Fiume, a great lover of plants who found at that time two examples of *Pinus pinea* about twenty or twenty-five years old. This old garden was 3 acres in extent, and surrounded the house. In it there were many exotics, such as *Chamaerops excelsa*, *Cedrus*, *Cupressus*, &c. A wood of deciduous trees I cut down, and the space thus gained I devoted to exotic evergreen vegetation. The higher part of the garden is beneath the lowest terrace, and was mostly composed of rocks with very little grass, and a few miserable *Pistacia Terebinthus*, *Ornus europæa*, *Celtis occidentalis*, *Corylus Avellana*, &c., and brake Ferns. It was 3½ acres in extent. In addition to these two plots I bought on the west side 4 acres and a house, the whole extent of the gardens at present comprising 9½ acres.

The climate is extraordinarily favourable. Fiume, taking the average of thirty years, has a mean of temperature of +14° C. (57° F.); maximum, +35° C. (95° F.); minimum, +9° C. (49° F.); January, +5° C. (42° F.); July, +24° C. (76° F.). The lowest temperature (–7° C. = 20° F.) observed in several localities has been observed only once in ten or twelve years. From these observations I assume that my garden lies in the isotherm of +15° C. (59° F.). This isotherm of +15° runs from east to west in the northern latitude runs through Japan, 36° N.; China, 34°–37° N.; Persia, 38°–39° N.; Caspian Sea, 40° N.; Asia, 40°–42° N.; Turkey, 43°–45° N.; Fiume, in the Quarnero, 45° 20' N.; Italy, 45° N.; France and Spain, 44°–43° N. Corresponding with these in the southern latitudes are:—New Zealand, 34° S.; Australia, 33°–34° S.; America, 40°–30° S.

All the plants that grow naturally within these isotherms are hardy in the open air in the region of Fiume, as frost is very rare, and when it does occur, it lasts only a few hours, so that plants may be induced to grow here transplanted from mountains as well as from warmer climates. Mountains of from 1000 to 2000 metres in height surround my garden from W. to N. and N.E., the only low-lying spot being the valley of Fiumara, so that the force of the Bora is a little checked in its passage, although felt in the most northern part of my garden. The Bora is very cold, but frosts occasioned by it occur very seldom. The *Tramontana* is a wind which causes frosts, but owing to the protecting mountains its effects are not felt in my garden. At such times hoar frost is seen in fields, and also a very thin sheeting of ice on shallow pieces of water, but the earth is not frozen more than 1 centimetre below the surface, and even then only for a few hours. Towards the east are the Dalmatian mountains, and towards the South are the islands of Veglia and Cherso, subject to violent storms. They are a good distance away, but the air is made colder by them. My garden from morning till evening is exposed to the rays of the sun, which even in winter are powerful. The spring begins sometimes in the middle of January, but, generally speaking, the Almonds do not bloom till the latter part of February.

Before I commenced the cultivation of my garden I ascertained from Isidor Wauchig, engineer of Fiume, the existence of a powerful subterranean spring. I sunk a well in the white limestone, which is nearly as hard as marble, and the depth of which is 17 metres, and the width 3 metres; over this well I constructed a forcing and sucking-pump, worked by a gas-engine of 8-horse power. This raises the water through large iron pipes, which conduct it into two large reservoirs made in the rock, and situated in the highest part of my garden. In these two reservoirs is a network of iron tubes which extend over all the garden, and with natural pressure distribute the water into thirty-two hydrants. By this means

I preserve the life of the plants in the dry hot season and on the rocky ground. I have procured from Lopacio a quantity of heath-mould, and from the Chestnut woods of Lovrano Chestnut manure and mould.

For the accommodation of the plants I have had walls made, on which I have placed mould, and also pits and ditches, which I have hollowed out with gunpowder and dynamite. Stones for the walls were plentiful, and the contractor who made the dockyard of Fiume obtained for me from there 17,000 to 20,000 loads, as the place where the stones are ordinarily procured is at some distance from Fiume. This was a great undertaking, but I have been well rewarded for all the trouble. The tender plants of warmer countries I planted under the shelter of the walls and the rocks, also the taller Firs and the Bay Laurels, which are thus sheltered from the east and north winds, and which have all the heat of the afternoon sun.

Near the Hungarian sea-coast Palms grow, and there is a small piece of land where one might imagine the climate subtropical. I obtained my plants by sea through the Hungarian Marine Adria Society:—1. Palms, Cycads, Ferns, Orchids, from the Compagnie Continentale d'Horticulture, Ghent, Belgium; and 2. C. F. Creswell, George Street, Sydney, Australia. 3. Conifers, Pines, evergreen trees and shrubs, from Louis Leroy, Au Grand Jardin, Route de Paris, Angers. These last were shipped at Bordeaux.

Accompanying the Archduke's paper is a list of plants too long for us to give at length. We may add that it comprises *Chamaerops excelsa*, *C. Fortunei*, *C. humilis*, *Phoenix dactylifera*, *P. tenuis*, *Cereus peruvianus*, several species of *Opuntia*, and *Acacia*, *Aspidistra elatior*, *Cocculus laurifolius*, *Ephedra altissima*, *Eucalyptus globulus*, *E. robusta*, *E. linifolia*, *Ficus repens*, *Myrtles*, *Oleanders*, *Olives*, *Pomegranates*, *Physianthus albens*, *Plumbago Lupulina*, &c. In the spring of the present year numerous Palms, Cycads, and Tree Ferns, have also been planted out, the results of which will be looked forward to with great interest.

These particulars are taken from a paper, in the Hungarian language, contributed by the Archduke to the *Magyar Nemzetinyi Lapok*, the Hungarian Journal of Botany, and kindly communicated to us by Professor Kanitz of Clausenburg.

Orchid Notes and Gleanings.

CIRRHOPELALUM PULCHRUM.

MR. N. E. BROWN describes in the *Illustration Horticole*, t. 608, a new species of this genus with creeping rhizome, ovoid l-leaved bulbs, and erect umbellate racemes. The flowers measure 1½ inch in greatest length, their general outline is linear oblong, the colour yellow with purple spots. The upper sepal is short, rounded, and provided with a long slender terminal thread. The two lateral sepals are united together and bent downwards so as to form a flat oblong blade corresponding to the two lower sepals in *Cypripedium*. The petals and lip are both small.

ONCIDIUM MACRANTHUM, Lindl.

Mr. E. Harvey, Riverdale Road, Aigburth, Liverpool, sends me flowers of an individual that shows a certain tendency to approach a fine form of *O. Williamsianum*. There is an Indian-purple stripe on the stalks of the petals, and their disc is marked with brown blotches. *H. G. Rickb. f.*

EPIDENDRUM MATTHEWSII.

Six species belonging to this type inhabit the Andes of Central and South America, and belong to the *Nann* group of the section *Euepidendrum*. The species under notice recalls the appearance of Lindley's *Nanodes discolor*, the type of that genus as founded by him. Horticulturally the plants are very distinct from the general run of cultivated *Epidendrums*; and *E. Matthewsii*, although incomparable to the remarkable and peculiarly coloured *E. Meduse*, is in reality a floral gem, and superior to *E. discolor*, although similar in habit and size. The rigid fleshy leaves are more or less irregularly stained with purple, and are arranged in a two-ranked series, closely clothing the short procumbent or diffuse stems with their sheathing bases. The sepals and petals are small and almost transparent, but stained with purple externally, which shines or appears diffused through

them. The internal ones are connate for about half their length, and seem to perform no other function than that of supporting the labellum by which they are completely concealed. The latter is orbicular, and bifid, strongly convex above and concave beneath, of a deep shining dull blood-purple colour, and by far the most conspicuous organ of the flower. In this respect it excels that of *E. discolor*. The plant requires warm treatment, and to be hung up near the glass fastened to a block, with a little sphagnum to retain the moisture, or, better still, on a piece of Tree Fern stem, that readily retains the moisture necessary for its welfare. Of several specimens at Kew one is flowering in the East Indian-house.

NURSERY NOTES.

MR. C. WOOD'S, ROUEN.—Mr. Wood's nursery is not an emporium for new or rare plants, it is a market nursery where only well known and reliable subjects, such as find a ready sale at the Rouen market, are grown. The whole extent is about 2 hectares (5 acres), and it contains 10,000 square yards of glass. Three lean-to houses are devoted to *Camellias* for cutting, several varieties are grown, but mostly *alba plena*; a great quantity of these is required for the different fairs, &c., of the churches, for, as is well known, Rouen is greatly blessed in that respect. For cut flowers large numbers of *Stocks*, *Primulas*, *Cyclamens*, &c., are grown; and also *Roses*, the favourite being *Gloire de Dijon*, still other sorts are much sought after. It is singular how free from mildew this *Rose* is in comparison with the *H.P.'s* growing near by, which are positively grey with the fungus. A few of the old sorts of *Dahlia*s, such as were in fashion when the late Mr. Wood (father of the present) started his nursery, on leaving what is now the *Jardin des Plantes* (see *Gardeners' Chronicle*, p. 428). There is a great interest attached to them, these being the first plants cultivated by him for trade purposes. But they have not been kept up to the time, because after a few years they were attacked by a troublesome and destructive grub, which nearly exterminated them. Although the cut flower trade is large it is not to be compared to the demand for pot plants, the customers seeming to prefer the plant in a pot—so that they may attend to its wants daily—to the mere decoration of their apartments with the cut blooms, so soon to fade. Neither do the French gentlemen, generally speaking, adorn their persons with buttonholes, except on very grand occasions. Of the ladies I will not speak.

The most extensively grown plants are Indian *Azaleas*, for which there is a great demand about Christmas time. Mr. Wood grows them admirably, his fine sturdy plants being real pictures, whether in or out of bloom. About 20,000 *Azaleas* are grown here each year, and nearly all are disposed of at the local market. Sometimes, however, a small trade is done with the English nurserymen. The Belgian system of cultivating *Azaleas* is adopted by Mr. Wood, the soil found in the forest lands which abound in the district having been found most suitable for their culture. Heaths which are grown in the open ground should be mentioned as coming second to the *Azaleas* as regards quantity, as many as 10,000 plants being the stock: concerning quality there is no difference. In connection with these plants there is a peculiar fact: Mr. Wood had attempted to grow *Heaths* on his ground as it was a few years ago, but failed. An adjoining plot of land was taken by Mr. Wood, and he once more tried *Ericas*, and with such success that he has continued to grow them ever since in increasing quantities. The differences between the situation and exposure of the two plots are to be held accountable for this. The varieties cultivated are such as may be seen on the London market, and include *hyemalis*, *Wilmoreana*, *gracilis*, *ventricosa*, and others. Particularly fine also are tuberous *Begonias*; only one colour, a brilliant and deep rose-red, is grown. These plants are balls of bloom—one might almost say of fire—being only about 1 foot in height; this dwarfness is owing to the cold weather in the early part of the year soon after being planted out, when their growth—upwards, at all events—was checked. The individual flowers are very large, measuring on an average some 5 or 6 inches across. Other outdoor plants include *Chrysanthemums*, which are largely grown for cut flowers as well as for pot plants, and *Bouvardias*, always favourites, and justly so, for like purposes; *Bouvardia Humboldtii* grandiflora is the only variety grown, as there is no demand for the red flowers.

Let us now look inside the houses. First of all to be noticed is the mode of heating. Mr. Wood manages this all-important part of his work in a novel manner. This is how it is done:—On the opposite side of the road is an establishment where much weaving is done—all by machinery. The hot-water produced by the machines at work here is run out as waste, but is not wasted, for Mr. Wood leads it through pipes into his nursery, where it is utilised for heating his pits and houses—an economical manner of heating, and not a bad one; I recommend it to any horticulturist similarly situated.

Of the plants in the houses I may sum them all up as well done. Very large numbers of Bromeliads and allied plants are cultivated, an entire house being devoted to them. In France these plants are much more admired than in England. When I saw this house its beauty greatly struck me; on both sides the stages were full of the Bromeliads, several of which were in flower, the red colour of the usually green parts of these plants and also of those just about to flower being very telling in effect: to improve all this was a splendid plant of *Stephanotis floribunda* trailed along the roof and heavily laden with flowers. Very greatly in demand on the market are *Gloxinias*, of which the brilliantly coloured varieties of all sorts are extensively grown. A number of fine dwarf *Orange trees*, from 1 to 1½ foot in height, masses of blossom, are also to be noted. *Ficus elastica* is also largely grown, its foliage being of that fine bronzy hue which is so much admired.

Amongst other plants largely grown the chief are grafted *Epiphyllums*, which attain their perfection during the winter months, and are of course most useful then: one entire house is devoted to them. There are also Ferns of various species—*Adiantums*, *Pteris tremula*, and *Lomarias*, chiefly; *Palms*, of sorts, particularly *Phoenix reclinata*, and *P. tenuis*; many varieties of *Dracena*, *Pandanus utilis* and show *Pelargoniums*, which are forced for sale during the spring and constitute the most important feature during that time of the year. *Le Voyageur*.

Floriata' Flowers.

CHOICE TULIPS.

ONE assuring feature in relation to the last exhibition of Tulips at Manchester was the number of exhibitors that took part in the competition, and yet such exhibitors as Mr. William Whittaker, of Salford; Mr. Thomas Haynes, of Warwick, and others, were not able to put in appearance. When as many as eight stands of twelve dissimilar Tulips are exhibited in competition in the leading class, it may be assumed that Tulip culture is still actively carried on in Lancashire, Cheshire, and other adjacent counties.

The best flowers staged in the various classes are comprised in the following list:—*Bizarres*, feathered: Commander (Marsden), a grand commanding bloom, fifty named, having a rich golden ground and fine dark feather; it sometimes comes a little stained in the stamens, and sometimes pure; Masterpiece, fine both in colour and marking; Royal Sovereign and George Hayward—a bloom of the latter shown by Mr. S. Barlow was pure, large, and finely feathered, but lacked form, being uneven on the petal edges; these are fine standard varieties, somewhat widely circulated. Of newer flowers there were Nonpareil (Ashmole), very fine—it comes flamed also, but in its feathered form it is very rich in colour, of a deep rich yellow; Dr. Dalton, one of the late Dr. Hardy's raising, apt to come short of beam when in the flamed state; sometimes caught in excellent form, but in its general character regarded as an uncertain flower; and *Asclepias* (Thurstan), broken from a grand buff breeder. It is believed raised from Sulphur and Dr. Hardy, partakes of the shape of Sulphur, but has the purity of Dr. Hardy; indeed, as shown, it was very pure, with a bright red feather. Lord Randolph (Dymock) will be found described in the report of the Tulip show; the peculiarity about it is that though a feathered bizarre it is said to have been raised from two byblacens. Excelsior, which was shown both in the feathered and flamed classes, is oftenest flamed. It is one of Dr. Hardy's seedlings. It is as good in the broken as in the breeder state, good also both feathered and flamed, the feathering dense, sometimes comes a little stained on the petals. Agamemnon (Hep-

worth) is a feathered bizarre, not shown to the best advantage on this occasion, and at present in very few hands indeed. General Grant, another of Hepworth's raising, is in the same way, but a thoroughly first-class flower, and has a vivid scarlet feather on a rich yellow ground. Mr. Barlow gives it a very high position. William Wilson (Hardy) is own brother to Dr. Dalton, hardly first-class, though a bold dashing flower, will come good at times, but a bit inclined to coarseness. The leading flamed bizarre was the evergreen Sir Joseph Paxton, a flower that never fails and sometimes breaks out into a fine feathered form.

Feathered Roses—a charming class—were well represented by Nancy Gibson, Industry, Modesty, Heroine, and Charmer. A fine new variety was present in Mrs. Thurstan (Thurstan), from Kate Connor × Sarah Headly, pure, the whiteness of the ground perfect; charmingly feathered with deep rose-scarlet—one of the finest of its class in cultivation, and which may be written down as ex. ex. Julia Farnese is decidedly pleasing to the eye, its heavy feather contrasting so markedly with the purity of the white ground; but it has so much colour laid upon the edges of the petals that it is denominated "plated," lacking the life seen on a petal which is perfectly feathered; it was a little small as shown, but good in form. The best flamed roses were Lady C. Gordon (Lightbody), nearly a flamed flower: it occasionally has streaks of yellow in the base that do not "bleach out" as the growers say; Old Heroine, still a most useful and popular flower; and Annie McGregor.

The byblacens were this season weaker than the other two classes: the best feathered flowers were Mrs. Cooper, Talisman, shown in the flamed character also; Adonis—also flamed; John Hart, and King of the Universe, two flowers raised by Mr. W. Dymock, of Stockport, the last is apt to come with slightly tinged stamens: the former was seen in fine condition a year ago. Flamed byblacens were further represented by Lord Denman and Chancellor: the last is a Midland flower, but apt to "shoulder" and present itself in a bad form. Mr. Barlow had what was regarded as a good strain of it, but threw it away, not deeming it worthy a place in his collection.

The best breeder Tulips were, *bizarres*—Sir J. Paxton, Dr. Hardy, and Horatio; this last is one of the late Mr. R. Headly's seedlings, very fine in the breeder state, but worthless when broken; it has a fine bright yellow base, and light orange-red petals; it may be termed a red bizarre breeder. The best rose breeders were Mrs. Barlow (Hepworth), A I as a breeder, and of a beautiful light rose colour, but worthless when broken, for it usually breaks badly; the colour is right when rectified, but it has no character; Thomas Parker, a Wakefield flower; and Miss Burdett Coutts. Byblacens breeders were represented by Glory of Stakehill (Ashmole), probably the best breeder Tulip in cultivation, but when broken weak and wanting in character—a very tall grower, but lovely in its dress of silvery grey with the faintest tinge of mauve; Alice Grey, raised by Walker of Winton, colour very light lavender; it breaks into a fair byblacem, both feathered and flamed, but it cannot be relied upon; but it is a beautiful breeder, and has won as a premier among breeders many times.

Two entirely new rose breeders were shown by Mr. Thurstan, the raiser; one was named Tryphena, a beautiful flower, charming in colour, perfect in shape, and with a waxy-white base; and Typhosa, of the same class, and of similar character in regard to build to the feathered rose Mrs. Thurstan. The raiser appears to have obtained a fine break of seedling Tulips, more of which may probably be seen next season.

The late John Slater, who was an undoubted authority in the matter of Tulips, once said that "feathered flowers are generally more abundant after a severe winter than when it is a mild one." On applying to Mr. Samuel Barlow for his experience in reference to this matter he said that he had a great many very fine feathered flowers in 1885 after a mild winter. The opinion held by Slater is one among many entertained by the old Tulip growers, but some of them have not borne the test of a larger experience. *R. D.*

CHRYSANTHEMUM G. WERMIG.

This yellow flowered sport appears to be earlier in blooming than Madame C. Desgranges, the white blooming Japanese *Chrysanthemum* from which it came. I infer so from the fact that when I was at the Royal Nursery, Slough, a few days ago, some

of the workmen were bringing in from the open ground and potting a number of plants of both the varieties named above, and though they had occupied the same open position when planted out, one—the sport—was a few days in advance of the other in opening its flowers. What a fine bank of these two varieties Mr. Turner could set up at South Kensington in another fortnight, were it not for the expense that would have to be incurred in getting a large quantity there. Is the earliness of the yellow sport as compared with Madame Desgranges generally noticeable? *R. D.*

COLONIAL NOTES.

THE VEGETATION OF NEW SOUTH WALES, &c.

A RECENT trip by railway to Sydney, distant from Melbourne nearly 600 miles, gave me the long-wished-for opportunity to see something of the vegetation of the oldest and neighbouring colony of New South Wales, so I made as good use of my eyes and brief opportunities as possible to note the various matters of interest en route.

I started at 6.55 A.M. on May 17, making the journey through in twenty-four hours. The extreme dryness of the country was very marked soon after leaving Melbourne, and continued so the whole way; every water-hole was dry—not a blade of green grass was to be seen, although the country over which the train runs is comparatively flat between a goodly number of high hills, which were never, or scarcely ever, situated nearer the train than, say, three miles. The hills nearly all the way were clothed with *Eucalyptus* trees; these, judging by the immense quantities of fire-wood cut up into foot lengths, must have been largely interspersed with *E. melliodora*, yellow Box, and at times the summits of the hills were observed to be clothed with *Casuarina quadrivalvis*, and others of the "She Oaks" probably. The want of grass and water must have been severely felt by the settlers, cattle being scarcely ever observable, but plenty of sheep and goats. I must mention, however, a goodly donkey of good caste and her foal, the materal being busily at work biting the spines off a dry Thistle! This was near Glenrowan and the Strathbogie ranges, where the Kelly gang of bushrangers enjoyed a short but terrible time of it, so far as the victims were concerned, until surrounded and captured, then hanged for their crimes. By-and-bye the Murray River is crossed, and Albury, 190 miles from Melbourne, the first station in New South Wales, is reached. Here the passengers change trains, and meanwhile stop for dinner (at 1.30 P.M.), and which is obtainable at the station refreshment-room at the cost of 2s. 6d.

The New South Wales country nearer Sydney is more interesting, I think, and is certainly more picturesque, judging by the moonlight views I had at times from the carriage window. We reached Sydney at 6.40 A.M. on May 18. The approaches by train to Sydney proper are sadly marred by the entire removal of the native vegetation; indeed, I may add that Sydney is sadly behind in the way of tree planting for shade, &c. (verified by after visits to the city), and this is, I think, much owing to the very poor water supply for the city, fed by some wretched swamps near Botany Bay. The supply of pure water will, however, soon be obtainable in quantity from some mountain source, and it was a healthy proof of the same when I was in Sydney to see the large wrought-iron pipes laid in a line for an *ad interim* supply—these were about to be laid below ground. Let us hope the Sydney authorities will seek and act upon advice (based on long experience) of Mr. C. Moore, F.L.S., the Director of the Sydney Botanic Gardens, and plant largely the proper shade trees so conspicuous by their absence in and around this the oldest city of the Australian colonies.

The trees largely used for shade, &c., in the public reserves, near and connected with the Botanic Gardens, are *Ficus macrophylla* and others of the genus, also *Pinus pinaster*, &c.; these seem to require no artificial watering. To a person desirous of making a botanical pilgrimage there is no more interesting spot to visit than that contained within the fences of the Sydney Botanic Gardens. How often we hear of the giant *Araucaria excelsa* trees, the finest cultivated ones known, I believe. I stood below the towering heights of two of these, measuring at least

120 feet from ground-line to top, and a diameter at 4 feet from the soil of at least 5 feet. A very fine *A. Cunninghamii* is also growing near by, almost, if not quite, as tall, but not so shapely as the others named. *Poinsettia pulcherrima* and other (trees in Melbourne) greenhouse plants were here found luxuriating as free-growing and rather tall shrubs. The general area of the gardens has been increased nearly one-half by additions from the late Exhibition Palace grounds, &c. The sward of the lawns is composed of *Stenotaphrum glabrum* (Buffalo) and *Cynodon dactylon* (Daub or Couch), the latter giving more satisfaction in some parts of the grounds, as it does not suffer so readily from extreme drought as its neighbour. The mowing is done by a very heavy, and, indeed, clumsy article, made by one of your famous makers, but which is said to do the work well; it needs, however, one horse and two men, all hard at work, to enable it to perform its daily tribute of lawn trimming.

The greenhouses or conservatories were by no means found to be leading features of interest. Certainly two very handy new ones, well and cheaply made, have recently been added, about 40 feet long by 20 feet wide, with very perfect apparatus, but the plants in them, as in the others, are very poor and uninteresting; this, the foreman explained to me, was due to the fact that the Garden Palace Exhibition, which not long since was burned to the ground, contained most of their best plants, which it had taken many years to grow. A national loss truly!

NATIVE FLOWERING PLANTS.

My observations were not confined to Sydney proper, for I was enabled to see something of the beautiful native flora fringing the waters of Port Jackson. The large as well as small steamers go seemingly everywhere within this most picturesque and enchanting harbour, so that one has no difficulty in getting to spots full of interest to lovers of plants. About 9 miles from Sydney by steamer is a well populated town called Manly; this is met for and aft by the ocean and harbour water, and is rather exposed to the strong winds. The beauty or pride of Manly, Coogee, &c., is, however, centred in the native plants growing on the heights and among the rocks above the residences. Among many others I observed *Eugenia myrsinifolia*, *Leptospermum lanigerum*, *Banksia ericifolia*, flowers full of honey-like fluid; *Greivilleas* of various dwarf species, *Epacris impressa* and *E. longiflora*, *Westringia rosmarinifolia* (the last-named growing everywhere on declivities and rocky spots), *Smilax glyciphylla* in berry, growing in interstices of the rocks (it is much used for medicinal purposes, and said to be in that way equal to the imported Sarsaparilla). The value of many of the native plants to cultivators is their flowering, or continuing to do so, in the coldest months—May, June, and July—more especially those of the *Epacridæ* and *Proteacæ*; the wonder is, under the circumstances, that our native plants are so very seldom seen in our gardens, especially as they are so suitable to give winter effect.

Among the introduced European and other trees, which, to my surprise, I found thriving so well both in Sydney and at Parramatta (about 14 miles distant therefrom) was the British Oak, *Quercus Robur*, which seemed to flourish because of the richness of the soil, despite the great heat in summer overhead. Going by railway, one is pleasantly surprised to find so pretty an inland town—where once the Governor resided—so well laid out, streets at right angles, plenty of shops, and much other evidence of prosperity. Entering the public park by an archway through or under a brick castle-like lodge, the first objects for attention are the Oaks planted many years since by some champion of disorder; they are very irregular, too close together, and much stunted in consequence, yet the shade must be delightful in summer. I measured one (indeed there were several others equally fine) whose diameter was found to be 2 feet 9 inches and 70 feet in height. There are here, interspersed with them, some of the largest *Pinus pinaster* and *P. pinea* I had ever seen, about equal in height and girth to the Oaks. I may observe here that the only grass growing in the park is *Cynodon dactylon*, no other would succeed here so well on account of the heat. There are some splendidly healthy Orange trees far from the town, which, when in flower, fill the air with their fragrance. At this time of year these "trees of life"

are laden with their "fruits of gold." I was unable to visit the oranges, so can only speak of what I have heard, or judge by the few specimens seen. Returning to Sydney—this time by water (Parramatta River)—I was certainly disappointed at not seeing any very luxuriant vegetation on either side, and no Orange trees, but was rewarded by the scenery—rocky points, and promontories, recesses, &c., all the way down this arm of the sea to Port Jackson. The Mangroves (*Carallia* species) sticking their forklike roots into the muddy edges of the banks on either side of the river look very peculiar, the foliage being very much like that of *Ficus australis*. I am sorry to say that where I observed in some of the suburbs of Sydney, that *Araucaria excelsa* trees had been planted for shade in the streets (for which they are eminently unsuitable), the lower frond-like branches were cut off up to 5 and 6 feet to make them answer the purpose. Need I say that no greater failure can be chronicled than this one!

Much reclamation of sandy coastland has been



FIG. 93.—PRINCESS ALICE STOCK: WHITE.

effected at various places, more especially at Manly (before referred to), which is in sight of the Heads. Mr. E. Badmington, builder and contractor, informed me that when he landed there thirty years ago no settlers were there excepting the original occupier and his family who by purchase from the Crown became the owner of the whole area, comprising many hundreds of acres, and had the principal portion, especially the sandy ground, planted with Buffalo and Couch grasses. Mr. Badmington assures me that the late Mr. H. G. Smith (shipowner), the original occupier, would often go out in rainy weather, with only an umbrella over his head, and plant rooted joints of these grasses, and he was many times assisted by Mr. Badmington in so doing; and what is proved besides the reclamation of such an area, principally of sandy land? Why—that the Buffalo and Couch grasses (and more especially the Buffalo), are of the greatest possible value as sand-staying plants. I have seen the Buffalo growing fairly at Queenscliff (Heads of Port Phillip), but was not prepared to find it so unmistakably successful as at Manly in New South Wales. A. C. N., South Yarra, Melbourne, July 28.

CONTINENTAL NOVELTIES.

NEW PERPETUAL TEN-WEEK STOCK, PRINCESS ALICE (LORENZ).—Mr. Chr. Lorenz, of Erfurt, is about to put into commerce a new variety, and one likely to be appreciated by all who wish to have a good outdoor flower. In the open ground the plant grows, we are told, 2 feet high, and if sown early it produces uninterruptedly from May until November, and often until December, an abundance of beautifully shaped flowers of the purest white, which contrast well with the dark glossy green foliage. The flowers, which appear in each axil of the flower-stalk, are produced in long succession, and afford excellent material for bouquets at a time when only few other flowers are obtainable. This variety, which has been awarded two 1st prizes, is likely soon to become a general favourite, being equally well adapted for pot culture and the open ground.

ZINNIA ELEGANS ROBUSTA GRANDIFLORA PLENISSIMA (LORENZ).

The constant endeavours of Herr C. Lorenz in improving popular flowers have enabled him in course of time to introduce flowers of great merit, such as Pansy Emperor William, Diadem Pink (*Dianthus diadematus*, fl.-pl.), *Gomphrena globosa* nana compacta, *Gaillardia picta* Lorenziana, *Dianthus atropurpureus* (Mourning Cloak), and others, and are now again rewarded with a new success. By careful endeavours of many years he has succeeded in raising a new large-flowering double Zinnia of great perfection, which will be put into commerce this year.

The plant, we are informed, differs from the old variety in its luxuriant robust growth and the deep green colour of its large leaves. It forms a handsome bush, similar to that of a Dahlia, of 3 feet or more in height; above this the flowers display themselves on slender stems. The flowers appear in uninterrupted succession, and form perfect blooms from 5 to 6 inches across, whereas the petals of the old double Zinnia overlap each other like scales, giving a flat appearance to the flower; those of this novelty, which are of double the size, and are much more numerous, so that they often cannot find room enough for development, are forced to pile themselves up on each other so that the flower has an appearance quite different from that of other Zinnias. The intense and brilliant colouring of the flowers is in keeping with the robustness of the plant. The richness of the shades of colour is promising, as hues appear which are not to be found amongst the older forms of Zinnias. The flowers preserve their beauty for about three or four weeks, even in the hottest weather. On account of its luxuriant growth and its large bright flowers this novelty is particularly valuable for large groups, and for planting singly and as a border plant in small gardens. The engraving (fig. 94) represents a flower of medium size. A number of cut blooms of this Zinnia were shown at a meeting of the Erfurt Horticultural Society on the 6th ult., where they were much admired. Herr Lorenz, speaking of his introduction, says:—"I believe it is not too much to say, that by careful selection for many years I have raised the *ne plus ultra* of double Zinnias."

PLANT PORTRAITS.

ACER COLCHICUM TRICOLOR, *Revue de l'Horticulture Belge*, October, 1886.—A beautiful variety, in which the leaves have a green disc, mottled with white, and edged with a deep band of red.

LILIUM LONGIFLORUM HARRISI, *Garden*, August 7.

ORIXA JAPONICA, *Gartenflora*, t. 1232.—A caulescent shrub of no great beauty.

SELENIFEDUM CAUDATUM VAR. ROSEA, *Illustration Horticole*, t. 596.—Remarkable for the rosy tint of the side petals.

THALICTRUM ANEMONOIDES, fl.-pl., *Revue de l'Horticulture Belge*, September.

THUNBERGIA LAURIFOLIA, *Garden*, September 25.

VALLOTA PURPUREA MAGNIFICA, *Garden*, September 11.

VANDA SUAVIS, V. S. FLAVA and V. S. PRÆTEXTA, *Orchidophile*, September, 1886.

SCOTCH NOTES.

EARNOCK AND NEILSLAND, HAMILTON.

EARNOCK and the adjoining estate of Neilsland, the properties of John Watson, Esq., are perhaps two of the finest examples in Scotland of what may be done by energetic enterprise assisted by good taste in the improvement of landed property. Mr. Watson, when he came into possession of the two estates, a little over ten years ago, found them neglected in every respect. There was little to adorn either of them in the way of trees except a considerable number of ancient Oaks scattered singly over the estates, more especially that of Earnock. These Oaks, many of them of noble dimensions, with trunks sound and

the mighty Oaks, and what is called the Norval Plantation was the first step taken towards the accomplishment of the plan. The park is, or rather was till recently, raked very much by the gales which blow from the south-west, the quarter whence for about nine months of the year that the most unfavourable winds to tree growth in the locality chiefly blow. The Norval Plantation extends along the south-west boundary of the park for nearly a mile, and is of varying breadth and outline, measuring many acres in area. Along its outer line are many of the ancient Oaks already mentioned, always solitary, or at most in pairs, with groups of Beech, Sycamore, and other deciduous tree evidently planted from 80 to 100 years ago. The inner part, or that facing the park, has been planted most successfully by grouping trees for effect. Deciduous trees, such as purple

affording it any shelter. Bearing in mind that the trees have only been planted about ten years, the growth they have made is surprising, as the following dimensions of some of them will testify:—*Cedrus atlantica*, 7 to 12 feet, *Oriental Spruce*, 8 to 12 feet, *black American Spruce*, 5 to 9 feet, *Austrian Pine*, 8 to 12 feet, *Douglas Fir*, 12 to 15 feet, *Nordmann's Fir*, 10 to 14 feet; *scarlet Oaks*, 10 to 18 feet, with fine spreading heads—many of the growths of the present season measuring 2½ to 3 feet; *purple and variegated Sycamore*, 18 to 25 feet, with corresponding top; *American Limes*, 18 to 24 feet, doing very much better than the European species; *cut-leaved and silver Birch*, 18 to 25 feet, making splendid heads.

Before leaving the Norval Plantation it may be interesting to many to note that the *black American Spruce* which has been largely planted in the evergreen groups appears to be specially well adapted to the locality and soil. The latter is a good loam of moderate depth resting on clay. There was not an unhealthy tree, all were thrifty, and growing well. It was noticeable also that in another part of the park distant eastward some 600 or 700 yards, where this tree was planted on the south-western side of another plantation it was almost the only one that was thriving. Here in the teeth of the blast broken by the Norval Plantation, this proved to be the only tree that could maintain perfect health and symmetry. All others were more or less weather-beaten, this alone was perfectly at home, though making slower growth than those enjoying the shelter of the inner side of the Norval Plantation.

Near the entrance gate next Hamilton there are some remarkable specimens of Conifers planted about the same time as the Norval Plantation. The shelter here is of greater density, and the result is seen in the growth of the Conifers. We noted measurements of *Abies nobilis* from 25 to 30 feet high; *A. lasiocarpa*, 18 to 20 feet; and *A. Nordmanniana*, 18 to 20 feet. These were all feathered to the ground and in perfect health. In front of these, on a broad stretch of grass on either side the carriage road, were some handsome *Hollies*, which, however, did not present the same thriving appearance as the Conifers hard by. It was noticeable, however, that *Hollies* were not happy at any point on the place, and few, fortunately, had been made use of in the scheme of planting.

THE MANSION

lies about half a mile from the gate, and is a handsome building of mixed style of architecture. We noted on the right a fine *Horse Chestnut*, which, enjoying, as it had done, the shelter of a few friendly Oaks standing a little way off, is the most perfect and handsome specimen of its kind. It forms a massive pyramid of about 40 feet in height, by about 80 feet wide, the drooping branches concealing the stem; and about this part commence some acres of massive clumps of choice hybrid *Rhododendrons*, which quite surround the mansion. The pleasing aspect of the clumps defined by broad glades of well kept lawn, the splendid specimen plants comprising the best selection of new and old varieties obtainable at the time, give a well furnished appearance to this part of the grounds which is so rarely observed in old places recently improved, as this has been.

The so-called Back Avenue, which leads from the left of the mansion, is a spacious carriage road, over-arched by grand old Oaks, Elms, and Beeches, but for the space of about 150 yards in length immediately after leaving the house it is open, and bordered on either side with a continuous mass of *Rhododendrons*, each bank varying in width from 10 to 15 yards. The bank on the right runs parallel with the old garden wall, which is well concealed by the bank and the fine specimens of *Rhododendrons*, which are interspersed here and there with the largest specimens of Japanese Maples to be found in Scotland. The *Rhododendrons* here and everywhere throughout the place are full of flower-buds, giving promise of an abundance of flowers next year.

On the left of this avenue, near the eastern termination of the *Rhododendron* banks, are the stables, embowered in trees, and deserving of passing notice here on account of the striking effect of their massive architectural features on the grounds at this point. A massive Norman archway, flanked on either side by towers, gives access to a spacious corridor, the roof of which is groined and panelled, cathedral fashion, with Pitch Pine. The ample courtyard lies beyond, in the centre of which is a handsome foun-



FIG. 94.—DOUBLE ZINNIA: NATURAL SIZE. (SEE P. 460.)

straight, are very old, yet they are for the most part in perfect health and make vigorous growth. They are probably the remains of that part of the old Caledonian Forest, the most perfect remains of which are to be seen at Cadzow, some 2½ miles south of Earnock. But the most assured interest that attaches to these fine Oaks is that their existence and well-doing gave the valuable suggestion to Mr. Watson: "If these grand old trees have stood the brunt of storm and blast for hundreds of years in the isolated and unsheltered condition in which I find them, what might they not have been had they been sheltered and supported by neighbours like themselves?" This led to the further suggestion, that even yet much might be done to prolong their existence and increase their vigour by planting for shelter, while the aspect of the place would be greatly improved at the same time. Being a man of action as well as of taste, no time was lost in developing plans to carry into execution this suggestion, called forth by

Beech, purple and variegated Sycamore, broad-leaved American and European Limes, scarlet Oaks, silver and cut-leaved Birch, scarlet Pavia, red and white-flowered Horse Chestnuts, Paul's and other ornamental Thorns, Cherries, Service and other species and varieties of *Crataegus* and *Pyrus*, are planted in groups of three, five, or seven each, along with interjacent groups of evergreen trees, comprising Austrian and Scotch Firs, *Abies Douglasii*, *P. Nordmanniana*, *P. nobilis*, the *black American* and *Oriental Spruces* and *Cedrus atlantica*. The effect is beautiful, and the object aimed at—the production of shelter for the park by means of masses of handsome trees and shrubs—has been attained with much success.

The young trees have grown to such a height that they effectually prevent the wind from rushing through beneath the tops of the old Oaks and other trees that had previously formed the thin boundary line of the park on this side without

tain and around are the stables and other necessary buildings.

Just opposite to the stables is the entrance to the old garden, an area of some 6 or 7 acres in extent, and possessing much diversity of feature. Formerly it was the vegetable and flower garden of the establishment, now it is partly orchard, but mostly pleasure ground. The Earnock Burn, a pretty little stream, winds with many a sweep through the narrow glen in an easterly direction. On the northern bank lies the old garden in a series of irregular terraces and natural slopes. The old walls of the terraces are so densely clothed with masses of *Asplenium Trichomanes* as to appear at a little distance only abrupt variations of this bright verdant surface. The interesting and varied character of this choice bit of landscape is best observed from the opposite side of the glen, which rises with greater abruptness, with rocky projections, and diversified with many old Oaks and Beech, with here and there splendid specimens of old Scotch Fir. This bank is reached by means of a bridge which spans the burn in the neighbourhood of the door by which the old garden is entered. On the right of the bridge the little stream assumes the form of a tiny lake before gliding over a precipitous rock of considerable height. Passing along the winding path the varied beauties of the old garden are bit by bit unfolded to view. Here, by the stream, is an embowered hollow, overspread luxuriantly with Ferns in great variety, which soften the rugged banks with their rich green foliage till it merges in the lawn above. Slightly in rear of the central crowning rock at this point rises a group of very old English and Irish Yews, which by their sombre green and deep shadow give a charming variety of tint, and impart an illusive impression of depth to the hollow beneath. On the right and left stand a purple Beech and silver Birch respectively, both of large dimensions, each casting a fringe of its foliage athwart the fernery hollow, as if to shield it from the scorching mid-day sun.

To the right and left of this point the lawn forms easy undulations, broken up with clumps of *Rhododendrons*, and handsome specimens of Golden Yews, standards and pyramids, which are allowed to develop themselves in a naturally free manner, the heads of the latter of which were in several cases of the unusual dimensions of 7 to 8 feet diameter. A plant of *Taxus adpressa* is worthy of special notice, being a handsome pyramid of about 12 feet in diameter at base. A rather melancholy interest attaches to the remains of a gigantic dead Scotch Fir, which stand near this Yew. It rises with a clean straight stem to the height of 90 feet, having a well developed head. The girth of the stem, 5 feet from the ground, is 11 feet 6 inches. The tree ceased to live two years ago, and Mr. Watson has determined that it shall remain where it grew until destroyed by natural decay. On another spot hard by is a perfect specimen of *Thuopsis dolabrata*, a memorial tree, planted by Lady Belhaven, daughter of Mr. Watson, in 1878. It is now 9 feet high by about the same width of base. Space will not permit us to enumerate all the objects of interest in this delightful spot, but we cannot leave it without briefly noticing The Knoll, which is one of its most interesting features from an historic if not from a purely horticultural point of view. It lies at the western end of the old garden on the crest of a steep rocky bank overlooking the Earnock Burn. It is a grass-clad mound of almost circular form and of considerable height above the surrounding surface levels, surmounted by a cairn. Three very fine old Scotch Firs, almost uniform in proportions, stand about equidistant from the cairn and from each other on its sides. Here we learn from a tablet placed by Mr. Watson in the garden wall close by are buried the remains of several Covenanters. They had fought for the Covenant at Bothwell Brig about three miles distant, were defeated and pursued by the Royalists, and overtaken near this spot and instantly shot. Their bodies were buried on the Knoll, the cairn raised and the Firs planted by friendly hands to mark the resting-place of those who had fallen in defence of liberty of conscience.

The glass erections, which stand near the house in a square, walled in, comprise a few useful fruit and plant houses. Mr. Watson's attention and tastes have been almost exclusively devoted to the developing of the broader features of the very fine park, but we understand there are plans projected for the erection of a very complete range of structures on a scale

commensurate with the other features of the place. We must defer our notes of the interesting features of Neilsland till a future occasion. X.

The Flower Garden.

THE past few weeks of dry weather have revived the occupants of the flower beds, and, where the plants have not been strong in growth, the colour is as bright and dense as at any period of this season. Such weather as we have recently been having cannot be expected to continue at this advanced time of year, and a watchful eye must be kept over tender subjects which it is desirable to preserve for next season's display. It is scarcely safe to allow Tree Ferns, Palms, Cycads, and other greenhouse subjects to be out-of-doors, as a change of wind may bring frost on any night. Much time will have to be given to sweeping leaves off lawns and walks, so as to keep them neat and tidy.

WINTERING BEDDING PLANTS.

The housing of bedding plants will now demand immediate attention; where structures are at command for the special purpose of wintering these, the work is easy of accomplishment, but unfortunately there are exceptions, and as a general thing bedding plants have to be huddled into all kinds of structures. *Pelargoniums* will winter well in a Peach-house, where a sufficiency of heat, can be commanded to exclude frost. Allow them all the air possible, and never shut the house up unless during cutting winds and frosts. The same situation will be found to answer for *Kœnia variegata*, *Tropæolum*, *Mesembryanthemums*, *Heliotropes*, *Petunias*, *Verbenas*, &c., keeping them as near the glass as possible to prevent them from drawing. *Coleus*, *Iresines*, *Alternantheras*, and the more tender subjects must be wintered in a warm house near the glass; in fact, they winter most successfully when kept gradually on the move during the winter months, but great judgment must be exercised in the administering of water. *Calceolarias*, *Gazanias*, *Violas*, *Chrysanthemums*, *Phloxes*, *Antirrhinums*, *Pentstemons*, and other hardy cuttings, may be still put in to strike, but the sooner this is done the better.

SOWING.

A successional sowing of the following hardy annuals may still be made in sheltered, but not shady, positions, on light but not rich soil:—*Alyssum maritimum*, white; *Bartonia aurea*, yellow; *Calliopsis*, yellow spotted; *Candytuft*, white, lilac, and purple; *Leptosiphon densiflorus*, lilac and white; *Gilia tricolor*, white, lilac, and purple; *Eutocia viscidula*, dark blue; *Eschscholtzia californica*, yellow; *Erysimum Peroffkianum*, orange; *Collinsia bicolor*, purple and white; *C. grandiflora*, blue and purple; *C. verna*, blue and white; *Limnanthes Douglasii*, white and yellow; *Lapinus nanus*, blue and white; *Malope grandiflora*, crimson; *Nemophila insignis*, blue; *Saponaria calabrica*, pink; *Silene pendula*, pink; *Virginian Stock*, red and white; *Specularia perfoliata*, blue, lilac, and white. Should slugs prove troublesome a few Cabbage or Lettuce leaves distributed over the beds will be found a good remedy for them. They should be turned over every morning and examined.

Sweet Peas may be sown in sheltered positions. They are perfectly hardy, and if staked when a few inches high, they will bloom in the spring and be much appreciated.

SPRING BEDDING.

Where spring bedding is carried out everything should now be decided upon, and the earliest opportunity should be taken to prepare the beds for Hyacinths, Tulips, &c. They should be well dug up, and have a few inches of leaf-mould, or well-decayed manure, mixed with the soil. Very pretty arrangements can be made with bulbs if planted in colours. Keep the white towards the centre of the beds, and then the pinks, scarlets, and blues, using an edging of *Cerastium*, *Aubrietia*, or any hardy subject. Many of the carpet beds may be made to serve for spring beds by substituting hardy plants for such as *Coleus*, *Iresine*, and *Alternanthera*. Daisies will make a good substitute for the latter, and *Myosotis dissitiflora* will creditably take the place of *Lobelias*. Then there

are colours innumerable of Primroses, *Violas*, and dozens of other things admirably adapted for the purpose. W. Baillie, Luton Hoo Gardens.

THE ORCHID HOUSES.

PHALÆNOPSIS.

THE remark that these grow best in old houses is often heard; I think this is due to their getting a regular supply of air and not too much at one time, for I believe that a sudden drying of the house during hot weather, caused by too much ventilation, is a greater check to these plants than a low night temperature. Nearly all the modern houses are built with simultaneous ventilators, and this is often overlooked when air is given, as many people I have noticed will open a continuous ventilator as wide as they do when there are only a few detached ventilators here and there.

We have tried different experiments here for *Phalænopsis*. A few years ago a house was fitted up that one might have thought was almost perfect; hot-water pipes were made to pass through troughs so that the air on entering the house might carry with it warmth and moisture. A high temperature was kept up and the house was closed in the afternoons in time to secure plenty of sun-heat. Under this treatment the plants grew freely, some making leaves 12 to 15 inches long, but their career was soon cut short; on one very hot day the leaves seemed to melt, and in a few days all the fine foliage had disappeared, but they did not lose their centres and having plenty of roots soon grew again, but it was thought wise to fall back on the old system and have patience. I mention this to show that these plants can be easily made to grow too rapidly, for a time at least. But what we should endeavour to accomplish is, to keep them in health for many years.

There is another fault with many new houses: they are built with the idea of having an almost too clean and neat appearance rather than for the well-doing of the plants, and not enough provision is made to hold moisture that would be drawn upon when the atmosphere of the house became dry. It is all very well to have plenty of evaporating troughs on the pipes, but these do not act in summer, when moisture is most required, and in winter they give off a rather unnatural vapour, different to that which the Orchids enjoy in their native quarters. Some people think that plenty of open tanks in a house helps to keep the air moist, but I think I have proved with hygrometers that very little comes from these without hot-water pipes to assist them. It is a question whether a large surface of cold water in a heated house does not act as a condenser, drawing moisture from the air. In ventilating the *Phalænopsis*-house I find it answers well not to have both bottom and top ventilator open at the same time, but during summer to give air open at the top; but besides this there is an opening of about half an inch at the eaves, which is never closed night or day while the weather keeps warm. In winter the bottom ventilators are used more.

During the present month we might expect dull foggy weather at times, also a few degrees of frost; therefore it is safer to keep a little heat in the pipes, even if the temperature is rather high. The present is a very good time to go over the plants, picking out all sphagnum which has become rotten. Take care not to touch the points of the roots now, as these are in a growing state. There is generally sufficient growing sphagnum about the plants to top-dress them with. It is better to add a few new crocks instead of so much top-dressing at this time of year. Cover the roots as little as possible, otherwise during winter they rot off close to the plant; although they keep alive where they cling about the basket or cylinder, they are of little use when the fleshy part near the plant has decayed.

MISCELLANEOUS.

Many of the Cattleyas that have not finished their growth will require careful watering. If too much moisture accumulates within that which encases the bulb, keep the plant drier, or if it looks likely to rot the bulb the casing might be just slit with the point of a knife, which will cause the moisture to dry out. While we get bright days this month well damp all the houses through the warmest part of the day, while there is plenty of air on, instead of damping after they are closed; but later in the season, when

more fire-heat is necessary, this can be reversed. If a house be set apart for Dendrobes that have finished growing, a dry atmosphere, with plenty of ventilation, will suit them. Where *O. ontoglossum* Phalaenopsis and *O. vexillarium* have been placed in the cool-house for the summer, they should now be returned to the coolest end of the intermediate-house. The temperatures for the present, without sun-heat, should be:—East India-house 70°–75° by day, 65°–70° at night; Cattleya-house, 65°–70° by day, and 60°–65° at night; these temperatures should vary with that of the outside. The cool-house, if closed at night, will do without fire-heat while it keeps near 50°. (In last Calendar, on *O. ontoglossum*, it should have been, "Tear the moss away rather deeply, then pinch off the green heads to top-dress with.") C. Woolford, Downside.

PLANTS AND THEIR CULTURE.

WINTER BLOOMERS.

POINSETTIAs should be shifted on as they fill their pots until the size required is reached; those which have filled their allotted size with roots must have a constant supply of liquid manure as well as a little fertiliser of some kind twice a week, giving them space to develop their foliage fully. Admit air freely on all favourable occasions, so as to keep them stocky; and if the pots can be plunged in a mild bottom-heat so much the better. Avoid a damp dank atmosphere, as fine evenly developed bracts are produced only by keeping the plants near the glass with air. Continue to propagate for late work, for, notwithstanding that they are looked upon as autumn and winter decorative plants, *Poinsettias* are useful for late spring use. I had last season a nice batch in 7-inch plants that retained their leaves and bracts bright and fresh up till June. *Euphorbia jacquiniiflora* is another fine useful plant which admits of the same treatment as the *Poinsettia*, with the exception that the watering at the roots must be done with much care, excess of water causing the stems to rot off at the collar, or to lose their bottom leaves. The plant may still be increased by cuttings, and young stock may be shifted. All plants standing in borders should have their growths regulated, and the points trained to yards the glass.

BOUVARDIAS.

Any specimens of these which were lifted a short time ago will now have got fairly established, and should be picked over, and the shoots regulated and tied in a little, giving them a little manure-water to assist them when throwing up their trusses and expanding their blooms; the double varieties are useful for winter and spring use. Those fine double varieties, Alfred Neuner and President Garfield, are now well known, but the newer varieties, *Triomphe de Nancy*, *Sang Lorraine*, and *Victor Lemoine* are fine additions to this class, and should be grown in every collection. The stock of these should not be allowed to flower for the present, but must be encouraged to grow. Look well over all kinds of winter and spring stock, and if there be more plants wanted for forcing, these should be obtained without delay, and potted and plunged in coal ashes until required. A. Evans, Lythe Hill.

FRUITS UNDER GLASS.

PEACHES.

TREES should be examined directly after the fruits have been gathered, and all spurs resulting from summer pinching cut away, together with any shoots of last year's growth that in the usual way would have to be removed two or three months hence, at the winter pruning. This will let in plenty of light among the branches, and assist thereby to ripen the wood better than would otherwise be the case. Any trees of shy-bearing varieties which, in consequence of the light crops which they bore this season, have made too luxuriant growth, should, with a view to encouraging the formation of fruit-buds, have a trench about 2 feet deep opened at 3 feet from the base of the trees, cutting all the roots close back to that distance with a sharp knife, afterwards refilling the trench.

FIGS.

Trees of these which have made too much wood should be operated on in the same manner as recommended for Peaches, for the purpose of checking growth, and to promote the formation of embryo fruits on the said shoots, which, owing to the slight check thus given to the trees by the severance of, perhaps, several thick roots, will form in the axils of the leaves before the fall of the latter. H. W. Ward, Longford Cast.

HARDY FRUIT GARDEN.

THE STRAWBERRY BEDS

should be finally looked over and all runners removed from the plants. If the old mulching has been lightly turned under the surface soil, as was recommended in a former Calendar, but few weeds will now be found between the rows. Any that there are should be cleared away forthwith by hand weeding, as it is beneficial to the plants to keep the soil open and loose on the surface throughout the winter months. Young plantations of Strawberries made in August and beginning of September, and where no mulching was given, should likewise have the surface soil between the rows lightly loosened with the fork, in order to allow the winter rains, &c., to pass quickly from the surface.

WALL TREES.

The nailing of trees should now be commenced and pushed on as fast as possible before the cold weather sets in. It is not necessary to wait until the foliage has all dropped before making a start, especially where the walls are extensive. We generally take the Apricot trees first, doing all the necessary nailing, and leaving the final touch to the spur-pruning until the leaves have fallen. We have just gathered the last of our outdoor Peaches and placed the fruit in the late vinery, where they will ripen by degrees as they are required. Dessert Plums, such as Guthrie's Late Green, Coe's Golden Drop, and Ickworth Imperatrice, are much improved for this purpose by similar treatment, gathering a few dozens at a time.

The best culinary Plum we have ripe at this date is *Belle de Septembre*, which is larger than the generality of late varieties. All late Apples and Pears will be as well gathered in by the end of the third week in this month, but much will depend upon the state of the weather. When harvesting these late ripening fruits thought must be taken of the situation of the trees.

FRUIT GATHERING.

Standard trees heavily cropped and in exposed positions, should have their crop gathered at once should rough windy weather set in, or one half the crop may be blown off in a single day and may be rendered only fit for immediate use. Generally speaking, late fruits are in a much more advanced state of maturity than they were at the corresponding time last year. Undoubtedly this has been brought on by the unusually dry state of the subsoil as compared with several preceding seasons, nevertheless, the fruit does not seem to have degenerated in size on this account. As the late varieties of Pears are being placed upon the shelves of the fruit-room all defective fruits should be kept by themselves; particular attention to this saves a lot of labour later on, to say nothing about the damage done to the bulk by constantly having to move them about, in order to remove decayed fruits which should not have been placed amongst those stored with the intention of long keeping. Walnuts should be knocked off the trees about the middle of the month, and all those which free themselves from the husk, after being wiped over and put out to dry are fit for immediate use. The remainder which are not quite ready to leave the husk, should be put on a dry shelf until they part freely, when the shells can be cleaned and the nuts stored in a dry cool place in perfectly dry sand or sawdust. G. H. Richards, Somerley Gardens, Ringwood.

KÆMPFERIA ATROVIRENS.—This is a newly introduced Bornean stove plant, with long sheathing leaves and oblong acute blades. The flowers are 1½ inch in diameter, deep violet with a yellow blotch at the base of the lip. It is figured in the *Illustration Horticole*, t. 610.

The Kitchen Garden.

LIFTING AND STORING ROOTS.

MOST of the root crops will now be in a condition for lifting and storing; opportunities should, therefore, be taken during intervals of dry weather to secure the respective crops, and of storing them whilst in a dry condition. A cool cellar or shed, secure from frost, is best adapted for this purpose, and where the roots can be stacked in moderate and convenient quantities, and occasionally looked over; unless the structure is a dark one and free from draughts the roots should be covered with some kind of dry litter or bracken, or, better still, packed in brick bins constructed for the purpose, and covered with dry sand or sifted ashes.

BETROOTS

will be one of the first to be secured, and to ensure their being of a good colour will require more care in lifting than any other; the roots should be lifted as intact as possible, and without being bruised or damaged in any way, nothing being removed from them with the exception of a few of the outer and decayed leaves, which should be twisted or pulled off before removing them to the root-shed, where they can be stacked, leaves outward, until these have withered away, and afterwards finally cleaned over and stored.

SALSFY, SCORZONERA, AND CHICORY, &c.

These should follow, and any small, deformed, or otherwise useless roots discarded at the time of storing. Of the latter a few roots should be planted in pots or boxes, and placed in the Mushroom-house to produce bleached leaves for the salad.

TURNIPS.

These should be pulled when large enough for use, and before they become tough and leathery, at intervals during the winter; Turnips, unless the weather be very severe, will continue to grow most of the winter. Large full grown roots of these suffer most from severe weather, the action of the frost causing them to split and afterwards rot, whereas the smaller ones frequently escape, and during mild intervals continue to grow up to Christmas.

PARSNIPS AND CARROTS.

Generally the former are best lifted from the ground as required for use, until they commence to grow in spring, but in some cases, where the ground is naturally wet, and the roots given to cauter, they are best lifted and stored. All the main crops of Carrots should be taken up, assorted, and stored. The late sowings of the Horn section, for use in a small state, may be allowed to remain in the ground for some time longer.

JERUSALEM ARTICHOKEs,

being practically hardy, may be lifted at any time before spring, but it is best to have a supply on hand. Provision should be made for next year's planting, by putting on one side a portion of the smaller and best-shaped tubers for seed. Where suitable and proper storage space cannot be afforded under cover, all the roots mentioned can be wintered in pits outside, the essential conditions being that too many are not placed together to become heated and rotten, and also that rain and frost are effectually excluded.

RHUBARB AND SEAKALE FOR FORCING.

To prepare and hasten the ripening of the crowns, a sufficient quantity of each for the first batch should be partially lifted, by having a digging-fork or spade thrust under them, and prised high enough to break off and separate some of the largest and most fleshy roots, the individual plants being allowed to settle down again into their former positions until they are deemed ready for removal to their forcing quarters.

GENERAL WORK.

Keep the surface of the soil hoed between Lettuce, Cabbage, and the like, and make another planting of the latter; earth-up the earliest and most forward plantations, taking the precaution before doing so to give the whole surface a good dusting of quick-lime to check and destroy slugs; the same remark also applies to Celery, which should be treated in a like manner prior to each earthing. Plots of ground as they become vacant should be manured if necessary, and trenched or dug over as the case may be, allowing the surface to remain as open and rough as possible, John Austen, Willey Court Gardens.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Oct. 11	Sale of Bulbs from Holland, at Stevens' Rooms.
	Sale of Bulbs from Holland, at Protheroe & Morris' Rooms.
TUESDAY, Oct. 12	Continuation of Sale at Cranston's Nursery, Hereford, and till the 14th inst.
	Sale of Orchids at the Castle Nursery, Lower Norwood, by Protheroe & Morris.
WEDNESDAY, Oct. 13	Royal Horticultural Society: Meetings of the Fruit and Floral Committees, at 11 A.M.; and Show of Hardy Fruits (two days).
	Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms.
THURSDAY, Oct. 14	Sale of Dutch Bulbs, at Stevens' Rooms.
	Meeting of the National Chrysanthemum Society, at the Royal Aquarium, Westminster.
FRIDAY, Oct. 15	Sale of Plants, Bulbs, &c., at Protheroe & Morris' Rooms.
	Sale of Dutch Bulbs, at Stevens' Rooms.
SATURDAY, Oct. 16	Sale of Dutch Bulbs, at Stevens' Rooms.
	Sale of Dutch Bulbs, at Stevens' Rooms.

THE islands of JERSEY and GUERNSEY have long been celebrated for their magnificent Pears (Chaumontels) and the supply of early Potatoes and other choice vegetables for the London markets. Of late years a new trade has sprung up—that of Grapes and Tomatoes—which already in extent and importance seems destined to eclipse all others. Great quantities of Grapes and Tomatoes are now cultivated in all parts of the country and for sale, but it is as nothing in comparison with the enormous supplies coming from these islands. Something akin to astonishment must be expressed at the extremely rapid development of this trade. In Guernsey especially the erection of so much glass has already quite transformed the appearance of the island. Glass everywhere! It may well be termed the island of glass! Glass! House after house, vinery succeeding vinery!—it is no exaggeration to say literally by the mile, meet the eye in every direction. In certain parts they seem to be attached to every dwelling, to form a part of every holding—in some cases scores of large houses, covering acres of ground, in others a single house or two tended by the industrious labourer in his spare hours, with the assistance of his wife and family.

Favoured by Nature with a mild warm climate and a fertile soil, the cultivation of Grapes of a certain quality is by no means a difficult matter. Glass has been, however, found necessary, although little or no firing is required excepting it may be for the early or late crops—those from heated houses being termed hothouse Grapes, and from unheated houses greenhouse Grapes. A great quantity of the Grapes grown are, it must be admitted, very inferior, the Vines are overcropped—a little more attention to their cultivation would be of great advantage. The wonder seems to be now—that this trade should have been allowed to slumber so long. The supply of good cheap Grapes has never been equal to the demand. "Good Grapes are always dear, and when scarce very dear," as a writer in the *Standard* remarked the other day. The variety of Grapes grown in Guernsey is chiefly the Black Hamburg. These are cut as soon as they are ripe, packed in baskets containing about 16 lb. each, and sent off to the London markets, being consigned to Covent Garden salesmen, and sold generally by public auction. Prices vary according to season and the quality of the fruit, good Grapes being often sold at 9d. and 1s. per pound, and those of inferior quality at much less. When from this have to be deducted cost of carriage, commission, and other charges, the prices returned to the grower are often ridiculously small. One grower remarked to us that being in Covent Garden once he saw his own Grapes sold, and for which he was to receive 1s. 6d. per pound. Wishing to send some to a sick friend in the

afternoon he went to a shop and had to purchase his own Grapes at no less than 6s. per pound.

It seems interesting to ascertain what may have been the direct cause of the rapid development of this trade. It is not far to seek. It is undoubtedly the growing taste for Tomatoes. No other plant grown has become so universal a favourite in so short a time as the Tomato. Twenty years ago Tomatoes were comparatively unknown and generally disliked; to-day they are the most popular of all vegetables—relished alike by youth and age. It is this demand for Tomatoes—this crop requiring somewhat similar accommodation to Grapes—that has enabled Guernsey farmers to invest their capital in the erection of so much glass. Grapes take a few years to establish and to make a return for the outlay—Tomatoes make an immediate return, they being grown in the same house as the Grapes until the latter become established. Thus Grapes and Tomatoes become associated together, and together make a more and more profitable return to the grower than would otherwise be the case. The amount of capital invested in this trade must be considerable, and the employment afforded to the people of the greatest importance.

To the question—Does it pay? there seemed to be but one answer—Yes. At the time of our visit (the end of August) the trade in Grapes and Tomatoes seemed to be at its height. We seemed to meet them everywhere, but all bound for London. It is a pretty sight to watch the loading of the Southampton steamer with thousands of neat baskets from the carts that keep arriving up to the last minute. Where room can be found for them all, or how they can be packed, seems a mystery. In one day over 2000 baskets of Tomatoes left the island of Guernsey by the Southampton steamers. This gives some idea of the enormous trade existing. The following figures, received on official authority, will serve to show the rapid increase of the trade:—

No. of Baskets sent by the Southampton Route.

1881, Tomatoes ..	16,072 ..	Grapes ..	24,624
1882, " ..	21,025 ..	" ..	28,253
1883, " ..	34,619 ..	" ..	40,284
1884, " ..	46,000 ..	" ..	49,268

And in the year 1885, quoting from the official statement submitted to the Chamber of Commerce, there were no fewer than 60,000 packages of Grapes exported, representing a total weight of 500 tons, valued at £40,000, and of Tomatoes about a similar quantity. The population of the island of Guernsey does not exceed 40,000, so that the value of the Grapes and Tomatoes alone, £80,000, is equal to £2 per head of the entire population. Very few countries can show such a satisfactory return as this. No wonder that these islanders are happy and contented with their Home Rule!

Jersey is not so completely covered by glass as its sister, Guernsey; several of the most extensive and important establishments are, however, to be seen here: we need only mention the old establishment of Mr. POND—one of the first large growers in the island. The long narrow houses, tier above tier, on the steep terraces, are very quaint. In direct contrast to this is the modern monster establishment of Mr. BASHFORD, near St. Heliers. We are almost afraid to say how much glass there may be, but we have it on our notes as about 33,000 square feet, or $\frac{1}{2}$ miles of houses in length.

The houses are all span-roofed and of gigantic proportions, one 480 feet long and 44 feet in width; another 890 feet long and 33 feet wide, and so on. These are all, with one exception, devoted to the culture of Tomatoes and Grapes. One great house, however, is planted with kidney Potatoes for Christmas. Of Tomatoes some 22,000 plants were planted out. One

house contained 5300 plants, from which it is estimated to cut during the season about 120 tons. Up to the present time Mr. BASHFORD has cut about 90 tons. The variety grown is a selection from Trophy—one fruit weighed 2 lb. 1 oz. Of Grapes the variety chiefly grown is Gros Colmar, and of this something like 20 tons. The sight in some of the houses 600 and 800 feet long is truly magnificent, the size of both bunch and berry, and the quality, being all that could be desired. These will all be marketed during the winter, and will realise high prices. *Apophos* of this, Mr. BASHFORD tells us how, being once in Covent Garden, and looking at some Gros Colmars, remarked that "he had some twice the size." "If that be so," said the salesman, "I'll give you 6s. per pound for all you've got." "Hand me a form," said Mr. BASHFORD; on which he wrote, "Send Mr.— 6 tons of Gros Colmars at once!" One of the grandest sights here, however, must be the fruit-room, when filled, containing 10,000 bunches of Grapes in bottles.

— LARIX GRIFFITHII.—The history of this tree has been given so recently in these columns by Sir JOSEPH HOOKER (see p. 95), that we should not have reverted to it were it not for the doubt expressed, whether cones had been produced in this country. The coneless plants, especially when young, are difficult to distinguish from the common Larch, and hence probably many specimens considered to be the Himalayan Larch are really of European origin. Once, however, that the cones are produced there is no further doubt possible. The cones illustrated at p. 465 (fig. 95) were forwarded to us by Mr. NANSICAWEN, gr. to Col. TRELAWNY, Menheniot, Cornwall, and were when first singularly beautiful, the deep orange-brown of the projecting bracts contrasting with the glaucous green of the scales. The cones are much larger than those of any other species of Larch. In the seedling plant the seed leaves are five or six in number, linear-pointed and much longer than the immediately succeeding leaves.

— CHANGE OF ADDRESS.—The address of MESSRS. FOLLOWS & BATE, Limited, Horticultural, Agricultural, and Domestic Implement Makers, for the future will be Gorton, Manchester.

— CALCEOLARIA BURBIDGEI. — From Mr. BURBIDGE we have received specimens of this autumn flowering hybrid said to be a hybrid between *C. fuchsoides* as the seed parent, and *C. pavonis*, pollen parent. It is a very ornamental plant, of robust habit and large many-flowered cymes of yellow flowers—altogether a very desirable plant.

— SUNDERLAND PARKS.—The post of Curator of these parks has been conferred by the Corporation, on Mr. W. H. FERGUSON, who for the past six years has been in the employment of Messrs. LITTLE & BALLANTYNE, of Carlisle, as landscape gardener. There were 175 applicants for the appointment.

— VICTORIA NURSERIES.—Mr. G. PHIPPEN informs us that the business which has been carried on by himself and the executor of his late father's will, will be carried on by himself solely.

— SEEDLESS PEARS.—Mr. BURBIDGE sends us from the Trinity College Botanic Garden, Dublin, specimens of the Bishop's Thumb Pear of an elongated oblong form, destitute of core and seeds. These fruits, which are merely swellings of the flower-stalk, are produced from the second crop of blossoms which had not energy enough to produce carpels (core) with ovules or ripe seeds.

— BAD SETTING GRAPES.—Various causes have been assigned for this defect, but the most reasonable seems to be deficiency of temperature accompanied by excess of moisture. In the German vineyards, according to M. MÜLLER, this tendency to set badly is obviated by removing a ring of bark half an inch in depth below the lowest bunch. We have heard of ringing fruit trees, but have never seen it practised in the case of the Vine. Probably the partial cutting off the supplies of water from the root may lead to the concentration and consolidation



FIG. 95.—*LARIX GRIFFITHII*: THE HIMALAYAN LARCH, GROWN IN CORNWALL. (SEE P. 464.)

above the wound and consequent fertility. A seedless condition, as in the Currant Grape, is attributed to defect of pollen-power which suffices to cause the fruit to swell, but is not sufficient to quicken the germ into embryo life.

— "REICHENBACHIA."—The last part of this superb publication contains coloured plates of—*Dendrobium Wardianum*, with analytical details by Professor REICHENBACH.

Lelia autumnalis var. *xanthotropis*.—This beautiful species is made use of by the Mexicans to decorate their churches on saints' days, although they have to bring them from a great distance. Sometimes the natives save themselves the annual journey by bringing the plants from the mountains to their gardens, where they fasten them to the trees. These plants are often enormous masses, from 8 to 20 feet in circumference. European botanical collectors have looked upon these huge plants with envious eyes, and have occasionally been successful in making a bargain with their owners, and have sent home the established plants. It is one of those Orchids requiring all the sun, air, and water that can be given it during the growing period (May to October), while during the resting period no water at all should be given, and only sufficient heat to exclude all risk of frost.

Phalenopsis grandiflora var. *aurca*.—For the culture of these plants great heat, copious moisture, and shade are required. They are among the most difficult plants to import. Collectors even take the trouble to ship casks of rain-water for the plants during the journey, but notwithstanding all this trouble and expense the plants often die during the passage through the Red Sea.

Cattleya Lawrenceana.—The history of this plant and its re-discovery by Mr. SEIDL and Mr. IM THURN has been given with a portrait in our columns, so that we need only add that this plant succeeds best, in Mr. SANDER's experience, at the warmest end of the Cattleya-house, exposed to full light and sun, and is best adapted for pot culture. After flowering it should be placed in a cooler part of the house, and allowed less water.

— DISTRIBUTION OF PLANTS.—It is announced that the Commissioners of Her Majesty's Works and Public Buildings intend to distribute this autumn among the working classes and the poor inhabitants of London, the surplus bedding-out plants in Battersea, Hyde, the Regent's, and Victoria Parks, and in the Royal Gardens, Kew, and the Pleasure Gardens, Hampton Court. If the clergy, school committees, and others interested will make application to the Superintendent of the Park nearest to their respective parishes, or to the Director of the Royal Gardens, Kew, or to the Superintendent of Hampton Court Gardens, in the cases of persons residing in those neighbourhoods, they will receive early intimation of the number of plants that can be allotted to each applicant, and of the time and manner of their distribution.

— ORCHID NOMENCLATURE.—We find the following remarks by Professor REICHENBACH on this subject under the head of *Phalenopsis grandiflora* var. *aurca*, in the last number of the *Reichenbachia*:—"There has lately been a great deal of controversy respecting the nomenclature of Orchids both by those who are versed in the matter, as well as by those who are not. No one seems to have been successful in formulating a plan on the subject worthy to be followed. Those who are able to perceive the difference between garden and botanical nomenclature will doubtless arrive at the conclusion, that it is not possible to bring both into harmony, so long as the botanist has to serve garden interests he will have to study the ideas as well as the tastes of amateurs. This was LINDLEY's view, and it is also mine. Of course, science ought not to stand still for the sake of amateurs; on the other hand, these cannot be expected to follow every change in the views of scientific men, as these are often founded upon circumstances which to an amateur are unfathomable. I have never endeavoured to thrust upon amateurs such undoubtedly necessary changes as the merging of the genus *Cattleya* into *Epidendrum* or *Laelia*, and *Schomburgkia* into the genus *Bletia*. The amateur is often thoroughly conservative in nomenclature, and many a busy man, to use LINDLEY's own words, is satisfied when he has learned the oldest name of a plant. He is generally

glad to dispense with the nicer distinctions. In fact, the plant is often to him merely an object of sport" [fancy]. Professor REICHENBACH then gives the history of LINDLEY's *Phalenopsis amabilis*, which is really *Phalenopsis Aphrodite*, the true *amabilis* of BLUME being the same as that which LINDLEY called *grandiflora*. "I do not, however," continues the Professor, "intend to press my nomenclature into garden circles, and I think it impossible to persuade amateurs to accept new Draconian laws, or to induce them to rechristen their favourites."

— THE METRIC SYSTEM.—Our good friends of the *Bulletin d'Arboriculture* are making fun, as well they may, of our retention of a stupid system of weights and measures, and they have found out that in Covent Garden, the centre of London, the system of weights and measures is even more idiotic than anywhere else. Our contemporary details four different kinds of punnet, according as the measure in question is filled with Seakale, Radishes, Mushrooms, or saladings. There are sieves and half-sieves, bushel sieves and bushel baskets, pottles, hands of very varied capacity, bundles and bunches of equally vague size. Our contemporary thinks it is a spirit of patriotism which induces us to retain these diverse and irrelevant measures: if so, it is the patriotism of the lunatic asylum.

— ESSEX FIELD CLUB: THE FUNGUS FORAY, 1886.—We are informed that the seventh annual Cryptogamic meeting of the Club will be held on Friday and Saturday, October 15 and 16, in Epping Forest. It is intended to devote the Friday to the collecting of specimens, and to their examination and arrangement by experts, and on the Saturday to hold an exhibition of fresh and preserved botanical specimens, microscopical objects, drawings, &c. The exhibition, which will be confined to subjects from the vegetable kingdom, but not necessarily to the Cryptogamia, although that division will hold a very important place, will be opened at about 4 o'clock on Saturday, October 16, in the large ball-room attached to the "Roebuck" Inn, Buckhurst Hill. Ample time will thus be afforded for its careful examination by the visitors present.

— LESPEDEZA STRIATA, THE JAPAN CLOVER.—We have been favoured by Messrs. HURST & SON with a sample of seed of this Clover. The seeds are in brown husks, and very light, and when rubbed out are like English Clover seed, but rather more purple in colour. It appears that the seeds are sold in the husks; a bushel weighs 15 lb. only, while a bushel of English red Clover seed weighs from 64 to 66 lb. It would appear that this Clover is becoming very popular in the Southern and South-Western States, where it first became widely known as a cultivable plant eight or ten years ago, although it is said to be indigenous to most parts of North America. From there we get confirmation of the fact that it stands the severest tests of drought and wet seasons equally well, flourishing on all kinds of soil, but growing most luxuriantly upon good land, rich in lime. All kinds of stock are fond of it. It is further reported that it is much used in Apple and Peach orchards, and when once it has obtained a good hold of the soil it goes far towards choking all weeds, and most of the wild grasses.

— HORTICULTURAL PALACE AND COLONIAL FRUIT EXHIBITION.—We read the following in the *Kingston News* of October 2, 1886:—"Of the many schemes brought forward to unite the colonies with the mother country there is none which appeals to a refined and luxurious people more than the one now proposed, whether it will meet the hard-headed business men of the colonies has to be proved. The promoter, who dates his letters from 176, Brompton Road, S.W., tells us he intends to rely on Nature's productions to attract a public desirous of entertainment, and not over-anxious to be improved or educated in the arts, sciences, and 'ologies.' To read the prospectus seems rather like a page from the *Arabian Nights* than a description of a business undertaking. The architect's plans show a building of glass and iron, cruciform in shape. At the junction of the nave and transepts will be a circular court, surmounted by a dome 150 feet high; in this will be placed a grand organ, with galleries running round. The whole of this court and dome will be filled in with stained glass illustrating the history of the British

Empire from the earliest times. The glass in the court devoted to the fruit bazaar will illustrate Indian subjects. Running out of the main avenue, which will be about 400 yards long, are fourteen conservatories, seven devoted to India and the colonies, and seven to the British Isles. The flora of each colony will be shown in the house devoted to it. There will be a tropical-house and a viery and orchard-houses running round the grounds which will be used as a promenade. There will be kiosks and tea-houses in the open spaces, an hotel and dining club will be erected at one end, having a covered entrance from Willesden Junction Station. The club is intended as a rallying point for business men connected with the colonies, and a pleasant resort for others. The members will have special privileges for entrance to the exhibition for Sunday promenades, *fiat* days, &c. Turkish baths will be attached to the hotel. Arrangements are being made for lines of rapid steamers from the colonies exporting fruit. All the English varieties of fruit will be on view throughout the year, as New Zealand and other places will supply when the home-grown are finished. There will be competitive flower and fruit shows in every month of the year. A small court is to be devoted to colonial wines, European wines being strictly excluded. The site comprises 16 acres, and is the most accessible spot in the London district for an exhibition, with close railway accommodation. In addition to the Willesden Junction Stations, the Great Western main line runs within 200 yards of the Exhibition grounds. Buses, electric illuminations, the attractions of Kew and South Kensington combined, cannot fail of support when carried out on business principles. It is not intended to interfere with any existing interest, and the promoter believes there is room enough for all who honestly endeavour to give the public value for their money. It is hoped the Exhibition will be ready for opening in October, 1887."

— AGRICULTURAL EDUCATION.—We are glad to find that instruction in the principles of agriculture is to be given in many towns this winter. As will be seen from the subjoined programme of a class to be held at Watford, the lectures will be to a large extent as useful to gardeners as to farmers:—

Subject: Agriculture. Master: J. W. ODELL (First-class Certificate, Special Training Course for Teachers, South Kensington Science School). The class will meet on Friday, October 1, and succeeding Fridays, at 7.30 P.M. Fee, 5s. for the entire course of about thirty lessons, including examination fee.

The course of lectures in Agriculture will treat of:—

1. *Soils*.—Their Formation and Variations in Character.—Distribution.—Classification.—Chemical Constituents.—Causes of Fertility.

2. *Plant Life*.—Its Influences.—Sources from which Crops get their Food.—Plant Food in the Soil.—Active and Dormant Matters in Soils.—Influence of the Mechanical Condition of the Soil on Plant Life.—Diseases.

3. *Manures*.—Farmyard Manure, its Production, Composition and Character.—Good and Bad Management.—Action of Manures in the Soil.—Artificial Manures; Salt, Lime, Chalk, &c.—Their Mode of Use and Special Properties.

4. *Tillage Operations*.—Mechanical and Chemical Changes.—Influence of Atmospheric Agents.—Drainage of Land.—Influence on its Temperature, and on the Health of Stock.—Choice of Crops.—Rotation of Crops.

5. *Live Stock*.—The Economy of good Stock Management.—Special Requirements for making Land either a good Dairy Farm or a good Sheep Farm, or good Grazing Land.

6. *Food*.—Chemical Matters present in various kinds of Food: in Milk, Green Food, Hay and Corn, &c.—The different Materials necessary for the Growth of the Body.—Maintenance of Heat.—Process of Fattening.

— SAPONARIA OFFICINALIS.—In *Topographical Botany* it is stated that this plant, although not indigenous, is recorded for nearly all the counties of England, as well as for some in Wales, where some botanists consider it as indigenous, and in Scotland. It has also been introduced to the United States. Considered apart from the fact of its being frequently cultivated the rate of distribution in this country would have been remarkable especially for a perennial; but its rapid spread must be attributed in great part to its former reputed value in medicine, and also to its economic value as a soap. Mendicant friars formerly used it for the latter purpose, bruised or boiled in water; and the plant, not being indigenous, must have been pretty common in cottage gardens, often rich repositories for old-fashioned herbs, flowers,

economic and other useful plants. The plant is no doubt an outcast from gardens in many of its reported stations, and its creeping underground habit, coupled with the fact that double-flowered forms occur, would support this view. The latter form is established in the Isle of Wight at some distance from houses or gardens. The plant is recorded as naturalised in the south-west of England and in Wales, but the same recognition ought to be made for Sussex on the great expanse of shingly beach eastward from Eastbourne, where in some places it is the most prominent feature of the vegetation by far, and flowers so profusely as to give its own tone of colour to the shingle. Almost every shoot flowers, the reverse of what takes place in gardens generally, where the flowerless root-suckers, especially in rich soil, become a nuisance to all well-behaved plants. This profuse flowering habit on otherwise almost barren shingle suggests the idea of planting it in poor, gravelly, or sandy soil, where, however, it might have access to sufficient moisture at the root. The species is figured in the third edition of SYME's *English Botany*, t. 197.

— THE ORANGE CROP IN VALENCIA. — As an illustration of the importance of the Orange crop in Spain, it is stated that from the port of Valencia alone over 3,000,000 Oranges have been shipped in the course of one season. The fruits, which are considered the best of their kind in Europe, can now be delivered in England at 9s. the box, leaving a fair margin of profit to the producer.

— FLOWERS IN SEASON. — Mr. EDWANE sends us from his garden of floral treasures at Ryde some very fine flower-stems of *Watsonia rosea*, rose-purplish in colour, and as high again as the tallest *Gladiolus* grown; a flower of the clear yellow *Sternbergia lutea*, a novel colour in bulbous flowers at this season; and the whitish-green flower-spikes of *Ornithogalum lacteum*. — Mr. E. J. LOWE, Shireneworth Hall, Chestnut, writes as follows:—"I have been asked to send you some blooms of a new cross between *Mimulus cashmirianus* (of gardens) and *Mimulus cardinalis*, the former the seed bearer. The habit is that of *cashmirianus*, about 6 inches in height, and the flowers, as you will see, are very varied and brilliant, and quite distinct. I only send a few, but there are at least one hundred good varieties. They are quite hardy and great bloomers. With the *Mimulus* are enclosed two of my hybrid Dahlias. The white one, Lily, is a pointed-petalled flower, habit dwarf and very floriferous—to-day there were seventy-four blooms on one plant. The blooms are more like a Lily than a Dahlia, and as a border flower it is very effective. The other Dahlia (Sir Joseph Hooker) is a cross with *Bidenes Zimpfii*, and is the blackest Dahlia I know, good in form, medium in size, and having very bright yellow stamens; it is the most conspicuous flower in my garden. The bright yellow on a nearly black ground has an extraordinary effect. Amongst my single Dahlias I have this year about fifty of the most distinct and brilliant Dahlias that it is possible to conceive." (The markings on the *Mimulus* are very striking, and the colours of the brightest. We have not seen such regularity in the disposition of the colours as are exhibited by your strain. The white Dahlia has just that shape that pleases, and which so many "improvers" of the flower try to efface, and make monotonously regular. Ed.)

— THE SECOND YEAR'S PRODUCE OF A GRAFFED POTATO. — The Rev. G. HENSLOW writes:—"Mr. WORTHINGTON G. SMITH gave some account with figures of his method of grafting Potatoes in the *Gardeners' Chronicle* (1886, pp. 54, 180), and exhibited some tubers resulting from his 'plug-grafting' at a meeting of the Scientific Committee of the Royal Horticultural Society. These were the produce of Paterson's Victoria x Mr. Bresse, and of Magnum Bonum x Early Border. I planted on March 16, 1886, one tuber of each of these two crosses. The tuber of the first kind weighed 3½ oz., and presumably perished in the ground, as nothing came of it. The other weighed 6½ oz. It was about 3 inches in length, but bent in the middle. The first year's result of this cross between Magnum Bonum and Early Border Mr. SMITH described as 'astounding as regards form; some examples suddenly curved at the end like shepherds' crooks; others like the letter U, with both limbs closely depressed; some very irregular, with large gouty projections; some curved like the letter C, with the two ends

almost touching; some like the letters L and Z. My results of the present season—i.e., the second year's produce—were a little more satisfactory. The total weight of the tubers, fifty in all, from the above, was 6½ lb., or just 100 oz., in return for 6½ oz., or a gain in weight of 1600 per cent. The eight largest tubers averaged 5 inches in length, with a maximum of 6 inches by 2, being only 1 inch across at the constriction; but like Mr. SMITH's produce of the first year, they were all misshapen, but not to the extent that he described. They mostly had constrictions in the middle or at one end; two were curved more into semicircles than like the letter V, and one or two showed super-tuberation. Besides these eight, there were ten tubers of a good oval form, averaging 3 inches by 2 inches; eight tubers, 3 inches by 1½; eight, quite round, being about 2 inches in diameter; eight smaller ones were about 1½ inch long, six were 1½ inch in diameter, and only two so small as 1 inch across. Boiled for table they proved very fair eating. I purpose planting six of the first lot of eight, the largest and misshapen tubers, and six of the well-formed tubers next season, to see what the third year's produce may be like."

— FOREST TREE PLANTING. — In view of the increased attention which in recent years has been given to arboriculture, and the near advent of the tree-planting season, it is interesting to learn that Her Majesty's Commissioners of Woods and Forests propose continuing planting operations on a large scale on the waste Crown lands in the Isle of Man. Messrs. DICKSONS & Co., nurserymen, of 1, Waterloo Place, Edinburgh, have, we learn, been entrusted with a contract for supplying a large quantity of forest trees for this purpose, to be delivered on the island in the month of November from their nurseries at Pirrig and Liberton. It is to be hoped the example set by Government may have its effect on owners of waste land in every part of the country, as, apart from the improvement and increased value it affords in the interests of the owners, the ameliorating influences of planting on the climate, the labour which the carrying out of it affords at a season when employment is scarce, is a matter of great public importance.

— PORTUGUESE PLANTS. — It is announced in the *Boletim da Sociedade Broteriana* that the Director of the Botanic Garden at Coimbra, Professor HENRIQUES, is prepared to exchange dried specimens of Portuguese plants which are rare in herbaria for other plants.

— FRENCH MARIGOLDS. — Some of the neatest flowers in form, pure and brilliant in colour, have been submitted for our inspection by Mr. R. DEAN. They include self, striped forms, and some which are very effective, the rays being of a rich velvety vandyke-brown with a thin edge of gold. We understand that the habit is dwarf.

— TOBACCO GROWING. — The best sample we have yet seen are some leaves of the "Virgilion" variety, grown in the nurseries of Messrs. LUCOMBE, PINCE & Co., of Exeter. The colour is of a rich golden-brown, and the perfume aromatic. The leaves, at present, have not been cured, so that it is too early to talk of results. We understand that Messrs. LUCOMBE, PINCE & Co. have followed very carefully the cultural directions given by Colonel TREVOR CLARKE, in our columns.

— PUBLICATIONS RECEIVED. — *The Maintenance and Renovation of Grass-land from a Chemical Point of View*. By B. DYER, F.C.S., F.I.C. (London: VINTON & Co., Limited, 9, New Bridge Street, Ludgate Circus, E.C.) — *Illustrated Handbook of Victoria, Australia*. (London: Colonial and Indian Exhibition.) — *Mary's Meadows*. By J. H. EWING. (London: S.P.C.K., Northumberland Avenue, Charing Cross, W.C.)

— GARDENING APPOINTMENTS. — Mr. PERKINS, late Gardener to the Right Honourable Viscount DOWNE, Dingley Park, Market Harborough, has been appointed Gardener and Bailiff to the Dowager Countess of ELESMEERE, Burwood House, Cobham. — Mr. ARTHUR RYDER, formerly Gardener to Lord BATEMAN, Shobdon Court, Herefordshire, has been engaged as Gardener to Sir WILLIAM ANDERSON OGC, Oakfield, Dalwich, S.E. — Mr. G. WALL continues at Breakspears, Uxbridge, as Head Gardener to the new proprietor, W. S. GILBERT, Esq.

EXEUNT TEAS.

In his article on p. 430, "D. T. F." concludes with an unanswerable piece of logic. The Tea Roses, says he, are the Roses of the future: they must vastly increase while the so-called perennials are doomed to decrease: they deserve double honours and chances—and moreover, unlike most worthies, they have got their deserts, therefore let the privileges that they so deservedly enjoy be taken away! It has been said that statistics will prove anything, but evidently logic runs a great horse over the favourite course of argument. The Teas must go; the case is clear against them. Even if there could be any person still unconvinced, there is a final count—most damning charge of all—which cannot fail to carry conviction to every mind that they justly deserve, the verdict of expulsion, they distract the judges!

There were several people who did not observe the wild and wandering eye, indicative of a man distraught, among the phalanx of judges at South Kensington last July; but no doubt it was to be seen, and it is absurd to suppose that the victims should be expected to divert their judicial faculty to horticultural subjects of a less "disturbing" nature; therefore the Teas must go. It is their own fault of course; they shouldn't distract and disturb, and they must be content to be the Roses of the future and not want recognition in the present. As the frenzied amateur said of a certain modern School of Music, "If it's the music of the future, what the semibreve does it want to come bothering now for?"

Some of those people whom "no logic of reason or of fact ever will convince," may ask what a "general collection" of Roses is, and wherein it will differ, when the Teas and Noisettes shall have been eliminated from it, from a "special class"? Ladies may plaintively inquire how they shall identify Ben. Can't seventy-two if Souvenir d'Elise is to be excluded? and Lacharme, with the air of a man endeavouring to tilt his hat back with the tip of his own nose, will want to know, you know, whether it is to be Guillot's yellow hybrid perpetual that is to replace the gold of Maréchal Niel, "expulsed"? Some people ask such inconsiderate questions, and are not deterred even by the threatened distraction of our judges.

A whisper may come from certain eastern county gardens asking what honours a "stand wholly of Teas can sweep off" beyond the first prize in its class and possibly a medal for the best bloom?—an award open to every stand in the show. There are even those in whom the suggested Tea-totalism arouses the widest intemperance; here indeed (say they) would be the fulfilment of the exhibiting rosarian's highest ambition—an achievement for which it would be worth while to grow grey in the work of Rose-showing. Imagine a box of forty-eight Teas distinct, which should win against all-comers of all and any kinds; there would be a galaxy of beauty, and exquisite harmony of pure and tender colour, marred by no loud and jarring tones! Tea-garden sentiments truly. As if that could possibly be any compensation for the distracting disturbance of a judge's mind.

The fact is, the matter lies in a nutshell. Because a certain class of Roses, once supposed to be delicate and difficult of cultivation, was encouraged and fostered by the provision of special small classes; because the cultivation of these Roses gradually extended until now a class for thirty-six blooms brings out as many competitors as did formerly a class for six blooms; because their blooms are now grown as large as the finest hybrid perennials (there were actually sixteen distinct Teas in the championship seventy-two this year, and fifteen last year); because they are now grown by thousands instead of tens, and still "must vastly increase"; because they are found to be as easy to grow, in the South at any rate, as hybrid perennials, and are more generally useful; and because they are "the Roses of the future"; all this is no reason why they should create a disturbance; and if they will do so, of course they must submit to be "checked and regulated."

There are one or two weak points in "D. T. F.'s" draft "for the better regulation of Teas"; for instance, there is no mention in the National Rose Society's schedule, which was the subject of "Wild Rose's" discussion, of a class for baskets of seventy-two A. K. Williams; but if they were there, cavillers might be inclined to point out that it could hardly be complained that the hybrid perennials had no special class devoted to them.

The assertion that Rose showing is responsible for the limiting of the Rose season to a month during June and July, is somewhat incongruous when immediately followed by the statement that "this is the natural season for perfect Roses in England!" Of course; it is because the Roses bloom at the end of June and the beginning of July that the shows are held then; and an indefinite extension of the exhibition season would be fraught with many inconveniences. Those who grow largely have budding and so on to attend to. Most people are off in August to the sea, to the North—scattered abroad in all directions. Those who go on showing again in September have other things to care for—Dahlia, Gladiolus, &c., while if they must needs go on all the time they find Roses very well provided for at the general summer shows.

A national Rose (or any other) society, to be able to run shows destined to be unpopular and unremunerative, must indeed be "strong and wealthy;" but "D. T. F.'s" allusion to these off-season shows is another weak point in connection with his new Tea rule; for the earliest and the latest flowering Roses are the Teas, and it cannot be considered good policy to be attracting attention to and advocating those varieties which are already "undue favourites," and which it is so desirable to "exclude from general collections," for the purposes of halving their chances of well-deserved honours and of avoiding their creation of a disturbance, to the distraction of the judges. T. W. G.

GREVILLEA SULPHUREA.

THAT New Holland shrub, or something extremely like them, lived in this country as native inhabitants at one time is unquestionable, but that was a very long time ago, and a great deal has happened since then. It comes, therefore, rather as a matter of surprise to find that such species as *Grevillea rosmarinifolia*, illustrated in *Gardener's Chronicle*, at p. 520, vol. v., n.s., and *G. sulphurea* are not only hardy in this country, but that they actually produce flowers in the open air. For the specimen here figured of *G. sulphurea* (fig. 96) we are indebted to Messrs. Veitch, in whose nursery at Cooombe Wood we recently saw the plant. Its striking appearance and interesting character should commend it to lovers of curiosities, but it is as well to caution them that the dry soil and sunny slopes of Cooombe Wood enable many plants to live which elsewhere would succumb.

By way of illustration we may mention, that on the same visit as that above mentioned we saw a Banana from Southern Japan apparently as contented as the Australian Protea, although it had been out for two winters.

FOREIGN NOTES.

STRAW PLAIT INDUSTRY, NEAR FLORENCE.—A recent report to the Foreign Office on the Florentine straw industries, by Consul-General Colnaghi, of Florence, contains so much of interest that we gladly place it on record and give it wider publicity than it otherwise would secure, by publishing an abstract of the entire report. Opening with the history of the straw hat industry Mr. Colnaghi says it was originally confined to the "Contado" of Florence, where it existed in the sixteenth century. From this district it gradually spread into other parts of Tuscany and of Italy. The industry appears, however, to have become of some importance only in the beginning of the eighteenth century, when Domenico Michelacci introduced or perfected the culture of spring Wheat, ("grano marnolo") sown thickly, from which an excellent straw is obtained. The first experiments were made on the hills round Ligua, and their success caused this culture to be quickly extended to the neighbouring districts. Straw hats now formed the object of a rising but intermittent export trade.

About 1810 Signor Guiseppe Carbonai, of Leghorn, having established himself at Ligua, and improved the manufacture, was the first to open out a trade with France and Germany. In consequence, the straw industry, which, till that, had been confined to the communes of Ligua and Brozzi, spread to those of Sesto, Campi, Carmignano, and Prato. Between 1815 and 1818 employment was given to some 40,000 persons, almost all women and girls, who earned from 1 lira 12 c. to 1 lira 68 c. per diem (a lira is equal to rather less than ten pence). Further orders from England brought the number of persons engaged in the industry between 1819 and 1822 to 60,000, the

best hands earning as much as 2 lire 24 c. per diem. America next came within the radius of the export trade, and more hands were required, so that not only the female population of several communes but even the men abandoned their ordinary occupations to work in straw. The number of persons engaged in the industry was at that time calculated at 80,000, earning, according to skill, from 1 lira 68 c. to 5 lire per diem. During these palmy days several new villages rose in the country district, and the increase of prosperity among the peasantry was general. The staple article of export was the "foretto," or broad-brimmed "flop" hat, known originally as the Leghorn hat—a name which, however, is now given to all hats of the same material and manufacture, whatever their shape or dimensions may be. The plait of which this hat was made was of thirteen ends, and the strips were knitted—"a maglia," as it is technically termed—i.e., sewn together without overlapping, so as to form a single piece. This method is peculiar to Tuscany.

From 1826 the demand for the "foretto" hat began gradually to fall off, and it was necessary to supply its place with another article. This was found in the eleven end plait, one strip of which, in making up the hat, was sown so as to overlap the other. The merit of introducing this plait was chiefly due to Messrs. Vyse, an English firm, first established at Florence about the year 1827. After some temporary changes the factory was finally removed to Prato, about the year 1844, where the centre of the business has ever since remained.

Messrs. Vyse opened various centres of instruction for the new work, and introduced into their factory machinery for the selection and preparation of the straw, &c. From this date the custom obtained of distributing to the plaiters the straw selected and cut by a machine and made up into bundles containing, in separate packets, the upper ends of the straw known as Tuscan ends ("punte"), and the lower ends, which are thicker and are termed "pedals." Hitherto pedal straw had not been used, but as the cost of the Tuscan ends was continually on the increase, a large demand arose on foreign markets for pedal plait.

Owing to the decadence of the "foretto" hat, the earnings of the workmen were greatly reduced, but about 1836 they were again able to earn 2 lire per diem, as there was for a short time, a renewed demand for this article.

In 1840 a large cone-shaped hat, called "cornetto" or "cappotto," was introduced. It was received with great favour abroad, as it could be adapted to any shape. This hat was largely made of Rye-straw, which is finer, more easily worked, and consequently, less expensive than the Wheat-straw, but not so flexible. In order to maintain the industry, however, new articles had to be found, such as plain plaits of fifteen and nineteen ends, pedal plaits of seven ends ("maglia" or corded), in imitation of the English plaits, and various kinds of fancy plaits. Straw stems were also woven with cotton, horsehair, and silk into braids or ribbons, either plain or fancy, according to the changing fashion.

The weaving of straw materials into braids and trimmings had existed in Switzerland from a remote date. The application of the art to the weaving of the Tuscan straw into these articles was first adopted in England, where, for some two or three years, it received a very large development. The chief market for the sale of this manufacture was the United States of America.

Straw plaits in general are produced in all the country district round Florence, Prato, Ligua, Empoli, Pistoia, &c. Woven straw is made at Fiesole, where, of late years, a special industry of fancy straw baskets, fans, cigar cases, &c., has arisen.

The Leghorn hats are made nearly everywhere, but more particularly in the towns and villages lying near the Arno, to the west of Florence, such as Brozzi, Ligua, Empoli, &c. The best hats are said to be produced in the immediate neighbourhood of the capital city. Their price varies from 1 to 500 lire; hats, however, of the latter figure are now-a-days not often met with.

The qualities most currently in demand at the present time are the narrow-brimmed hats called "figliette," of coarse and medium assortments, running from ten to eighteen or twenty rows, and costing in first hands, when shaped and finished, from about 80 centimes to 2 lire each, according to quality and fineness. This is scarcely more than one-third of their

cost three or four years ago, when much finer, and consequently more valuable assortments were required, currently ranging from 8 to 20 lire each. The demand for this hat is continually declining, and, unless a change occurs, almost extinction is threatened, not so much from foreign competition at present, there being no foreign production of the same kind, as from their having gone out of fashion. But it is hoped that the article may soon regain favour on account of its many valuable qualities, which are stated to consist of the protection it affords from the sun, the lightness and strength of its tissue, the brightness of colour, the ease with which it can be adapted to various shapes, and its moderate price. All the hats are made of Wheat-straw; Rye-straw has ceased for some years to be cultivated for the purpose.

It is difficult to form even an approximate estimate of the number of persons, all women and children, engaged in the straw industry outside the factories at the present time. It must suffice to say that the industry is so generally extended throughout the district, that there is scarcely a family in which some of the members are not engaged in the work. Children begin to plait at five and six years of age, while mothers of families in addition to these domestic occupations, and females of all ages, and almost of all conditions, who do not follow the business as a means of livelihood employ their leisure time in it. Formerly, when the production was carried on by persons connected with agricultural labour only, the work was not constant, but now, excepting, perhaps, with a few "contadini" it goes on all the year round.

The plaiters work in their own homes, and their busy fingers are rarely at rest. The larger number work up the straw on their own account, and sell the plaits or hats on the public markets held at Florence and in other towns. Others receive the straw from, and are paid by the "fattorini," a class of middlemen who consign the plaits and hats in the rough to the principal manufacturers, who finish them for export. Others, again, are in direct communication with the manufacturers themselves.

The earnings of the plaiters are subject to considerable fluctuations, partly depending upon the market prices that may, from time to time, rule for the manufactured article, and partly according to the higher or lower rates of the straw. On an average, the daily earnings of children and of young girls may be taken at from 30 to 45 centimes, and of women at from 75 to 80 centimes. Much depends upon the ability of the workers, and a considerable number of expert hands earn regularly, under ordinary circumstances, from 1 lira to 1 lira 10 c., and sometimes as much as 1 lira 50 c. per diem.

The ordinary length of the plaits was 50 metres, but of late they have been made of 50 yards, as more suitable for the English and American trade. Those, however, purchased on the public markets are said to be very defective in measure. Whole straw is always used; it is never split in the Tuscan industry.

The articles chiefly exported are the Florentine hats, and plain and fancy plaits. The principal countries of export are France, the United States of America, Great Britain, Germany, and Austria.

The future prospects of the Tuscan straw industry are at present by no means encouraging, as so many new articles spring up which are more favoured by fashion. The plaits most currently in demand are the plain seven-straw pedal and the Tuscan ends, for which there appears the probability of a continued consumption, but the production is very large, and there is the risk that the supply may become in excess of requirement.

Fancy plaits have always been made of late years; the demand for them, however, is more or less brisk, according to circumstances.

The competition of English plaits, as far as prices are concerned (fashion apart) does not much affect the sale of Italian straw products, but that of the Chinese plaits, in the coarse qualities, is almost crushing, and to a very considerable extent now supplies the various markets of Europe and America to the nearly total exclusion of the same qualities of Italian plaits as regards foreign consumption. The Chinese plaits are of excellent quality, well made, strong, and serviceable, and supplied at prices with which it is impossible to compete in Italy. At one time the straw ready for plaiting was exported to England and Switzerland, but this branch of the trade has for some years entirely ceased.

A few years ago the export of the Florentine plaits

was estimated at from 2,000,000 to 3,000,000 pieces, but of late it has increased, and the export is at present calculated at from 5,000,000 to 8,000,000 pieces of 50 yards each. Except from Venice, no other real straw plaits are exported from Italy. At Carpi, in the province of Modena, however, several firms are working in chip plaits and hats, the export of which,

brought from Modena. As the object of the cultivator is to produce a fine long straw, and not a full crop of Wheat, all the usual conditions are reversed. Thus, a spring Wheat is sown in winter, a mountain variety on lowlands, the seed is thickly instead of thinly sown, &c. The thicker the seed is sown the finer the straw comes out.

ture also is carried on about Voltura, and is met with in some parts of the Mugello and elsewhere.

In the principal centres of cultivation straw is grown on nearly every farm. Plots of land are also hired at a money rent for this culture. The average quantity sown is from five to twenty sacks of seed, each sack weighing about 50 kilo. This quantity, however, varies according to circumstances. The seed is sown very thickly towards the end of November or the beginning of December. The ground intended for this culture is dug up and manured in May, and generally sown with spring Beans and the like, which are often dug in. About October the ground is ploughed for sowing. At the end of May or the beginning of June following, when the ear is beginning to swell, the straw is pulled up by hand, a sunny day being chosen for the operation.

The straw is now made up into "bundies" ("manate" or "menate") containing as much straw as can be easily held in the hand. The bundles are tied up with Broom. The green straw is sold in this condition to the factors or speculators, who come round to the farmers to make their purchases. A crop is also occasionally sold standing. One hectolitre of such is estimated to yield on an average about 4000 "manate" of green straw. The cultivation of straw is considered to be more profitable than that of Wheat, but more hazardous, and once in six years the yield may be *nil*.

The next operation which the straw undergoes is that of being bleached, which is effected by exposure to the sun by day and to the dews by night. The "manate" are spread in a fan-shape on a bare river bank or other open space, which must be entirely devoid of vegetation. After four or five days' exposure the straw will have acquired a light yellow colour. The "manate" are now turned over and the under part exposed, in its turn, for three or four days more, when the straw, after being well dried can be gathered in. When the dews are light the process is slower but more perfect. In case of rain, the straw must be at once heaped together, and covered over to prevent its being spotted.

The straw is now ready for manufacture, the first operation of which is the "sfelatura," or unshathing the ends of the straw, leaving only the inner portion to be worked up. This is generally done by children. The ends are sold for forage at the rate of 5 lire per 1000 "manate."

When unshathed, the straw is carried to the factories. After having been slightly wetted it is first exposed to the fumes of sulphur in a tightly closed room, thus acquiring that light sulphur colour which is characteristic of Florentine hats and plaits.

The straw has next to be sorted according to its different thicknesses. This is done by means of an apparatus, which consists of a series of vertical metal cones placed on a stand in a double row, and provided with movable copper plates ("sistole") perforated at their lower ends. The holes in each succeeding plate are a size larger than those in the preceding one. The numbers generally range from 0 to 13, but sometimes they run up to 20; 0 represents the finest stems. A bundle of straw being placed in the first tube of the series, a salutory movement is given to the machine by means of a combination of cog wheels, generally worked by hand. The finest straws pass through the holes of the plate, where they are suspended by the ear. The larger straws are then put into the next tube, and so on, until the whole is assorted, a constant supply being maintained. The sorted straws, which have passed into the holes up to the ends, by which they are suspended and prevented from falling through, are then drawn out by the ears and placed in separated receptacles.

The first thing after assorting the straw is to cut off the ears, an operation termed "spigatura," which is done by a special machine. Then follows the "spilatura," or assortment into lengths, which is effected by placing on a table a small cylindrical tin case, open at both ends, and about 8 inches (20 centimetres) in height, and the same in diameter, more or less, into which a loose bundle of the prepared straw is placed vertically. The operator sweeps his hand over this bundle and draws up from it the longest straws, which project above the rest. These he deposits in the first compartment of a table furnished with different divisions. He then draws from the bundle the next longest straws, and so on until he comes to the shortest. Usually, the straw is divided into five or six lengths for the finer kinds. The straw is of a better colour, more



FIG. 96.—GREVILLEA SULPHUREA: HALF-HARDY EVERGREEN: FLOWERS PALE YELLOW. (SEE P. 468.)

for a good year, may be taken at from 2,000,000 to 5,000,000 pieces.

The seed used for the cultivation of straw is carefully selected with regard to the nature of the soil in which it is to be sown. The quality employed is always a variety of spring Wheat (*Triticum aestivum*). For the lighter soils seed from Mount Amiata, near Santa Fiora, or from the mountains of Radiconfi, in the province of Siena, is preferred; for the heavier lands the "semone," grown on the Pisan hills, near Pontedera, is selected. Seed is also said to be

Straw is largely grown about Campi, Sesto, and Prato, in the plain between Florence and Pistoia, diminishing in quantity in the neighbourhood of the latter city. The cultivation is important between Florence and Empoli, principally on the south-west side of the Arno in the plain, and on the hills commencing in the vicinity of Ligua. It extends into the country round within a radius reaching to and beyond Empoli, of about an average distance of 15 miles from the Arno, including within its range San Casciayo and Castelflorentine. The cul-

consistent, and finer as it approaches the ear, the lower part, which has been protected by an outer covering, being whiter and softer.

Formerly this end was not used, but now it is employed for making all the articles that go under the names of pedal hats or pedal plaits. The sorted straw is now made up into small bundles, which are bound together in a large packet, the points, or upper ends being placed upwards in two bundles and downwards in the other two. The united packet is now laid under a cutter, and being divided through the centre, yields four smaller packets, two of point and two of pedal straw, which are ready for the plaiter. The straw is given out to the plaiters, either directly from the factory or through a factor, in bundles, either sufficient to make a length of 50 yards of plait or a hat, as the case may be. Before being plaited the straw is slightly wetted, to render it more flexible. The hats are sewn either with waxed thread or with the fibre of a Rush which grows on the marsh lands near Ligua, and which is prepared for the purpose. On the plaits being returned to the factory they are measured. The length being found correct they are washed in potash water, in order to whiten them. Occasionally they are cyandered to give them a polish. They are next wound upon a circular toothed frame of one metre in circumference, the teeth being to keep the strands of the plait evenly over the other. They are made up into packets of six or twelve pieces, and lately of twenty-four pieces, after which they are packed in cases for export.

On the hats being brought to the factory the loose straws are first cut from the brims, and any defects in the plaiting are made good by insertion, after which they are piled up on one another and placed in large troughs full of potash water, in which they are pressed down by planks. They are then dried in the sun, when the weather is fine, or in hot rooms in bad weather. The hats are now ready to be moulded into shape, which is effected by their being placed in heavy zinc moulds and forced into shape by hydraulic pressure. They are next powdered with sulphur and polished with a small wooden instrument, and may now be packed in cardboard boxes in dozens, and subsequently in wooden cases ready for export.

Hats are also made in the mountain district of common Wheat-straw. Formerly, and up to the last two or three years, the export of these hats to America was extremely large; but since then the demand has been rapidly falling off, and has now become quite insignificant, the cause being chiefly attributed to their having been superseded by the Chinese plaits and the Yokohama, Maracaibo, and other hats, which, some for price, and others for quality, have now, to a great extent, the preference. The prices of the mountain hats range from 10 to 30 lire per 100, according to their fineness, quality, and dimensions.

HOME CORRESPONDENCE.

Grapes.—In reply to "J. S." (p. 442, last week's issue), I would advise that the Golden Queens be grafted with either Black Alicante or Gros Maroc of black kinds. These varieties would form a capital succession to the Black Hamburgs, and should succeed well on a vigorous grower like the Golden Queen as a stock. Of white kinds, if Foster's Seedling is not already grown, by all means give it a trial, also Mrs. Pearson. I have seen the latter kind doing well with Hamburgs. If both of the above white kinds are grown already, I would advise Buckland Sweetwater rather than thick-skinned white kinds; but why not introduce a rod of Muscat of Alexandria? I have it doing well with Black Hamburg, Madresfield Court, and Gros Maroc. *Vitis*.

Primula Raising.—To avoid any misunderstanding of Rev. M. Ewbank's remark in last week's paper (p. 406), I beg to state, that as a rule, I sow Primula seed either immediately it is ripe, or, at all events, from January to June, but not from June to December; our climate forbids doing otherwise. The seeds are not covered at all, or only very thinly if they are large, but the seed-pans are covered at once by a white lime-painted pane of glass to retain evaporation; and besides, if sown any time later than February, they must have no sunshine. If after a few days it is possible to expose them to a gentle rain, they will come up rapidly; but if rain is wanting, germination, as far as my experience goes, is slow and uneven, and takes as long as three weeks. When the rootlets appear, I cover them slightly by

passing some sandy soil through a fine sieve. They are then eight days afterwards pricked out, the plantlets being taken up with small pinners. If after three weeks the seeds have not germinated, they have either lost their germinating power or they belong to a certain series which by their nature want to lay in the soil exposed to all weathers if possible for at least twelve months; to keep these in an equal medium during the summer months I cover the seeds by $\frac{1}{2}$ inch of pure white sand, and on this $\frac{1}{2}$ inch of lateral *débris*, plugging the pan into a bed of the latter material. Late in the autumn the charcoal and sand are removed and the seeds then germinate on a greenhouse shelf in January or in the open air more plentifully in March. We have still much to learn as to the conditions under which germination is best effected. *Max Leichtlin, Baden-Baden.*

Book on Church Decoration.—In your answers to correspondents, p. 442, you inform Miss H— that you do not know of any book on church decorations. I beg to inform Miss H—, that she can get a very good book, illustrated with church designs, &c., published at *The Bazaar Office*, 170, Strand, W.C. The price of the work is 1s. *W. M. Gidder, Shropston, Derby.*

Gunnera scabra.—Your reference to this noble plant at p. 424 induces me to mention how wonderfully well it seems to thrive in all parts of the Channel Island. During a recent visit to these interesting islands with some kindred spirits we noted several plants with enormous leaves; especially grand were some plants growing by the side of a lake at Roselle, Jersey, the seat of the Rev. Wm. Lempiere. Of still more remarkable character, however, is to be seen, near Moulin, Huet Bay, Guernsey, a great mass of Gunnera some 200 yards long and 30 feet in width, that is choking up the course of a small stream on the mountain side, and become "perfectly wild." These plants are, at all events, quite "at home," and growing most luxuriantly. In the distance this looked like a mass of huge Burdock!—some of our party said Rhubarb! No one expected Gunnera in such a situation. *A. F. B.*

Fuchsia corymbiflora.—I notice that Mr. Murphy, Clonmel, has drawn attention to this old favourite flower, and inquires as to where it is grown. I have often been surprised that it is not more generally found in collections. I have in a large course of observation only known it in one garden in Scotland, viz., at Panmure, Forfarshire. This plant was planted in the greenhouse there shortly after the garden was made in, I think, 1855, by the present gardener, Mr. Mitchell, and when I visited the garden, about forty years ago it was in vigorous health. As this may be one of the oldest plants in the country, if it is still growing, I think it well to note it. Perhaps Mr. Mitchell can correct me if I am wrong as to its age. *C. S. F.*

Asplenium germanicum.—Concerning this species about which information is desired at p. 436 of the present volume, I may state that I have specimens collected from cultivated plants ten or eleven years ago bearing abundance of sori. The fronds are $\frac{5}{8}$ –1 inches long, with seven pinnae and the larger terminal lobed segment. The plants were grown in pots in a cool fernery along with the finer and rarer of British Ferns together with many half-hardy or greenhouse exotics, and received no special treatment. No importance was attached to the growing or fruiting of it, nor did it seem to present much difficulty beyond the matter of slow growth. A. sectional under the same conditions was about $\frac{1}{2}$ inch shorter, and also well fruited. Being a small, and to the general public not very attractive plant, it is seldom cultivated except by those who make a specialty of hardy British and other Ferns. It is one of the rarest of British species, and only occurs in Wales, the North of England, Roxburgh, Perth, and Fife. Some of the other species mentioned are abundant in Britain, in various districts. *J. F.*

Grapes at the Last Meeting of the Royal Horticultural Society.—In last week's *Gardeners' Chronicle* "M." seems positive that the Mrs. Pearson shown by me at South Kensington are not Mrs. Pearson, but Royal Vineyard. I will ask him to look in the Answers to Correspondents of the *Gardeners' Chronicle*, September 5, 1885. There he will find your answer to the berries (from the same Vine) you kindly named for me. One of the Grapes judged at the Crystal Palace show, September, 1885, also told me it was Mrs. Pearson, T. Osman, *The Gardens, Ottershaw Park, Chertsey.*

—Under the above heading in last week's issue, p. 440, "M." has given the information that the 1st prize Mrs. Pearson's were Royal Vineyards. I certainly had the suspicion that they were not what they were shown for, but Royal Vineyard did not occur to me at the time. The only time I saw the latter Grape was some years ago, and

then it was confined to a limited space at one corner of a viney, the grower evidently being very chary of permitting its extension. How about the award of the judges. Their decision is supposed to be "final," but should it be so in such cases? We think not. Neither ought the awards to be "final" in the case of "made up" bunches when detected and protested against by exhibitors who show straight, as was the case at the Crystal Palace show on Sept. 3–4 last. *Vitis.*

Pampas-grass (*Gynerium argenteum*).—The graceful plumes of this grass are now about in their best condition. Those who value these should lose no time in cutting any that may be required for winter decoration before the autumn fogs mar their beauty. This is soon the case in the vicinity of towns and industrial centres. *J. H.*

Aster and Stock Seed Growing at Forest Hill, London.—I can, with your permission, confirm the views expressed by your correspondent, "R. D.," p. 438–1st, as to the quality of the bloom, and, 2d, as to the superiority of the seeds. I have, from many years' experience, then referred to, brought a number of my gardening friends out there the last week in August, to see the Wheat and Tobacco experiments, but especially the annuals grown for seed and show. The Asters, especially the quilled German, were then very fine—so good, indeed, that at the meeting of the Royal Horticultural Society the following day (24th, I believe) a large collection received the highest award. I cannot see how Germany could be expected to produce a finer strain of these or other annuals than England, for seed purposes. *W. J. Murphy, Clonmel.*

Tecoma radicans var. grandiflora.—The racemes of *Tecoma radicans* now in abundant flower, and supposed to be the Japan species, *T. grandiflora*, are taken from a large specimen covering a portion of the south-east wing of the house at Bayfordbury, to the height of about 25 feet. It was planted out from the conservatory to test its hardiness more than twenty years ago, and has borne the weather of many hard winters, flowering annually, but never better than in the present season. *W. R. B.* [No doubt your plant is *Bignonia grandiflora* of the *Bot. Mag.*, t. 1398. Ed.]

Blue Hydrangea hortensis.—A great uncertainty seems to prevail with regard to the date of the introduction of this plant to Britain, as to the uncertainty of producing blue flowers at a given time with any degree of certainty. Dates assigned for its introduction are 1740, 1788, and 1790, in as many different books. In all probability, however, it was first introduced to Kew in 1790 by Sir Joseph Banks, and a figure is given of it in the *Botanical Magazine* in an early number, t. 438. Its capricious nature with regard to the coloration of the flowers was observed and recorded as early as 1796, when a plant produced blue flowers, although it had flowered the previous year in the same pot exhibiting the normal pink flowers only. The opinion is sometimes expressed even now that if any one could discover a method of treatment to induce the plant to flower, exhibiting the blue colour with any degree of certainty, it would soon acquire a fortune by taking his plants to Covent Garden Market. It seems rather paradoxical in these days of experiment and resource that some expedient in the manner indicated has not apparently been attempted on any extensive scale. Some kinds of peat earth are said to produce the blue colour, as well as turf-ashes, but especially the ashes of *Picea excelsa* and that of woods generally. The yellow loam of Hampstead Heath is said to produce the same effect, and the green-coloured earth found under the peat on moors. A year or two ago, plants in pots at Kew watered with a weak solution of alum-water, exhibited flowers with the unmistakable blue tint, although not very intense. In the open air the normal rose-pink prevails, as well as at other places in the vicinity of London where the Hydrangea is planted out. In the neighbourhood of some parts of the Campanians, where the Hydrangea is grown in pots, the desideratum is not to get blue but pink flowers. The cottagers who grew the plants attributed the blue colour to the soil, because plants obtained from sources producing pink flowers afterwards produced blue ones. The soil in that neighbourhood would be peaty, and probably contain more or less iron, and where cultivated is heavy or even clayey. Probably the most handsome plants coming from my observation were those planted in gardens between Swansea and the Mumbles. The huge bushes were a mass of flowers, exhibiting various tints and hues, ranging from green and pale pink to deep rose-pink, and pale to deep blue, all on the same plant or bush. The species also produces blue flowers naturally in the open border or shrubbery at Normanhurst, in Sussex. The contrast of pink and blue is not only interesting, but of great value horticulturally, and might be turned to more practical account than at the present it is. Any one with moderate means at command might, by a few

carefully conducted experiments, discover some practically useful method of producing with a moderate degree of certainty the desirable blue colour, which would have all the value of a very distinct variety. Seeds are by no means readily produced by this species, but something valuable might be accomplished by seed sowing and selection. J. F.

The Bradford Gardeners' Mutual Improvement Society.—A meeting of the above Society was held at Bradford, on Thursday last. Mr. C. Elliot, of Huddersfield, spoke on the prospects of the Society and its usefulness to gardeners by enabling them to meet together and exchange ideas. Mr. Barnshaw read a paper on *Eucharis amazzonica*, which raised a warm discussion as to the most successful way of flowering the plant. Mr. F. Newman, gen. to E. Salt, Esq., Ferniehurst, explained the various experiments he had made to eradicate the so-called *Eucharis* mite—efforts that have proved successful beyond his expectations, so that his fine specimens of *Eucharis*, *Amaryllis*, *Nerine*, *Griffonia*, &c., are in the best possible condition. [Will Mr. Newman kindly publish his method. Ed.] The meetings are held fortnightly, and several members have promised to read papers on various subjects. Mr. Thos. Horsman, nurseryman, Bradford and Ilkley, has generously offered a prize of £1 10s. to under-gardeners for the best paper on the culture of Tea Roses in pots under glass. The Society is being taken up with great spirit by the gardeners in the neighbourhood, and there is no doubt that some very enjoyable and instructive evenings will be spent during the coming winter months. A Member.

Cedar at Bretby Park, Burton-on-Trent.—In reference to your remarks at p. 407, I wish to state that the girth of our Cedar at 5 feet from the ground is 16 feet 6 inches, and the height is 90 feet. Geo. Brant, Gr.

Market Prices.—Your article on the competition in the flower and plant trade for foreigners should attract the attention of the trade, all of whom are sufferers thereby, and stimulate them to make a firm stand against the free importation of foreign-grown goods. Shall we stand silently by and see our trade annihilated by men who do not contribute one penny towards the taxation of our country, while we are taxed to the extreme limits? Can it ever have struck our rulers, as it has done me within, I am ashamed to say, the last two years (I was a Free Trader till then, because I had never looked into the subject), to look upon our country as a large trading firm, in which we are all partners in different degrees, and that every pennyworth of goods we can produce in the firm, and by some members of it, and which we now import, and so pay the money out of our firm to a foreign firm, no matter what the cost of producing by our own firm might be, is a dead loss to us. Let us suppose that an article which could be bought from the foreigner for 5s. cost 10s. to produce in the firm, yet surely if the 5s. goes to another firm, ours is that amount poorer. Well, this process is going on to the tune of something like £140,000,000 a year, £100,000,000 of which we could produce in our own establishment. If there was an import duty on all manufactured articles and those brought here ready for use, this £100,000,000 would be circulating among the members of our own firm. What matter if the labourer did earn £2 a-week instead of £1, he would want better clothes for himself and family, better food, house, and education for his children, and he would be able to pay for it; for would not the farmer cultivate every inch of his farm? The master and his men would want more goods from the town shopkeeper, they in return would want from the manufacturer; there would be no complaining of dulness in trade, for would not our firm be £100,000,000 better off every year from the goods produced in the home market? If our business have to be kept foreign workmen employed, while our own members are begging their bread? We have the labour and the land both now running to waste. Surely soon, as a nation, we shall see that this so-called free trade is working ruin to ourselves, throwing land and gardens out of cultivation, and making it worthless. If the forthcoming Horticultural Palace Company, of which I saw a notice in the *Gardeners' Chronicle* of the 18th ult., becomes a *fait accompli*, I hope I may be the means of forming a centre round which the trade may rally and make their importance felt. *Edward Collins*. [We do not believe that taxation of the food of the many, for the advantage of the few, will commend itself to our rulers while population is increasing at its present rate. Ed.]

Autumn-flowering Amaryllis.—Those two very charming varieties, Mrs. William Lee and Mrs. Garfield, are now to be seen in the Victoria St. Nurseries, Holloway. These two forms originated from a cross between *A. reticulata* and one of the fine spring-flowering varieties, the former being the seed parent, with the happy result that there has been

obtained a race of autumn-flowering types, with flowers of large size. Both those named have the colour of pink prevailing, the habit being that of a *reticulata*. There is no reason why, in course of time, there should not be a number of autumn-flowering forms rapidly approaching in size and form the superb blossoms of the spring flowering types. R. D.

Mulberry with Dimorphic Leaves.—A large lower limb was cut from an old Mulberry tree here a year ago, at about 3 feet above ground level. This year shoots bearing deep cut trilobed leaves have been produced from the margins of the old scar or wound. These cut leaves remind one of those of the Paper Mulberry (= *Broussonetia papyrifera*) rather than as belonging to the typical *Morus*. It would be interesting to know if seedling Mulberry trees have entire heart-shaped or lobed leaves. Herewith I send you specimens of the two kinds of leaves, and it would be interesting to hear if such a marked case of dimorphism has been observed before. F. W. Burbridge, Trinity College Botanical Garden, Dublin, Sept. 27. [The occurrence is not unusual, and is observed generally on trees that have been cut down to within a short distance of the soil. It is frequent in *Acer* and *Quercus*. Ed.]

—Since writing on the above Mr. Robert Lindsay, Curator of the Edinburgh Garden, has called here, and tells me that seedling Mulberry plants have deeply lobed leaves, similar to the specimens of the reversion from the normal cordate and entire foliage as sent to you. I also further notice that a few of the stem shoots of the white Mulberry, *Morus alba*, are also lobed in a similar manner, these shoots likewise springing from old scars made in pruning the stem or bole from time to time. The facts of the cases above alluded to are plain, but at present it is not so clear why *Morus* leaves gradually change from whole leaves of the seedlings to the entire heart-shaped stage, and now and then revert to their original form, while *Broussonetia* retains its cut leaves altogether. Does *Broussonetia* ever produce entire foliage? F. W. B.

Herbaceous Plants.—In most cases in which the term herbaceous is employed in flower show schedules it is intended to have a wide application, and is perhaps used because those who construct schedules forget that herbaceous does not mean perennial. Because of this intention, which is seldom clearly expressed, judges usually admit into the class for herbaceous cut flowers all kinds of hardy perennials, even including flowers from shrubs, such as *Roses*, *Camellias*, *Azaleas*. If in the future terms were always employed which really conveyed clearly the precise intentions of flower show committees, much grumbling and quibbling might be saved. I think it would be a rare circumstance were any stand of twelve kinds of herbaceous flowers so-called shown to be truly such. Almost invariably some hardy perennials are included, and with the majority of judges these would pass muster. In some few cases there may be disqualification, but only where, to use an old phrase, "the letter killeth." A rigid adherence to the letter too often but ends in harshness, and in an interpretation never intended. In our courts of justice judges are often called upon to interpret Acts of Parliament which seem difficult to construe, and as a rule their construction is accepted as good law. In the same way, where judges have time after time construed the term "herbaceous" to mean "perennial" also, it seems undesirable that such judge-made law should not be universally accepted and adopted. A. D. [The judges should carry out the letter of the schedule as exactly as possible, and leave the committee to exercise the functions of a Court of Appeal, and temper law with equity if they think fit. Ed.]

Spiranthes Romanzoviana (the Lost Irish Orchid).—When I was a very small boy in a very small village in the Atlantic country, I had an instinct for making friends with all the "wise men" of the place. One of them, an eccentric old French clock-maker, musician and mender of all things worth mending to boot, used to say—"Come to see me little man at every times you like," an invitation of which I made the most, and so learned many things I should not like either to "cease to remember" or to forget. When I did my best to relate to him the village gossip, he, good man, with his sixty years' experience of the world, would laugh—"Ah! you tell the truth, but, *mon ami tendre*, there is a—behind;" and then he would tell me the causes of the results which had startled me. Now I wish to tell my good and valued friend Mr. A. D. Webster that he has told the truth, but not the whole truth about my living specimen of this curious Irish Orchid. There is a "behind." True, they were thrown away by an undergardener, who had a bad time when I discovered it, and who tried to assure me that there was nothing but a sod of grass in the pot. He knew nothing of the "behind" so interesting to me beneath the sod. He, and others, and myself, raked over the

rubbish heap and I kept my eyes on it for days, but no signs of the sod were seen, and finally I gave up the quest as hopeless, and thought no more—that is, I tried to think no more—of the matter. This was in October, after the leaves had died down. In the February following I was walking round the garden one quiet warm Sunday morning when *Crocus* gleamed in the sunlight, and the thrushes were singing on every bough. Passing one of the Privet hedges surrounding the rubbish yard, out flew a blackbird, a fine glossy fellow, with a beak of gold. Ah! thought I, "you are early with your nest," and I parted the dense mass of growth to see into the centre. There was no nest, but there, in the hedge, rested a sod, brown and dry. I thought nothing of my loss, but curiosity prompted me to pull it out, and then a lump came into my throat as I parted it and saw the white tubers quite safely enclosed therein. In a word, my *Orchid* was found again, and, like the lost sheep, or the piece of silver, was loved and cherished more than before. It is now safe here, and this season bore two strong growths, although it did not bloom. My best friends tell me I am an optimist, and so far as this applies to the above sweet little *Orchid* I own to being an optimist of the first water. I happen to enjoy the friendship of one who has collected *Spiranthes Romanzoviana* at Bearhaven, and he assures me that where it was found by himself neither *Potatoes* nor *Oats* could possibly thrive—in a word, neither he nor I really believe now that this delicious little *Orchid* is really "evicted" from at least one of its Irish habitats. The plant is not at all difficult to cultivate in a sod of moist soil, and even if thrown away as mine was, it may possibly turn up again after many days. Next flowering season—say July or August—I hope to make an especial pilgrimage to see for myself if this rare plant is really evicted or not, and should be very glad if Mr. Webster would join me in the search. In the meantime I hope Mr. Gumbleton and his friends will keep their minds on the question, and do their best to preserve to us the "Irish Lady's Tresses," as his *Spiranthes hibernica* is popularly called. If things come to the worst—that is, if it is really and thoroughly destroyed, which I do not as yet quite believe—well, then, we must import tubers from America, and try our best to establish or naturalise them again in Ireland. F. W. Burbridge, F.L.S.

Begonia Princess Beatrice.—In his almost unrivalled flower garden at Heckfield Place, Mr. Wildsmith, who is constantly providing some floral surprise for visitors, has a striking one this season in this charming mule hybrid *Begonia*. He has used it largely as a "dot" plant, placing it in the middle of a pretty panel of some dwarf growing *Sedum* or kindred mossy plant, and there it is flowering with marvellous profusion. It does not trouble itself about the production of seeds, being a sterile mule, therefore it can and does devote its whole energies to the development of blossoms. It may interest some to know that this is one of Messrs. Sutton & Sons' novelties, that it resulted from *Begonia semperflorens* × *B. Schmidtii*. It is exceedingly free-flowering, and opening white then changes to delicate salmon. It may be said to be a continuous bloomer, and plants that have been in the open ground all the summer flower all through the winter if they are lifted from the open ground and placed in pots in a warm house; and under glass the blossoms are nearly if not quite white. Now that *Begonias* are becoming such favourite bedding plants, *Princess Beatrice* should be looked after. It is of medium compact growth, and in point of habit a model bedding plant. A large patch of it at Reading is worth going some distance to see. R. D.

Rubus phoenicolasius (see illustration of September 18, p. 365).—This is one of the handsomest species of *Rubus*, and as such deserves to be generally cultivated, and to have a good position in the garden. I have never seen it finer than in the temperate-house at Kew, but here it does extremely well against an east wall, and seems with that amount of protection to be perfectly hardy. One plant I have in the open, four years old, has not yet been injured. The old canes that have fruited should be cut away on the principle of Raspberry culture. It grows fast, and is easily raised from seed. Another still finer species I have, *R. parvifolius*, is even still finer and bolder in fruit than *R. phoenicolasius*, but the plant is not so handsome, as the reddish glabrous hairs are wanting. The carpels are large, of ruby colour, and glistening like stained glass. This does extremely well in the open bed, and fruits freely. R. J. Lynch. [The plant is growing vigorously, and bearing fruit on the northern slope of the rockery at Messrs. Paul & Son's nursery at Broxbourne. Ed.]

Bees and Colour.—In last Saturday's *Gardeners' Chronicle* "J. F." says—"It is asserted by many that colour has no influence on bees—that, in fact, they are colour blind," while others assert differently, and that they have "no preference for flowers of any particular hue." The fact is they visit flowers to

obtain honey, and no doubt have, very sensibly, a preference for those that produce the most, quite regardless of colour. A fact not generally known, but proving the wonderful instinct of bees, is that they collect from one description of plant or tree only at a time. Thus, from Mignonette, Lavender, Thyme, Heath, or Lime tree. Some bees collect from one sort and some from another. They doubtless discern colour, as their sight is particularly sharp, but it is their exquisite sense of smell alone that serves them in collecting honey, as is proved by their never visiting unmeliferous flowers of any hue, and from their collecting it, as they do, in large quantity from two small glands near the foot-stalk on the underside of Laurel leaves in spring, when flowers are scarce. There is no fear that the food of bees will run short in country districts as a constant succession of flowers from early spring to late in autumn will always afford a good supply. Light hives are occasionally more frequently by late wintering, cold wet seasons, and bad management. *W. H. R.*

WINTER CABBAGE LETTUCE, BUTTERHEAD.

THIS new kind of Lettuce, large, light green, and compact, which during the two years it has been cultivated has proved to be perfectly constant and hardy, is the best sort of winter Lettuce, and which, according to the statement of the raiser, M. Paul Neidhardt, of Erfurt, excels all other winter kinds at present in the market, owing to its early ripening, long duration, firmness of head, large size, crispness of leaf, and delicacy of flavour. Even when exposed to continuous heat it forms compact and firm heads, which, when the plant is liberally manured, will attain the enormous weight of 1 lb. each. All parts exposed to the sun's rays are of a light green colour, whilst the interior leaves are of a golden yellow. This "Butterhead" cannot be strongly enough recommended to all such as delight in an early and delicately flavoured Lettuce. It produces very little seed.

Reports of Societies.

CRYSTAL PALACE: October 6-9.

THE customary exhibition of hardy fruits, vegetables, and Gourds, took place on the above dates, when a very fair collection of all kinds was brought together, but the absence of the Potato, which figured so impressingly at many previous shows at this season, considerably reduced the extent of the display. The unfavourable dryness of the season in the eastern and southern counties, from which the main quantity of fruits are supplied, appears to have told on the Pears, these fruits having a want of finish and size in several collections from localities whence in other years some of the finest specimens have been drawn. The first place for Apples and Pears fell to Kentish growers, the examples shown by Mr. Butler and Messrs. G. Bunyard & Co. having been rarely excelled.

COLLECTIONS OF APPLES (OPEN).

Messrs. G. Bunyard & Co., the Old Nurseries, Maidstone, took the 1st prize with 130 dishes, consisting of the leading kinds, of which we may mention, as being of exceptional merit, the following:—Melon, a delicious, melting, medium-sized dessert kind of a high order; the Queen, Alexandra, Warner's King, very large; Cox's Orange, of half a pound weight each; Lady Henniker, Golden Noble, the new kind—Sandringham, Beauty of Kent, Premier, of a bright crimson hue; very large Old Non-such and Claygate Pearmain; New or Winter Hawthornden, and King of the Pippins. The 2d prize fell to Mr. Watkins, Pomona farm, Willington, Hereford, for fruit generally of a large size and high colour, very fine being Cox's Pomona, Winter Hawthornden, Duchess of Oldenburg, Peasegood's Nonsuch, Calville Rouge, Gloria Mundi, and Emperor Alexander; 3d, Mr. C. J. Slater, Birchey Barton, Heavitree, Devon, in whose lot we noted the Cornish Gilliflower, Summer ditto, Cornish Aromatic, Court Pendu plat, Great Sultan, Gloria Mundi, and numerous sorts besides, which are but little known or grown out of the county; 4th, Mr. D. C. Powell, gr., Powderham Castle, Exeter, with a smaller collection than the others, but consisting of kinds well grown, and excellent.

The next competition (amateurs) as regards numbers was that for twenty-four dishes, in which Mr. Edwards, took to H. Higgins, Esq., Shinghill, Hereford, took the 1st prize, very good examples being found in White and Red Costard early kinds; Alexandra, Potts' Seedling, Peasegood's Nonsuch,

Alfreston, Worcester Pearmain, Wellington and Warner King, the whole collection being undoubtedly one of the finest as regards size of fruit, freedom from blemish, and colour. Mr. S. Ford, gr. to L. A. Wallace, Esq., Leonardlee, Horsham, was 2d, and having good examples of Emperor Alexander, Rambour France, Red Hawthornden, Golden Reinette, Peasegood's Nonsuch, and Red Devonshire, a fruit similar to Quarrenden in colour but not in form. Mr. Waterman, gr. to H. A. Brassy, Esq., Preston Hall, Aylesford, was 3d, with many fine fruits from cordons and standard trees, the specimens of Blenheim Pippin, Alexandra and Peasegood's Nonsuch being especially so.

Twelve dishes of Apples.—1st Mr. W. Jones, gr. to J. R. Brougham, Esq., Wallington Bridge, Carlsholm, whose specimens of King Pippins, Washington, Ribston, Dutch Codlin, Scarlet Nonpareil, Blenheim Pippin, and Wellington were very fine, 2d, Mr. W. Jacob, Pound Street, Petworth; 3d, Mr. C. J. Goldsmith, gr. Kelsey Manor, Beckenham. In this class six other collections were shown.

COLLECTIONS OF PEARS (OPEN).

Mr. J. Butler, gr. to A. J. Thomas, Esq., Orchard Lane, Sittingbourne, Kent, was 1st with 96 kinds, gathered mainly from bush and cordon trees. Some of the specimens were of great size, notably Pitmaston Duchess, of 20 oz. each; Doyenné Boussoch, Duchesse d'Angoulême, Williams' Bon Chrétien, Louise Bonne de Jersey, of beautiful tints; Doyenné du Comice, Conseiller de la Cour, as showing the effects of soil and climate. As all were from the open ground, this exhibit deservedly met with much notice. The next best collection was that from Messrs. T. Rivers & Son, Sawbridge, consisting of fruits from trees growing in many instances in pots, therefore affording excellent evidence of the adaptability of the Pear to this mode of growing fruits. Several of Mr. Rivers' seedlings figure in the collection, as yet without



FIG. 97.—WINTER CABBAGE LETTUCE, "BUTTERHEAD."

names, of whose quality we are yet unable to speak, but in size and appearance they are quite ornamental. Other known kinds of large size were Marie Louise d'Uccle, Beurré Diel, B. Rouge, Durondeau, Duchesse de Mouchy, Beurré Alexander Lucas, Rivers' seedling Bergamotte, Marie Benoist, and Pitmaston Duchess. Mr. Waterman took the 3d prize, with a collection consisting of many fine examples, but lost place by putting up several dishes of small specimens.

Messrs. G. Bunyard were 4th in this class, with seventy-one dishes of average merit.

Twelve dishes of Pears (amateurs).—Mr. S. Ford was 1st in this competition, the examples of King Edward, Beurré Bosc, Marie Louise d'Uccle, Vicar of Winkfield, Duchesse d'Angoulême, and Marie Louise being his best. 2d Mr. Waterman, whose fruits of Brockworth Park, Gansel's Bergamotte, Durondeau were exceedingly fine; 3d Mr. W. Neighbour, gr. to G. Wythes, Esq., Bickley—nice specimens, clear in the rind and of fair size.

COLLECTIONS OF VEGETABLES (OPEN).

With vegetables generally no fault could be found unless we take exception to the enormous size of the Cichoriaceae, and the length of the Parsnip tails; Mushrooms were poor, but then few gardeners have places in which to grow these esculents cool enough at this season to suit their needs. We think exhibitors should endeavour to show more varieties of such Peas as are found to succeed well late in the season, for Peas were notable for their infrequent appearance in the collections, and as there is no rule to exclude more than one kind it would be an advantage to the craft to see more varieties on the show.

Mr. Waterman was placed deservedly 1st with the extraordinary number of ninety-one sorts and varieties. Beans, both Runner and French, Celery, Carrots, Potatoes, Savoy, Brussels Sprouts, Cauliflowers, were fine and large; we also remarked four kinds of Tomatoes, four of Potatoes, four of Onions, and the

same number of Capsicums. Herbs, Spinach, saladings, were all abundant and good. Mr. Wythes, gr., Bickley Park, Chislehurst, was 2d, with an almost as good a collection, the Cauliflowers, Leeks, Cabbages, Potatoes, Onions, and Maize being everything that could be desired. 3d, Mr. W. Mott, "George and Dragon" Hotel, Ighite, Kent—the Tomatoes, Brussels Sprouts, Cauliflowers, Globe Artichokes, and Beet-roots being especially fine.

Twelve dishes of vegetables (amateurs).—Mr. Waite, gr. to Colonel Talbot, Glenhurst, Essex, was the winner of the 1st prize in this class, the items shown being good, as we always remark as coming from Glenhurst. They consisted of the following:—Celery: Major Clarke's; Leek: Sutton's Prize, large and thick; Beans: Carter's Champion Runner; Carrots: Sutton's New Intermediate; Potatoes: Snowdrop; Tomatoes: Sutton's Perfection; Cauliflower: Veitch's Autumn Giant; Beet: Fragnall's, than which there is none better; Onion: Anglo-Spanish, a strain of white Spanish, but larger than the type. The rest was made up of a few smaller things. Mr. J. Neighbour took the 2d prize; 3d, Mr. Waterman.

Six dishes of vegetables (cottagers).—Mr. W. Thayne, New Town, Crawley, took the 1st prize; Mr. E. Hall, 71, Great Queen Street, Dartford, 2d; and Mr. Beckett, Tyler's Green, Amersham, the 3d. There were three other competitors.

The heaviest Gourd was shown by Mr. J. Radbourne, gr. to Baroness Heaton, Coombe House, Croydon, and weighed 139 lb.; the 2d best by Mr. G. Sheppard, Fulbrough, Sussex, with Daniel's Yellow Mammoth, weighing 119 lb.; 3d, Mr. W. D. Cochrane, Fortune Green, Hampstead, with one of 101 lb.

Mr. Dance, gr. to Colonel Lowe, Gosfield Hall, Essex, took the 1st prize for a nice collection of ornamental Gourds; and Mr. Osman of the South Metropolitan District Schools, Sutton, the 2d prize, for a most equally interesting exhibit.

MISCELLANEOUS.

Messrs. J. Veitch & Sons, Chelsea, showed a collection of fine Pears, numbering sixty dishes, and a large collection of culinary and dessert Apples, mostly the production of their fruit nursery at Fulham. The best and better known varieties were those shown, and although excelled by some others from more favoured localities, the size of many was not exceeded by any.

Messrs. T. River & Son, showed seedling Plums, viz., Autumn Compote, a red variety like Victoria, but rather smaller; D'Automne de Schamall, a large red Plum, 2 inches in long diameter; Monarch, a blue coloured variety, as large as Kirke's; and Grand Duke d'Automne, an oval blue Plum; all are of good cropping qualities.

Messrs. W. Paul & Son, Waltham Cross, showed a good collection of fruit, consisting of ninety kinds of Apples, and forty of Pears.

Messrs. G. and J. Lane, Cockmanning Nursery, St. Mary's Cray, exhibited too kinds of Apples, the specimens being generally of medium size, and colouring high. A few fruits of seedling Apples were shown by various persons, but there was nothing which calls for special notice.

A fine dish of Late American Peaches, either Salway or Sea Eagle, was shown by Mr. E. Gilman, gr., Ingestre Hall, Stafford; and splendid Pitmaston Duchess Pears came from Mr. J. Burdett, gr. to Mrs. L. Raynor, St. Ives Place, Maidenhead.

Mr. J. Butler of Sittingbourne had dishes of Williams' Bon Chrétien, Louise Bonne de Jersey, Doyenné Boussoch, fine of colour and size.

Messrs. Laing & Co., Forest Hill, showed Tomato Pedigree, a large variety without ribs.

Dahlia's of various classes were shown by Messrs. Cheal & Sons, Crawley. Mr. C. Turner of Slough, whose eighty-four blooms of show and fancy kinds were of great merit; and this year's flowering seedlings of tuberosus Begonia were exhibited by Messrs. Laing & Co.

LUTON FRUIT, VEGETABLE AND ROOT SHOW : Sept. 29.

ONE of the most commendable little shows of fruit, vegetables, and agricultural roots we have seen for a long time was held on the above date at Luton, in the Waller Street Plait Hall, as the result of the labours of an active working committee which was called together some six weeks ago, Mr. J. Cadger officiating as secretary.

This was the first show of the kind at Luton, and although the number of entries was not extensive, the quality of the exhibits was such as to give the committee every encouragement.

Amongst the most successful exhibitors of vegetables in the open division was Mr. H. L. Sell, of Luton; the collection which carried off premier honours was a splendid show and admirably staged—Mr. J. Cadger (the secretary of the show) winning 2d prize, the most notable features in the collection being some capital

dishes of Yorkshire Hero and International Potatoes, with some good Tomatoes of Carter's selection.

Mr. John Wood, nurseryman, of Luton, took an extra 2d in this class, a prominent exhibit being a fine Gourd of 60 lb. weight, also a twin Pumpkin.

A dish of new fruit, the American Parsley-leaf Blackberry, attracted a good deal of attention.

Madame de Falbe (gr. Mr. Baillie), The Hoo, Luton, was awarded an extra 1st for an excellent collection of vegetables.

The same exhibitor also staged, not for competition, a magnificent collection of fruit, comprising many of the best varieties of Peaches, Apples, Plums, Figs, and Grapes, but the collection lacked the interest it deserved, as the exhibits were not named.

The exhibit of fruit by Messrs. Lane & Son, of Berkhamstead, was most extensive and valuable, and in every way worthy of those famous fruit growers. It comprised six varieties of Grapes, more than fifty varieties of Apples, forty-five varieties of Plums, and half-a-dozen kinds of nuts and Filberts.

APPLES.

The Apples comprised among others, examples of the following:—The Schoolmaster, Worcester Pearmain, Lady Hunsley, Lane's Prince Albert. For specimens of the other varieties we may select the Cat-head, Golden Noble, Keswick Codlin, and Ribston Pippin.

From the list of dessert kinds may be mentioned—Ecklinville Pippin, King of Pippins, Scarlet Nonpareil, Devonshire Quarrenden, Dumelow's Seedling, and Pitmasdon Nonpareil.

Kitchen Apples were numerous represented.

PLUMS.

These were excellent, examples of the following being noticed:—Belle de Louvain, Magnum Bonum White, Cox's Emperor, Sandall's Belle Septembre, Golden Esperen, Grand Duke, Early Transparent Gage, Archduke, Jefferson, Diamond, Bond's Seedling, Cox's Golden Drop, Sutton's Prince Englebert, Reine Claude de Bay.

A capital basket of Fairleigh Prolific, or Chester Damsion, of great merit, was exhibited.

GRAPES.

Splendid bunches, consisting of Muscat Hamburgh, Muscat of Alexandria, Alicante, Golden Queen, and Gros Colmar, the latter with large round berries of enormous size.

In the open classes for four bunches of Grapes, J. Blondell Maple, Esq. (gr. Mr. T. Nutting), Childwickbury, St. Albans, secured premier honours for two bunches of Black Hamburgh, and two bunches of Muscat of Alexandria.

PEACHES.

two dishes (distinct), of each.—1st prize went to the Hon. F. Lyon (gr. Mr. T. Hogg), The Hyde, Luton; 2d, Mrs. Drake Garrard (gr. Mr. G. Tilbury), Lamer Park, Wheatthamstead.

MELONS.

any variety.—1st, Hon. F. Lyon; 2d, Mr. G. Worsley.

FARM PRODUCE

formed an interesting feature of the show, and was very well represented.

The attendance was not as numerous as the committee could have wished, or as the exhibition merited.

SCOTTISH HORTICULTURAL ASSOCIATION.

The monthly meeting of this Association was held this week at 5, St. Andrew Square, Edinburgh, Mr. Alexander Milne, President, in the chair. There was a good attendance of members.

Mr. James Cole, Craigleith Quarries, Edinburgh, read a paper on "The Cultivation of Orchids." He alluded to, in the first place, to the increasing popularity in which the growing of Orchidaceous plants was held, owing chiefly to the greater information which had recently been propagated on their culture. He divided Orchids into two classes, the terrestrial and the epiphytal—the first growing directly on the earth, and the second growing on trees and rocks, from which, however, they received little or no nourishment, on which account they were often called air plants. The latter, he said, were by far the most numerous and the most interesting. Mr. Cole then proceeded to describe their cultivation. The paper was of a very practical character, and gave minute details as to the treatment and growth of these plants.

Mr. Charles Taylor, Royal Botanic Garden, Edinburgh, next read a paper on "The Propagation of Plants." He pointed out that the first thing necessary for carrying out this work were suitable houses, pits, and frames, because without these, no matter

what the skill of the operator, his labour would be at a discount. The whole system of successful propagation, he said, might be described thus—to produce circumstances and surroundings that would prevent undue evaporation, at the same time maintain circulation and plant growth, until such time as roots could be formed in the cutting, and a union between stock and scion. Interesting discussions followed both the papers, and a vote of thanks was given to each of the authors.

The exhibits on the table included Orchid blooms, sent in by Mr. Alexander Grant, St. Leonard's Hill, Dunfermline; a collection of Cactus Dahlias, and twenty-eight varieties of Carnations, by Archibald Thomson, Beech Hill Gardens, Haddington; three new summer-flowering Chrysanthemums and a new white tuberous-rooted Begonia, named Miss Nisbet Hamilton, by Messrs. Thomas Methven & Sons, Edinburgh; cut flowers of Mme. Desgrange and blooms of the new golden variety in remarkably fine condition, by Wm. Rushton, Clewwood, Corstorphine, for which a Cultural Certificate was awarded; hardy flowers by Mr. Morris, Hay Lodge, Trinity; blooms of early-flowering Chrysanthemums, by Mr. McMillan, Edgehill, Dean; and a collection of Apples from maiden trees, an American variety named Washington being very fine, by Mr. John Downie, nurseryman, Beech Hill, Corstorphine. *Scottish News.*

CRYPTOGAMIC SOCIETY OF SCOTLAND: CONFERENCE IN ABERDEEN.

THE Cryptogamic Society of Scotland opened its twelfth annual conference in Aberdeen on Wednesday, September 29, and which was continued until Friday, the 1st inst. It was proposed to hold a show of cryptogamic plants during the meeting of the Society, but the autumn has proved so unfavourable that plants are in bad condition, and the idea was therefore abandoned. The formation of this Society was first resolved upon at a meeting of botanists held in Aberdeen on September 18, 1874, and a committee of organisation was then appointed, which gave in its report at a meeting held in Perth in April, 1875, at which the Society was formally constituted. The list of members embraces some of the most eminent names in the scientific world at home and abroad, many of whom were present. On Wednesday forenoon the members of the Society visited Monymusk, with the object of searching for specimens of cryptogamic plants, but owing to the disagreeable nature of the weather the excursion was not very successful.

In the evening council and business meetings were held in Marischal College, and afterwards a public meeting was held, at which Professor J. W. H. Trail, M.D., F.L.S. (of Aberdeen University), the President for the year, occupied the chair, and delivered his annual address, the subject of which was "The Uses and Practical Application of Cryptogamic Plants." On the motion of Rev. John Stevenson, Glasgow, a vote of thanks was accorded Professor Trail for his address.

Mr. A. Stephen Wilson, Aberdeen, then read a paper on "The Reproduction of Smut." The paper, which was written for the most part from practical observation, was highly interesting. Mr. Wilson contended that the parasite was introduced into the plant along with the food of the embryo through the cotyledon. A short discussion followed the reading of the paper, in the course of which Mr. Flouwright, King's Lynn, complimented Mr. Wilson on the individuality with which he had infused his paper; and on the motion of Dr. Calder, Greenock, a vote of thanks was passed to Mr. Wilson.

The President then read a paper written by Mrs. Farquharson, of Houghton, on several varieties of British Ferns, after which he gave the substance of two papers which he would have read had time permitted. They related to the additions to the lists of Scottish leaf fungi. The conference then adjourned.

The members of the Society left the Joint Station, Aberdeen, on Thursday, by the 10.10 A.M. train, for Drum. The woods in the vicinity of Park and Drum were visited, and a number of interesting specimens of fungi (including those that cause disease in Larch trees and a few edible varieties) were obtained. Although the day was spent very pleasantly, the excursion was not, on the whole, very productive, owing to the fine dry weather which has prevailed there for some time. The members returned to the city in the evening, when they sat down to an excellent dinner in the Douglas Hotel, under the presidency of Professor Trail.

On the last day of the conference, Friday, the 1st inst., the members visited Kincassie grounds, where a most enjoyable day was spent, and much valuable information obtained. A meeting in Marischal College in the evening terminated one of the most successful conferences yet held under the auspices of the Society. *W. K.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON.
FOR THE WEEK ENDING WEDNESDAY, OCTOBER 6, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.										HYGROMETRICAL DEVIATIONS FROM CLAPHAM'S TABLES 5th EDITION.	WIND.	RAINFALL.
	Mean Reading in 5° Fahr.	Departure from 50° Fahr. in 18 years.	Highest.	Lowest.	Range.	Mean for Day.	Days of Mean from Average of 50° Fahr.	90° Fahr.	Degrees of Föhn.	Degrees of Sat. at 100.	Average Direction.	Average Force.			
Sept. 30	29.82	+0.11	63.0	56.0	7.0	59.2	+4.0	53.9	83	S.W.	0.00				
Oct. 1	29.45	-0.25	75.5	50.5	25.0	63.0	+8.1	53.3	72	S.W.	0.00				
2	29.76	+0.07	65.0	47.0	18.0	55.2	+1.0	46.1	72	S.W.	0.00				
3	29.84	+0.15	60.0	44.0	16.0	55.5	+1.6	53.1	89	S.S.W.	0.00				
4	29.78	+0.00	75.0	53.5	21.5	64.0	+10.5	59.4	85	E.	0.00				
5	29.69	-0.07	75.0	54.1	20.9	65.0	+10.4	59.4	87	E.	0.00				
6	29.60	-0.03	63.5	54.5	8.7	57.0	+5.3	53.9	87	S.W.	0.23				
Mean	29.71	+0.01	69.5	51.4	18.1	59.7	+5.9	54.2	83	S.W. E.	0.23				

Sept. 30.—Dull and cloudy in morning, fine and bright afternoon.

Oct. 1.—Fine and warm day throughout.

" 2.—Fine day, sky nearly cloudless.

" 3.—Fine and bright day throughout, fine night.

" 4.—Fine day, and unusually warm day; fine night.

" 5.—Fine day; the temperature very high for October.

" 6.—Rain in the morning, great darkness at 9 A.M.; fine and bright afternoon.

LONDON: Atmospheric Pressure.—During the week ending October 2nd, the reading of the barometer at the level of the sea increased from 30.10 inches at the beginning of the week, to 30.11 inches by the afternoon of the 26th September, decreased to 29.89 inches by 5 P.M. on the 27th, increased to 30.19 inches by 9 A.M. on the 28th, decreased to 29.50 inches by the afternoon of October 1, and was 29.90 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.98 inches, being the same as last week, and 0.08 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 75° on the 1st; the highest on the 26th was 61°.5. The mean of the seven high day temperatures was 66°.

The lowest temperature in the week was 47° on October 2d; the lowest on the 30th, was 50°. The mean of the seven low night temperatures was 50°.4.

The greatest range of temperature in one day was 25° on the 1st of October; the smallest was 7° on the 30th of September. The mean of the seven daily ranges was 15°.6.

The mean daily temperatures were, 54°.4 on the 26th, 55°.5 on the 27th, 55° on the 28th, 60°.9 on the 29th, 59°.2 on the 30th, 62°.5 on Oct. 1st, and 55°.2 on the 2d. These were all above their averages, with the exception of the 26th, which was 0°.3 below, by 0°.9, 0°.5, 0°.5, 4°.9, 8°.1, and 1° respectively.

The mean temperature of the week was 57°.5, being 4°.1 higher than last week, and 3°.1 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 122° on the 1st. The mean of the seven high readings was 99°.

Rain.—Rain fell on two days to the amount of 0°.38-inch.

ENGLAND: Temperature.—During the week ending October 2nd, the highest temperatures were 79° at Cambridge, 75°.5 at Blackheath, and 70° at Nottingham, Sheffield and Leeds; the highest at Sunderland was 64°, at Plymouth 65°, and at Liverpool and Newcastle 66°. The general mean was 68°.1.

The lowest temperatures were at Wolverhampton 39°.9, at Cambridge 41°.5, and at Truro 42°; the lowest at Brighton was 50°, at Plymouth 49°, and at Leeds and Preston 48°. The general mean was 46°.2.

The greatest ranges were at Cambridge 37°.5, at Blackheath 28°.5, and at Wolverhampton 27°.7;

the least ranges were at Plymouth 16°, at Brighton 18°, and at Liverpool 18°.2. The general mean was 21°.9.

The mean of the seven high day temperatures was highest at Cambridge 68°.5, at Blackheath 66°, and at Truro 65°.7; and lowest at Sunderland 60°.4, at Preston 60°.9, and at Wolverhampton 61°.3. The general mean was 63°.2.

The mean of the seven low night temperatures was highest at Brighton, 53°.7, at Plymouth, 52°.5, and at Bristol, 52°.3; and was lowest at Wolverhampton, 47°.3, at Cambridge, 48°.3, and at Newcastle, 48°.8. The general mean was 50°.7.

The mean daily range was greatest at Cambridge, 20°.3, at Blackheath, 15°.6, and at Truro and Sheffield, 14°.8; and was least at Preston, 9°.9, at Brighton, 9°.6, and at Plymouth, 9°.9. The general mean was 12°.5.

The mean temperature was highest at Blackheath, 57°.5, at Brighton, 57°.4, and at Bristol and Cambridge, 57°.3; and was lowest at Wolverhampton, 53°.2, at Sunderland, 53°.8, and at Newcastle, 54°.5. The general mean was 56°.8.

Rain.—The largest falls were 2.62 inch at Preston, 1.67 inch at Plymouth, and 1.45 inch at Newcastle; the smallest falls were 0.14 inch at Cambridge, 0.31 inch at Brighton, and 0.38 inch at Blackheath and Hull. The general mean fall was 1.07 inch.

SCOTLAND: Temperature.—During the week ending October 2d, the highest temperature was 68°.7 at Edinburgh; the highest at Dundee was 62°.5. The general mean was 66°.

The lowest temperature in the week was 44°.8 at Aberdeen; the lowest at Leith was 47°.1. The general mean was 45°.7.

The mean temperature was highest at Leith 55°.5; and lowest at Greenock 53°.3. The general mean was 54°.2.

Rain.—The largest fall was 3.70 inches at Greenock, the smallest fall was 0.59 inch at Aberdeen. The general mean fall was 1.69 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

"He that questioneth much shall learn much."—BACON.

FUCHIA AT BALLME HOUSE.—Would "Geo. P." be so kind as to forward me cuttings of the Fuchsia at Ballme House, Isle of Man? I wish to obtain all the hardy forms, and I shall be happy to give cuttings or plants in exchange. Mr. Hensley says that *F. coccinea*, (magnifica?) which this purports to be, is not hardy. *R. J. Lynch*, Botanic Garden, Cambridge.

HERBACEOUS BORDER.—I am anxious to plant a border with herbaceous plants; it is 4 feet wide, and about 35 yards long, and runs parallel to, but at a little distance from, a tennis-ground; on the other side it has a walk. I should like the plants not to be too tall, and to look gay from May till October. I should be very much obliged for any suggestions. *Ainsfield*.

Answers to Correspondents.

CHRYSANTHEMUMS: W. L. We cannot give you any information about cement, or any other means that would enable a dishonest exhibitor to deceive the judges.

EUCHARIAS BULBS DISEASED: D. O. Yes, the bulbs are affected with the mite.

FUNGUS ON CORK: R. R. W., Liphook. The white fungus growth on the cork is merely a mycelium. It has every appearance of belonging to the dry-rot fungus, *Merulius lacrymans*. A paper on dry-rot will shortly be published in the *Gardener's Chronicle*. *W. G. S.*

HYACINTH GLASS: Pope & Son. The device in wire to support the flower-stem is neat, strong, and effective—much more so than some we have seen.

INSECTS: E. W. C. The specimens sent are doubtless those of the Lime-tree mite (*Tetranychus ulmarum*). For methods of destroying them we extract the following from *Manual of Injurious Insects, and Methods of Prevention*, by Miss E. A. Ormerod:—"The eggs may be found attached to the webs (which cover the branches and trunks of the trees attacked), and it has been found that brushing the tree-stems hard and thoroughly, so as to remove the webs is serviceable, and would be still more so if soft-soap were brushed in at the same time. With regard to the masses that congregate together at the base of the tree, by banking round at a few feet distance, and a few inches high, and filling the space enclosed with mud made as thin as possible, would show what chemicals might be mixed with the mud to poison as well as drown the pest. A liberal mixture of fish-oil and soft-soap, so as to completely plaster round the foot of the tree, and stick all wandering mites fast that touched it, could not fail to

do good. Excepting by such continuous and thorough drenchings as it is scarcely possible to apply to large trees, it is most difficult to do anything for the infested leaves. It is considered that the attacks of this insect follow heat and drought."

LESPEDEZA STRIATA: Thos. C. H. Messrs. Hurst & Son, 152, Houndsditch, London, E.

MACADAMISING TENNIS COURT: Want. State more fully what you want to do.

MEALY-BUG IN A VINERY: Constant Reader. By thorough cleansing the walks and woodwork with a strong solution of paraffin, soda, and hot water, and the Vines by a weaker one, in the winter months, the pest can be got rid of in a season or two. The soil should be shovelled out entirely to the depth of 4 inches, if possible, and be replaced with new, and all necessary pointing of and repairs to the brickwork, and painting of the woodwork, should be seen to during the winter. A few insects may escape this thorough cleaning, but by keeping a look-out for them during the spring and summer, with a repetition of the operations of washing the walls, woodwork, &c., and the Vines with diluted paraffin the succeeding winter, the bug can be exterminated.

NAMES OF FRUITS: D.E. 1. Williams' Bon Chrétien; 2. Hessel; 3. Williams' Bon Chrétien—*Georg's Channing*; 2. Warner's King; 4. Evagil; 6. Scarlet Nonpareil; 7. Old Nonpareil; 10. Adams' Pearmain; 11. Claglate Pearmain; 12. Brabant Bellefleur; 13. Peasgood's Nonsuch.

NAMES OF PLANTS: J. M. Cratageus Crus-galli, var. linearis; C. Dimmick & Sons. Dientora eximia.—J. Smith, Dulwich. Helianthus multiflorus—J. R. P. & Sons. Chrysanthemum maximum, long leaves; C. lacustris, short leaves—D. D., Leyton. Erythrina Humel, from Natal, not India.—J. Tickell. Ammochoris falcata.—T. K. I. 1. Polygonum cuspidatum; 2. Abelia rupestris; 7. Aster Amellus; 9. Aster novae anglie; 12. Cassinia fulvida.—*Carnation. Plants.* 1. Acacia, no flowers; 2. Cassia, no flowers; 3. Casuarina suberosa; 4. Leycesteria formosa; 5. Spiraea hypericifolia, var. 7. no flowers; 6. Potentilla fruticosa.—*Southampton.* A. Rhus glabra var. laciniata; B. K. cretaria paniculata; C. Thalictrum, specimen insufficient.—*W. D.* We are quite unable to name your plant without flowers—it is perhaps an *Origanium*.—*T. L.* Pennisetum villosum.—*L. F. B.* Quercus cerris.—*A. C.* A variety of *Lilia elegans* Turcomi.—*C. M. O.* Hypericum balearicum of *Bot. Mag.*—A. B. 1. Woodwardia radicans; 2. Davallia, perhaps *repens*; 3. Leycesteria formosa; 4. Calliopsis macrantha; 5. Arbutus Unedo. The Vine leaves look as if they had been burnt. They are very weak and poor, as if the cultivation had been in fault.—A. H. B. *Pyrus pinastifida*.—*H. T.* *Sloagh*. *Coprinus comatus*, said to be good eating; it often appears on old stumps, but speedily softens and becomes black.

PAMPAS PARS: H. The best method is to cut the stems before the flowers are fully expanded—indeed, before they have fully escaped from the sheath—and dry them in an airy place. Then cut open the sheath, and dry the flowers before a brisk fire.

PAMPHLETS ON "INSECTS INJURIOUS TO FRUIT ROSES, AND THE INSECTS INJURIOUS TO GARDENS AND FARM CROPS." *Gardener's Record.* See ANSWERS to Correspondents in our issue for October 2.

POPULAR BOOK ON ALGERIAN PLANTS: F. L. S. Munby's *Catalogue of Algerian Plants* is the only one we know. We do not know of any popular book on the subject.

RATING AND FIXTURES: J. H. We cannot comply with your wish that we should quote fully from the reports of cases which have appeared in our pages; but refer you to *Gardener's Chronicle*, vol. xxi., p. 698; xxiv., pp. 155, 185, 498, 720, 758, and 816; *Pearl's case*, xx., p. 45.

SADDLE-BOILERS AND HOT-WATER PIPES: Messrs. S. & Sons. Fawkes on *Horticultural Buildings* is the best work on the subject (Swan Sonnenschein, Le Bas & Lowrey, Paternoster Square).

VANDA SANDERIANA: T. D. Very fine large blooms.

WARDIAN CASE: A. Colmiston. You should certainly keep the case quite closed.

* * All communications intended for publication should be addressed to the "Editor." Such communications should be written on one side only of the paper and sent as early as possible in the week. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

INTELLIGENT READERS, DO PLEASE NOTE.—*Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and NOT to the Editor.*

CATALOGUES RECEIVED.

JOSEPH BRECK & SONS, 51, 52, 53, North Market Street, Boston, Massachusetts, U.S.A.—Holland Bulbs.

E. P. DIXON, Hull—Roses, Fruit, and other Trees, &c. **ANDRÉ LEROY, Angers (Maine-et-Loire), France**—Tree List.

WM. PAUL & SON, Waltham Cross, Herts—Roses. **MESSRS. F. & A. DICKSON & SONS, Upton Nurseries, Chester**—Roses & Catalogues.

COMMUNICATIONS RECEIVED.—H. V.—W. H. R.—E. W.—G. H.—W. D.—I. W.—A. O.—W. R. B.—F. W.—J. R. J.—C. M. O.—G. D.—R. D.—J. J. W.—P. R., Erfurt.—X.—D. & Co.—H. M. W.—V., Milan.—G. P.

Markets.

COVENT GARDEN, October 7.

[THE SUBJOINED reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding, the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. E.D.]

The rush of soft fruit being over, our market is now settling down to a quiet state. Good samples of Pears in demand. Prices generally lower. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.
Apples, ½-sieve	.. 1 6-3 6		Peaches, per dozen	.. 3 0-8 0
Figs, per dozen	.. 0 9-1 0		Pears, per dozen	.. 2 0-1 6
Grapes, per lb.	.. 0 6-2 0		Pine-apples, Eng., lb.	2 6-3 0
Kent Cobs, 100 lb.	.. 50 0 55 0		— St. Michael, each	2 6-8 0
Lemons, per case	.. 18 0-36 0		Plums, ½-sieve	.. 0 9-2 0
Melons, each	.. 1 0-2 0			

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.		s. d. s. d.	
Artichokes, per doz.	4 0-0	Mint, green, bunch	0 4-0
Asparagus, each	0 3-0	Mushrooms, dozen	1 6-2 6
Beans, Kidney, lb.	0 4-0	Mustard and Cress, doz.	4 0-0
Beet, red, per dozen	1 0-0	Onions, per bushel	4 0-0
Broad Beans, doz.	6 0-0	Peas, dozen bunch	0 10-0
Carrots, per bunch	0 6-0	Potatoes, per cwt.	4 0-5 0
Califlowers, per doz.	3 0-0	Radishes, per cwt	4 0-5 0
Celery, per bundle	1 6-0 0	Shallots, per pound	0 3-0
Cucumbers, each	0 6-0 1 0	Spinach, per bushel	5 0-0
Endive, per dozen	1 2-0 0	Spinach, per bushel	0 3-0
Herbs, per bunch	0 4-0	Tomatoes, per lb.	0 9-0
Lettuce, per bunch	0 3-0	Turnips, bunch	0 4-0
Lettuce, per dozen	1 0-6	Veget. Mar., each	0 3-0

POTATOS:—Kent Regents, 60s. to 80s.; Schoolmasters, 70s.; Beauty of Hebron, 80s. to 90s.; per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Aralia Sieboldi, per dozen ..	6 0-10	Evergreens, in var., per dozen ..	6 0-24 0
Asters, per dozen ..	3 0-6	Ficus elastica each. . .	1 6-7 0
Begonias, per dozen 6 0-12	0	Ferns, in var., dozen 4 0-18	0
Bouvardias, doz. 12 0-8		Foliage Plants, various, each ..	2 0-10 0
Chrysanth., per doz. 4 12-0		Geraniums, per doz. 0 12-0	
Cinerarias, per doz. 4 12-0		Lilies, in var., doz. 12 0-30 0	
Dracena terminalis, per dozen ..	30 0-6 0	Marguerite Daisy, per dozen ..	0 6-12 0
—viridis, per doz. 12 0-24 0		Mignonette, per doz. 4 0-6 0	
Erica gracilis, doz. 12 0-18 0		Myrtles, per dozen ..	0 12-0 0
—hymalaya, doz. 18 0-24 0		Palm var., each 2 6-2 0	
—regina-rand, doz. 8 12-0		Pelargoniums, scarlet, per doz. 3 0-6 0	
Euonymus, in var., per dozen ..	6 0-8 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s.		s. d. s.	
Arum Lilies, 12 blms.	4 0-6	Lilium longiflorum,	12 blooms ..	4 0-6
Asters, 12 bunch ..	2 6-4	Marguerites, per bunch ..	3 0-6	
Bouvardias, per bunch ..	0 6-0	Camellias, 12 blooms	3 0-6	
Chrysanth., 12 blms.	1 0-3	Mignonne, 12 bun.	1 0-3	
Cinerarias, 12 blms.	1 0-3	Peonies, per dozen ..	0 9-0	
—12 bunches ..	4 0-8	Roses, Teas., per doz.	0 10-0	
Dahlias, 12 bunches	3 0-6	—scarlet, 12 trusses	3 0-6	
Daisies, common 12 ..	0 6-0	—white, 12 trusses	2 0-4	
—double, 12 ..	2 0-4	Roses, Teas., per doz.	0 10-0	
Erica gracilis, doz.	12 0-8	—red, per dozen ..	0 10-0	
—hymalaya, doz.	18 0-2	—outdoor, 12 bun.	2 0-0	
Euonymus, in var., per dozen ..	6 0-8	Stephanotis, per 12 ..	0 10-0	
Eucharis, per dozen	4 0-6	—sprays ..	3 0-5	
Forget-me-Not, or Cosmos, 12 bun.	2 0-4	Sweet Peas, 12 bun.	1 6-3	
Gardenias, 12 blooms	2 0-4	—white, 12 bun.	1 6-3	
Gladioli, 12 sprays ..	1 0-2	Tuberose, 12 blms.	4 0-0	
Heliotropes, 12 spr.	0 6-0	Violets, 12 bunches ..	0 9-0	
Jasmine, white, bun.	0 6-0			
Lagerbergia, 12 bl.	1 0-2			
—white, 12 blooms	2 0-3			

SEEDS.

LONDON: Oct. 6.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report to-day's market thinly attended, and little business doing. Samples of new English Clover seed are now showing, but no transactions are yet reported; prices generally promise to be very moderate. Unprecedentedly low rates continue to rule for winter Teas: supplies are abundant. There is no change to be noted in Hemp and Canary seed. Rape seed is remarkably cheap. Feeding Linseed is steady. Blue Peas and Haricot Beans, owing to the mild weather now prevailing, are easier.

POTATOS.

BOROUGH AND SPITALFIELDS: Oct. 5.—Supplies were large and consist principally of inferior qualities, for which the demand was limited, and business very dull. Best samples, which were not plentiful, sold with less difficulty, and were supported in value. Quotations:—Kent Regents, 50s. to 60s.; Essex, 50s. to 60s.; Early Rose, 60s. to 70s.; Magnum Bonum, 50s. to 60s.; Beauty of Hebron, 60s. to 65s. per ton.

COLUMBIA (East London): Oct. 6.—Quotations:—York and Lincolnshire, 50s. to 60s.; Regents, 55s. to 65s.; Kent and Surrey Regents, 55s. to 65s.; and Cambridgeshire Regents, 50s. to 60s. per ton.

STRATFORD: Oct. 6.—Quotations:—Magnum, dark lands, 40s. to 50s.; light soil, 50s. to 65s.; and Regents, 60s. to 70s. per ton.

Imports.—The imports into London last week consisted of 270 sacks from Stettin, 6 bags from Rotterdam and 34 bags from Boulogne.

A. B. C. BULB GUIDE.

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CANTERBURY BELLS, superb strain	1 0	5 6
CYCLAMEN PERSICUM ALBUM, pure white, fine young plants	4 6	30 0
CYCLAMEN PERSICUM, mixed	4 0	25 0
BROMPTON STOCK, giant scarlet double	1 0	5 6
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" Daniels' choicest red	1 6	10 6
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PANSY, Emperor William, deep ultramarine blue, very fine	1 0	7 6
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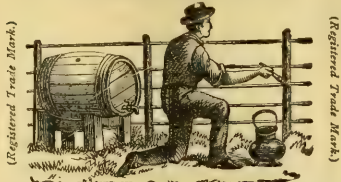
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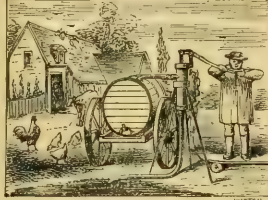
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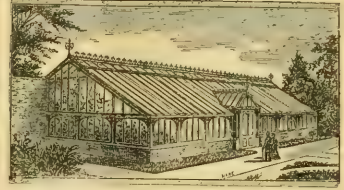
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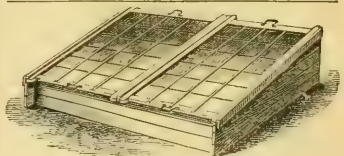
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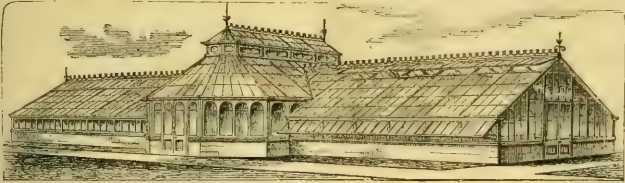
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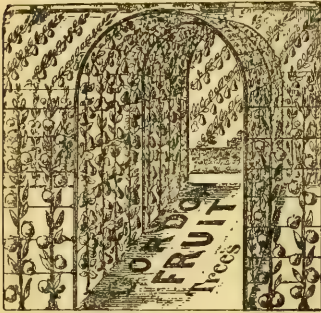
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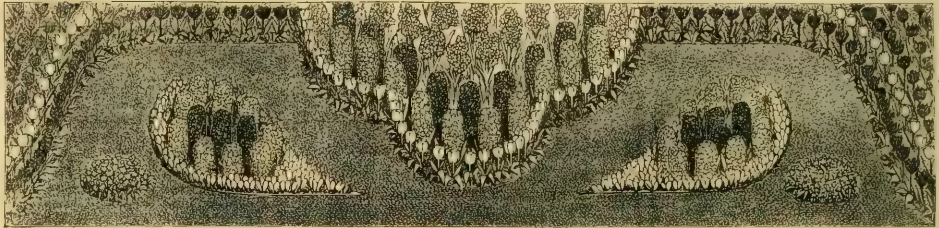
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AUCUBA JAPONICA, 2½ to 4 feet.
BAMBUS METSUKENSIS, fine clump, 5, 8 feet high, transplanted spring, 1886, hundreds.
Box, Green and Variegated, 3, 4, 5, 6 to 7 feet, thousands.
HOLLIES, Common Green, 3, 4, 5 up to 10 feet.

ALCATRAXENSIS, 3, 4, 5 up to 10 feet.
" HODGINS',
" LAURIPOLIA, 3, 4, 5 up to 10 feet.
" MYRTICOLA,
" SCOTICA,
" Yellow-berried and other sorts.
" Variegated, of sorts, 3, 4, 5 up to 10 feet.
" Golden Crown, 3, 4, 5 to 10 feet, hundreds of beautiful specimens.
" Silver Queen, 4 to 10 feet, sole dried specimens.
" Weeping, 10 to 15 feet, straight stems, with heads of ten to fifteen years' growth.
" Weep ng, New Golden, a large quantity of beautiful plants.

The following trees have stout, straight stems, fine heads, and splendid roots, and have all been transplanted within two years:—
ACACIA BRASSIOLANA, 6 to 10 feet.
SEMPERPERFLORENS, 12 to 14 feet.
ACER DASYCARPUM, 12 to 16 feet.
" WIERHACHTIANA, 10 to 12 feet.
NEGUNDO VARIEGATA, Standards, 8 to 10 feet.
LEOPOLDII, 12 to 14 feet.
REITENBACHII, 12 to 14 feet.
SCHWEDLERII, 12 to 16 feet.
WORLEVII, Standards, 12 to 14 feet.
ASH, Mountain, 10 to 14 feet.
BEECH, Common, 10 to 12 feet.

Purple, Pyramids and Standards, 9 to 16 feet.
BIRCH, Purple, 14 to 15 feet.
Silver, 12 to 14 feet.
CHESTNUT, Hors., 14 to 16 feet.
" Double White, 10 to 12 feet.
" Spanish, 12 to 16 feet.
ELM, English, 10 to 12 feet.
Guernsey, 12 feet.

LIMES, 10 to 16 feet.
" EUCHLORA or DASY-TILA, 10 feet.
Silver-leaved, 10 to 14 feet.
LIQUIDAMBAR, 10 to 12 feet.
MAPLE, Norway, 14 to 16 feet.
OAK, English, 10 to 12 feet.
" Scots-American, 10 to 14 feet.

PLANES, English-grass, 12 to 16 feet.
POPLAR HOLLEANA, 10 to 12 feet.
" HOLLEANA (true variety), 12 to 16 ft. 1.
SYCAMORE, Common, 14 to 16 feet.
Purple, 14 to 16 feet.

THORN, Double Scarlet, 8 to 10 feet.
White, 8 to 10 feet.
Single White, 8 to 10 feet.
WALNUTS, Common, 10 to 12 feet.

WEeping TREES.

BEECH, Weeping, Pyramids and Standards, 8 to 12 feet.
Birch, Pyramids and Standards, 8 to 12 feet.
Purple, Young's Weeping, Pyramids and Standards, 8 to 14 ft.
ELMS, Weeping, Pyramids and Standards, 7 to 14 feet.
LARCH, Weeping Pyramids, 6 to 10 feet.
OAK, Weeping English, Standards, 10 to 22 feet.

POPLAR, Weeping, Pyramids and Standards, 10 to 12 feet.
SOPHORA JAPONICA PENDULA, Standards, 8 to 9 feet.
Weeping, Minor, Baron P. DE ROTHSCHILD's, the most extensive and successfully planted places in the history of England—were supplied principally from the Knap Hill Nursery.

Intending planters are invited to inspect the plants growing; no one interested in such matters will regret the trouble. Catalogues convey but a very inadequate idea of such a stock.

A DESCRIPTIVE CATALOGUE

will be sent on application.

Knap Hill Nursery, Woking, Surrey.



THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 16, 1886.

MILFORD.

IF it became necessary to show the "intelligent foreigner" a good specimen of a small country town, and an equally good specimen of a country village, it would be difficult to find better samples of either within the same distance of London than are afforded by the town of Godalming and the village of Milford respectively. After passing the gravels and clays of the Thames Valley, the heaths and sands of Woking, and—astonishing transformation!—the chalk at Guildford, the traveller is landed in a greensand district, with a sandy and loam soil, richly wooded, with little streams and meadows in the hollows, and on the high ground hills which stretch away towards Reigate and on past Maidstone, till they abut on the sea coast at Folkestone. Neither the town nor the village has any very special feature, but both are pictorial and charming. Tapering spires, grey towers, timbered houses and gabled roofs peep out from a dense mass of foliage—so dense that the size of the huge trunks is concealed, and no adequate idea of their size is obtained till you come close up to them. The neighbourhood has some interest for the botanist too, for yonder red-brick manor house, set round with noble trees, was the property of Philip Barker Webb, he who wrote the *Flora* of the Canaries, was the friend and collaborator of Sir William Hooker, and who left his valuable library and herbarium to the Grand Duke of Tuscany, both being now preserved at Florence. Amid such surroundings is situate the nursery of Mr. Maurice Young—a nursery principally devoted to hardy trees and shrubs of all descriptions—and, in so far, not very different from hosts of similar establishments up and down the country. But the visitor interested in such things will hardly have set foot in the grounds before the impression will be forced upon him, that this is no ordinary collection of trees and shrubs, but that taste and intelligence have been markedly called into play in getting together so interesting a collection of choice things. There is an individuality about these matters which shows itself in contrast to the mechanical uniformity one sees in cases where there is little or no feeling experienced for the plants beyond that attaching to their money value. The truth is that these nurseries are not merely stores, but answer the same purpose that sketches do to an artist. An artist must have his colours and his brushes no doubt, but he will set even greater store upon the sketches by whose aid he will develop his picture. So in the case before us, it is easy to see that the trees and shrubs have been selected with a view to landscape effect—this for its form and habit, that for its size, that for its colour, whether of flower or foliage, and so on. These are the materials which Mr. Young, in his quality of landscape

gardener, so well knows how to utilise. They form the foreground of the nursery, while away in the background are the serried ranks of forest trees for those whose requirements are more utilitarian. What a pleasant thing it is to fall in with the proprietor of such an establishment, and when he acts as *cicerone*, unfolding as he goes along a mass of interesting detail, the result of long years of observation, there is for the plant-lover no greater pleasure; at every turn some fresh object of interest is unfolded, at every moment some old fact put in a new light. When some time has been spent in this pleasant occupation, and the attempt is made to recall the scene and the conversation, a difficulty is experienced in knowing where to begin, and as recollections pour in there is an equal difficulty in knowing how to arrange and methodise the detail. The problem how and when to end, which would otherwise be difficult, finds its solution here in the exigencies of time and space.

If we had to pick out the most brilliant feature of these nurseries we need not long hesitate. Young's Golden Juniper, a sport from the Chinese Juniper, must undoubtedly take precedence as one of the very finest, if not the finest golden Conifer. Here the coloration is magnificent, superior even to that of the best golden Lawson's Cypress. The clear golden-yellow pervades the whole plant, and is apparent on the spreading, as well as on the appressed leaves. The shrub assumes a conical or flame-shaped form, and the lines of these golden spires suggest the gilded magnificence of a Burmese or Siamese temple. By the roadside is the parent tree whence all this magnificence has sprung. The tree is of considerable age, the lower part green, the top refulgent gold. Cuttings from this are grafted on to the red Cedar (which, by the way, is no Cedar, but a true Juniper, else it would not graft so freely), and thus a supply is perpetuated. Another handsome plant of its class is Fisher's upright golden Yew, while among the silver tinted forms are such beautiful forms as the *cerulea* variety of the Fraser's form of the Lawson Cypress, the lovely Juniperus Shepherdi, the glaucous form of Abies nobilis, the blue Spruce, *Picea pungens glauca* (the *Parrayana glauca* of gardens), and many others. These variegated forms are, in some cases, less robust than the green ones, but by no means always so. Where the golden or silvery hue depends upon the absence of leaf-green (chlorophyll), there, of course, the plant may be expected to be relatively weak, and this is shown by the fact that cuttings strike with difficulty, and grafting is preferred where these plants are to be perpetuated. But when the silvery hue is due not to the absence of chlorophyll but to the presence of a layer of "bloom" on the surface, the vigour seems to be rather greater than otherwise. And this leads us to note that a remark made by one of our correspondents to the effect that yellow-berried Hollies do not come true from seed, is by no means borne out in this establishment, nor, indeed, is there any reason why they should not, as the yellow colour in this case can hardly be considered as any sign of weakness, or at least of any such degree of debility that would affect growth.

Adverting to other matters we come now upon a specimen of *Pinus Bolanderi* in cone. The plant is noteworthy for the delicacy of its deep green foliage, which renders it one of the most compact and desirable of the smaller Pines. Professor Sargent refers this to *Pinus contorta*, and an inspection of the cones serves to confirm this view, although the leaves are shorter and narrower and more delicate than in that species. In Veitch's *Manual* P. Bolanderi is considered as a form of P. muricata, but face to face with the cone-bearing plant at Milford it is impossible to come to any other conclusion than that its affinities are with P. contorta rather than with P. muricata.

Larix leptolepis, the Japanese Larch, should be planted for the elegance of its habit, the rapidity of its growth, and the pretty pure-coloured tint of the young shoots, which contrasts with the glaucous green of the leaves. A form of *Taxodium distichum*, with slender pendulous branches, as it were, leaping from curve to curve like a cataract arrested in its course, is very striking.

Prumnopitys elegans is a very desirable shrub, with slender erect branches and narrow leaves, deep green

above, silvery beneath. It is suggestive of the Yew, but its habit is lighter and less funeral.

Athrotaxis constitutes a genus of Tasmanian Conifers of low stature and very distinct habit. The leaves are something like those of *Thuopsis dolabrata*, but not flattened, and moreover they are arranged in spires. *A. laxifolia* (grown as *A. Doniana*) was here in cone, and is clearly of the same species (*laxifolia*) as that figured in these columns some time since from Menability.

Retinosporas of all kinds and descriptions are to be found here—two deserve special mention; in the one case a plant of *Retinospora plumosa aurea* had gone back to *R. pisifera*. *Retinospora* has no claims to form a genus, for the forms are all stages of growth of *Thuia* or *Juniper*, and those which have some fixity of character about them, such as *pisifera* and *obtusata*, are rather *Cypresses* than members of a distinct genus, but on this point we cannot expect people to agree.

Tsuga Sieboldii, the Japanese Hemlock Spruce, is so handsome that we wonder it is not more often planted. It is of bushy habit, and the dark shining green foliage is bolder in character than that of the common Hemlock. Other Japanese Conifers here seem in good form, are the sturdy *Picea polita*; *Picea ajanensis*, in which the silvery under-surface of the leaves is so very beautiful, and forms so brilliant a contrast to the purple catkins in spring. It is frequently called P. *Alcockiana*, and, indeed, is one of two things accidentally sent out under the same name. The true *Alcockiana*, or that to which the name is now restricted, does not seem to do well in this country; wherever we have seen it it has had a scraggy aspect, and shows a precocious tendency to form cones—a sign that is not a welcome one to the tree-lover, as it generally indicates debility.

YOUNG'S CYPRESS.

Closely allied to the Lawson Cypress, and perhaps a seedling variety of that very protean species, is a form which amply deserves recognition as Young's Cypress. The general form is that of *Lawsoniana*, but the habit is more robust, the leaves are considerably larger and of a very rich deep emerald green colour. The old wood is reddish-brown; the lateral branches or shoots are elongate ascending, flattened from side to side or variously curved like the blades of an Archimedian screw-propeller, bi-pinnately divided, and the ultimate divisions as in *C. Lawsoniana*, branched only on the distal side or the side furthest from the root. The leader shoots show a tendency to bend over at the top like those of the Lawson Cypress. The chief features are the robust habit and rapid growth—points which will render this form valuable, not only for ornamental purposes, but also for screens and hedges.

A fine symmetrically grown *Wellingtonia*, planted as a 1-year-old seedling in 1853, has now a girth of 9 feet at 3 feet from the soil. The lower branches have been removed to show the trunk—a procedure which has, perhaps, rather increased the already over-formal outline of the tree, but one which may be remedied in course of time, as the branches lengthen and again sweep the ground. What a contrast in form these pyramids of minute needle-like leaves make with the great standard Scampston Elms, with their dome-shaped heads and noble foliage—here, as it seemed to us, bolder than usual. If the Scampston is a giant among Elms, it has its counterpart in a little dwarf fellow, a form of *campestris* of similar habit to the Scampston, but fit to play dwarf to its giant. Close by is a magnificent Oak, just past its prime, perhaps, but so stately that, after all, we need not envy California her *Wellingtonias*, nor Australia her *Eucalypts*, in spite of their greater stature. The tree has an even, symmetrical bole, girthing some 18 feet at 5 feet from the ground. This Oak is by no means the only fine tree on these grounds—there are groups of Larch and noble Beeches, American Limes, a fine specimen of the Laurel-leaved Oak, *Q. laurifolia*, and many others.

After looking at these monarchs, and seeing what this part of Surrey can do in the manufacture of timber, it comes as a sudden surprise to see a fine plant of *Chamaerops Fortunei*, so different does it look from anything British; but there it is, and in flower, too; and there it has been out-of-doors for the last seven years. Damp and wet settling in the crown would probably injure it more than frost, but a canopy of mats adjusted over the head by means of stakes obviates this danger. A great tuft of *Bambusa Metake* hard by somehow does not seem so surprising; the leaves are of less unfamiliar form, and they

look so hard and dry that one is not astonished to hear that it is quite hardy here. But what acquisitions are these to our gardens—what possibilities they afford to the landscape gardener!

Among the host of Ivies to be seen here, two in particular struck us. Of these one was called "*canariensis azorica*"—whether it has really anything to do either with the Canaries or the Azores is, we think, open to doubt. At any rate, it combines rapidly and freedom of growth with an absence of rankness; the leaves are on long stalks, lobed as in the Irish Ivy, but less coarse. The other is a "little droll," just the thing for a small rockwork. It is known as the "Milford Dwarf," and is in the way of the one called *conglomerata*, but very much smaller. It forms little bushes a span high, with tortuous erect branches and small, short-stalked lobed leaves, densely crowded in two ranks. What a study the Ivy is for those who are interested in the subject of variation! What a contrast between this delightful looking pigmy—a specialty of the Milford Nurseries—and the rampant, huge-leaved *Hedera Rogeriana*, for instance!

For those who like to see "how it's all done," these nurseries, with their hosts of seed-beds occupied with thousands of little Conifers and Rhododendrons, their frames crammed with grafts of all descriptions, their "cloches," their pits—all given up to the work of propagation—offer great attraction. It would lead us too far to go into these matters, a visit, moreover, is the most satisfactory way of obtaining information. Let us should be accused, however, of ignoring other departments, we may as well say that although we have picked out from our notes certain specialties, it must not be thought that trees and shrubs constitute the only features of this nursery; on the contrary, save and except stove and greenhouse plants there is not much in the plant way that is not here represented, and just as illustrations of this catholicity we may, in conclusion, note a perpetual flowering white *Antirrhinum*, a plant of good dwarf habit adapted for bedding and excellent for cutting purposes. Our other illustration shall be from the kitchen garden. Walker's Perpetual Bearer Pea, a dwarf variety, sown on April 7, was here at the beginning of October laden with pods, flowers, and flower-buds, promising, would the weather only permit, a continuous supply of green Peas. Here is a variety that ought to suit the Channel Islands or other locality with a mild winter climate. Another character very marked by contrast with adjacent rows of other varieties, was its freedom from mildew. From landscape gardening to green Peas is a comprehensive stretch, nevertheless from what has been said it may be gleaned that here at Milford, while the two extremes are good, what comes between is in its varied way good also. *The Rambler*.

New Garden Plants.

ODONTOGLOSSUM HARRYANUM, n. sp.*

THIS is a grand and most unexpected surprise. The plant may well be compared with *Odontoglossum luteo-purpureum* and *O. tripudians*. But the flowers? Ah! they are novel, quite novel, though for a moment you might think of those of *Miltonia candida*—for a moment only—to do so longer would be a mistake. The dimensions of the bulbs and flowers are those of a good *Odontoglossum luteo-purpureum*. The flowers are in a raceme—"Of how many flowers?" you ask: who knows? I saw three, but the raceme was cut, so that you may as well dream of five, or six, or, if you prefer, of a dozen. The plant looked as undeveloped as possible. Sepals rather broad, ligulate, oblong acute, undulate, brown with some hieroglyphical transverse greenish-yellow lines, which later on become intensely yellow, the whole surface is nearly green. The petals projecting straight forward, are a little narrower, undulate, with yellow recurved points, which is quite characteristic. They are brown in the middle, and have numerous mauve blotches and spots at the base on a white ground. The lip

* *Odontoglossum Harryanum*, n. sp.—Pseudobulbis pyriformibus compressis, radicibus brevibus, caule erecto, teretibus, foliis lanceolato-oblongis-ligulatis obtusis pergamineis; racemo paniculato (filiis); bracteis oblongis acutis, ovario pedicellato, multoties brevioribus; sepalis, tepalibus, caliculis obtuse acutis undulatis, lobulis sub undulatis, utrinque late subcordatis, pandurato apice abrupte longe acuminate immo convolutis, carinis serrato-laceris setigulis-novenis atri basin; columnam trigonam angulatam, albis subventralis apice minutis prominis, callo quadrato de fovea breviter descendente. Exc. Harry Veitch diadem. Patria nunti (?) nota: Royal Excotic Nursery, Chelseaensis. *H. G. Rehb. f.*

is rather similar in colour. The basilar part of the stalk is yellowish, the median broader part is bordered with mauve, and marked with numerous mauve lines in front of the area, the crests being of the same colour. The crests themselves are seven to nine in number, serrulate and yellow. The anterior part of the lip is oblong, with an acute apex, white in the newly expanded flower, turning to yellow.

The outline of the lip is quite extraordinary. It consists of a narrow basilar part, angled on each side; the blade being broad, sub-cordate, fiddle-shaped, abrupt at the apex, and prolonged into a long point. The column is angular in the middle, with a square projection under the fovea, white at the base, yellow at the top, finally yellow throughout. On each side of the column is a very small toothed wing.

This plant was imported by Messrs. Horsman & Co., of Colchester, from whom the stock has been acquired by Messrs. J. Veitch & Sons. It is a fresh type, and a very fine thing too. I have great satisfaction in dedicating it to Mr. Harry Veitch, as amid those numerous novelties I have obtained during the last twenty years from four members of this excellent firm, this is one of the most remarkable. *H. G. Rehb. f.*

DENDROBIUM HERCULOSUM, n. sp.*

This lovely novelty is in the way of *Dendrobium aduncum* Lindl., a well known plant, and *Dendrobium Lingueila*, Rehb. f., a monopoly of Messrs. J. Veitch & Sons. It has a thin stem like those plants, scarcely exceeding a foot in length, furrowed, bent, bearing several lateral racemes at the top. The flowers are comparable to those of *Dendrobium aduncum*, but the chin is more oblique, the amethyst sepals and the petals more acuminate, the lip distinctly divided into a cupular hypophyll with warts on the inside, and separated by a fimbriated keel from the ovate aristate epichile, white, apex amethyst. Column light green, with two lateral broad falcate retrorse side laciniae close to the dark purple anther. Lip comparable to that of *Cephalanthus rubra*.

I have to thank Mr. F. Sander for this lovely thing. He showed me the plant covered with flowers. It was discovered by Mr. Försterman in Malacca. *H. G. Rehb. f.*

A VALUABLE SUGGESTION.

"FROM four millions to five millions of souls go to rest in the city of London every night. This is equal to the entire population of Ireland. It takes an enormous quantity of food to supply such a teeming mass with green vegetables, and more particularly after a severe winter. Naturally they have to look South for early supplies, and the top prices with the 'first run' of Covent Garden Market have been maintained for years by Channel Islanders and Cornish men. For the last ten years the Scilly Islanders, with the aid of their esteemed landlord, have been competitors. When I read of 2s. 6d. per pound for early Tomatoes, and 1s. to 1s. 6d. per pound for early Potatoes, or from £150 to £200 per acre, it may be asked with much force what the Cornwall of the county Cork, with its splendid climate, is doing in this direction? We should be up and doing, not of necessity for the London markets, but for our own Irish capital and Belfast, with all the northern counties of England, including Glasgow and Edinburgh. Glengarriff and Crookhaven are two degrees more advanced in spring than we Cork folks are, and four degrees more so than Dublin; six or eight degrees difference with the country over the Tweed. If climate favours the Cornish men, so that they now have the 'monopoly' of Covent Garden Market, we have been simply asleep for years in not developing our railway communication, and setting the thing going. Now that we have railways and tramways, let us put on a bold face, and ask the Government for State assistance in the way of model schools of education—large self-supporting market gardens, with plenty of glass constructions that will help us to be educated in all the detail from Potatoes to Grapes and Pine-apples. The peasantry know nothing about it, the state of the

landlord is too uncertain, private companies will not do it, the Government can, with the schools mentioned, and let them have Channel Islanders and Cornishmen as instructors. I should say, one concern at Clonakilly and the other near Bantry. We need not fear frost near the sea for early Potatoes and flowers. Screens and hedges of *Escallonia macrantha* will ward off any amount of sea-breeze. All sorts of soft-wooded plants live out all winter at the Eccles Hotel Gardens, Glengarriff. Ten years ago this land fed nothing larger than a snipe, but since Mr. Preston White reclaimed and brought it into cultivation it is producing some of the finest vegetables in the kingdom.—

'The reproach of barrenness is past,
'The fertile field laughs with abundance.'

In ten or twenty years what a change would be made among the peasantry, when they could work their own 'warm nooks' and districts, and be happy and contented. £50,000 would be well spent in this direction. The coral sand of Bantry Bay (the supply of which is inexhaustible) ought to be brought into the interior of the country by the railway at mineral rates, as it is an invaluable manure."

The above article, by Mr. W. Baylor Hartland, of Cork, appeared in the *Horticultural Times*. Mr. Hartland writes to us:—

"Since writing the above I have been reading what Mr. Boddy, the working carpenter of 1876, has been up and doing with 10 acres of a reclaimed bog at Land's End, Cornwall, and how last week he sent a consignment of delicious Grapes to Her Majesty as a presentation, getting the royal thanks and congratulations. Mr. Boddy has become, within ten years, one of the most successful market growers in Cornwall; and what was ten years since a bog or waste is now a garden with extensive glass constructions. Surely the new Irish Commissioners could recommend the grant asked for in my letter, and let us be up and doing, making as much in early spring with our produce as would recoup us for the whole year's expenditure. We have the climate and the railways. Look at the advantage it would be to the West Cork Railway. They should meet the enterprise with cheap through freights to Glasgow and the North of Scotland, with Belfast and Dublin."

ROOTS.

(Continued from p. 457.)

A THIRD case is conceivable—so much water might be supposed to find its way in that no air remained in the interspaces between the particles of soil. Now it is true that such a state of affairs is not readily brought about in a normal soil; but I may indicate how the result is occasionally attained to a great extent. Suppose that a layer of clay or other impenetrable subsoil lies beneath the soil in question; then if water oozes into the soil in larger quantities than can be got rid of in the time, it is possible for nearly all the air to be displaced. Of course the object of good drainage is to prevent this; and it is often overlooked that drainage from below has the effect of drawing in air as well as of running off superfluous water—air is driven into the spaces as the water leaves them.

In speaking of the "bubbles of air" entangled in the interspaces between the particles of soil, each with its water-blanket, I have overlooked some details as to what the bubbles really are. As a matter of fact they will not remain of the same composition as ordinary air, and may soon differ considerably; besides the vapour of water, they may contain gases in quite different proportions from those in the air outside. In the type case, however, there will be some oxygen present in the bubbles.

ROOT-HAIRS.

It is not intended here to go very fully into a description of the roots of land-plants; enough if you are reminded how the smaller ramifications of a root are found to be more numerous and thinner as we approach the periphery of the mass of earth which they traverse. From the youngest rootlets are produced the root-hairs, in enormous quantities, new ones arising forwards—i.e., near the tip of the rootlet—as the rootlet grows on, and those behind dying off after fulfilling their functions. These functions are chiefly to apply themselves in the closest manner to the surfaces of the particles of soil, and in this way to place the water which they contain in direct continuity

with the water which clings with such enormous force to the surfaces of the particles. Hence this water can pass from the soil to the plant, and anything dissolved in the water can also pass into the root-hair, and thus up into the plant.

I am not going to dwell on how the root-hairs themselves aid in dissolving mineral substances—corroding the surfaces of the particles of soil they cling to—nor shall I trouble you with the details of what substances will be dissolved in the water; for, of course, you will see that anything soluble will pass into solution and may be carried into the plant.

The chief point to be insisted on just now is that this water in the soil will contain among other substances oxygen dissolved in it from the air-bubbles referred to above, and that this dissolved oxygen will pass into the root-hairs in solution together with the minerals and any other substances. This oxygen, moreover, is absolutely indispensable for the life of the root-hair; it can be easily shown that if the supply of oxygen is stopped, or even diminished to any considerable extent, the roots begin to die, because the root-hairs cease to act.

Let us look a little more closely into this point. Each root-hair is a tiny cell containing living protoplasm and certain other substances, all inclosed in a thin, elastic, porous membrane. Now it has been abundantly proved that if such a cell is deprived of oxygen, its protoplasm becomes dormant for a time, and slowly breaks up, as it were; subsequently it becomes decomposed into other and simpler materials. A sort of internal combustion and fermentation take place, and these processes result in the formation and liberation of bodies like carbon-dioxide, alcohol, acetic acid, and other acid matters—substances in the main not only incapable of supporting the life of the root-hairs, but actually destructive of it.

Evidently, then, if we deprive all the root-hairs of oxygen, they will eventually die. Their death will entail that of the rootlets and roots to which they belong, and this for two obvious reasons—first, it is the root-hairs and the root-hairs alone which can absorb the necessary water and substances in solution from the soil to supply such a plant as we are concerned with; and, secondly, the noxious products resulting from their death accumulate in the soil and diffuse into the root, and so hasten similar decompositions in what were hitherto healthy cells.

It must not be supposed that these disastrous consequences of the deprivation of oxygen always follow immediately. Not only are the roots of some trees, for instance, able to withstand ill-treatment longer than others, but, obviously, the kind and degree of ill-treatment may affect the problem of how long the plant shall survive. The number of rootlets and root hairs, and the spread of the roots and other factors, will obviously affect the matter.

Suppose the following case as an example. A young tree is growing and flourishing in an open, good soil, and, for some reason or other, more soil is heaped about the roots until the depth is increased considerably: the deeper situation has placed obstacles in the way of the roots obtaining oxygen so readily as before. Not only are the roots further from the atmosphere, but the water carried down has to percolate through more soil, and may part with much of its oxygen (or even all) on the way: of course the nature of the soil, the presence of organic matters, and other circumstances, decide this. It is not at all difficult to conceive of such a case where the supply of oxygen to the roots is thus diminished so far that the activity of the root-hairs as a whole is simply lowered, but not destroyed,—a stage or two further and they might become dormant, and their protoplasm undergo intra-molecular respiration for a time, and break up. It is clear that the diminished activity of the roots will affect the supply of water (and the substances dissolved in it) to the leaves: this will obviously react on the thickness of the annual rings, and this again on future supplies—since the water passes up the albumen, or young outer layers of woody tissue. Moreover, a diminution of supplies from the leaves means less substance and power for replacing the root-hairs, and so on. In this way it may require some time to kill the tree, and all kinds of complications may arise meanwhile. This case is probably by no means uncommon.

A more extreme case is where the soil becomes damp and clogged with excessive moisture; not only does no oxygen reach the roots, but noxious gases

* *Dendrobium herculosum*, n. sp.—Aff. *Dendrobium aduncum*, Lindl., ex *Lingueila*, Rehb. f.; caulis teretibus, sulcatis, apicem versus striatis; delatohis racemiformis; foliis . . . ; racemis paucifloris; mento obliquo nec rectangulo; sepalis triangularibus; tepalibus oblongis acuminatis, lobellis trifidis; lacinia lateralibus semi-oblongis hypochilium semilobum efficit; thus, intus callis minutis asperis, carina margini superiori elliptica supraducens ac marginem anticum laevis lateraliolum, epichilo ovato aristato; columna utrinque breviter ac late falcata. Malacca, *H. G. Rehb. f.*

accumulate in solution in the soil, and will hurry matters by poisoning cells which might otherwise live a longer life of usefulness. It is extremely probable that such gases find their way into higher parts of the plant in the air-bubbles known to exist and to undergo alterations of pressure in the vessels of the wood; this being so, they would slowly retard the action of other living cells, and so affect the upper parts of the plant even more rapidly than would otherwise be the case. Damp soil may thus do injury according to its depth and nature; but it need not necessarily be deep to be injurious if much oxygen-consuming substance is present. I have seen excellent soil converted into damp, stinking, deadly stuff, from the action and accumulation of the larvae of cockchafer: these "grubs" may, it is true, accelerate the devastation caused by the consumption of oxygen and the accumulation of poisonous waste matters in the soil by directly cutting off portions of the roots themselves, but the accumulation of oxygen-consuming substance, and the cutting off of supplies to the root-hairs evidently plays a chief part in the destruction.

There is another matter with regard to damp soils that cannot be left out of account. I have already told you that roots which are developed in water, or in very damp sandy soil—and which are perfectly healthy—have few or no root-hairs formed on their surfaces; whereas it may be readily shown that the roots of the same plant growing in a well aerated open soil, which is scarcely moist to the appearance, will be densely covered with a close set of hairs. Indeed it is by means of the millions of root-hairs on its rootlets that a Sunflower or a Bean, for instance, obtains the enormous quantities of water necessary for its needs from soil which, to our rough perception, seems to be dry.

I cannot here go into all the proofs that such a soil is by no means so dry as it looks; but will simply remind you of what was said above as to the enormous force with which the minute particles of rock, &c., which form "soil" retain their hold on the thin films of water which constitute what have been termed their water-blankets. This is certain, that a healthy, well-rooted plant can take up water from a soil which is to all appearance air-dry; whereas a plant which has not yet had time to develop its root-hairs in sufficient numbers to take these firmly adherent water-films from numerous particles of soil, would droop and wither.

Of course it must be borne in mind that we are speaking of land-plants such as we commonly meet with on ordinary dry land; in the case of plants which flourish in bogs or in water there are corresponding differences in the structures of their roots agreeing with the differences of environment. Even such plants need air at their roots, and an excellent illustration of this is afforded by some Willows. Our common Osier and Willows grow, as you are aware, in low-lying, damp, and even boggy places, often flooded; now, it has been found that, if young Willows are planted too deep in the soil, they very soon send out new roots—adventitious roots they are often called—close to the surface of the soil, and these roots soon do all the work. There is no doubt that this power enables these Willows to live in places that would be fatal to them otherwise; and the same is true of some other plants.

Enough has now been said to show you how necessary it is that some care should be exercised in watering plants, or in exposing them to conditions different from those to which they are accustomed; and, it need scarcely be added, apparently mysterious diseases may sometimes be explained when it is shown that such precautions have been neglected. Any one can quote instances of plants which will grow in some soils and not in others, but no very satisfactory reason is afforded by simply saying that the one soil is suitable and the other not; however, all I have attempted to show you is that some soils are not suitable for some plants because the plants in question need more air at the roots than these particular soils can afford them under the circumstances.

H. Marshall Ward, M.A., F.L.S.

(To be continued.)

GISHURSTINE. — Sloppy pavements in town and sodden soil in the country remind us that we are on the threshold of winter; and to still more force the fact on our notice come the now yearly reminder in the form of boxes of PRICE'S Gishurstine, than which we may remind our readers, no better dressing for shoe-leather exists.

THE SNOWY MESPIUS.

IN your issue of May 22, p. 656, I note that you call attention to some fine examples of the Snowy Mespilus (*Mespilus canadensis*, A. Michaux, *Flor. Bor. Am.*; M. arborea, A. Michaux, *Nth. Am. Syl.*) growing in the Sydney Gardens, Bath. You do not give the dimensions of these trees, but I question whether there are any finer examples than a couple we have growing in the pleasure grounds here (see fig. 98, p. 489). I measured the trunk of one of these trees the other day, at 3 feet from the ground, and found its girth to be a trifle over 4 feet. This tree is fully 30 feet high, if not more, and nearly the same in diameter, that is, through the spread of its branches, and moreover it is as healthy and vigorous, and handsome in shape, as it is possible to wish for. The other tree is only slightly smaller. It is conjectured that these trees were planted here upwards of 150 years ago by the then occupier of this estate, who, I am informed, was in some way connected with America, hence the existence here of not only these but also, on the authority of Sir William Hooker, a pair of the finest specimens of the black Hickory (*Juglans nigra*) that are to be met with in England, and, until a year ago, a remarkably large and handsome specimen of the Sugar Maple (*Acer saccharinum*). The latter tree seemed as vigorous as ever the previous year, but owing to some unexplained cause it failed to show the faintest signs of growth the following spring. On cutting it down late in the summer we found the central pith decayed at least two inches in diameter. This beautiful species deserves to be more generally grown than it is, for few—if, indeed, any—of its class, possess such beauty of contour; its handsome, delicate, deep green leaves, slender petioles, graceful branches, and silvery bark rendering it one of the most strikingly beautiful trees for growing as isolated specimens.

Referring again to the subject of this note, I may state that the specimens (*Mespilus*) are growing on a shallow dryish soil, overlying the Blackheath deep gravelly subsoil. According to Michaux, in his excellent work, the *North American Sylva*, the species prefers a shady moist situation, being found, in its native habitats, growing on the banks of streams and rivulets. The same writer states that it rarely exceeds 35 to 40 feet in height, so that our examples may be considered as having well-nigh attained maturity. I note, too, that Michaux states that the largest trees in their wild state rarely bear half a pound weight of its attractive and agreeably-tasted fruit. This accounts for its failure to produce fruit in cultivation; and although our trees are, as you so truthfully describe, "laden with flowers heaped up in happy plenteousness," yet not a single fruit has either my employer (who, by the way, is greatly interested in arboriculture) or myself ever seen. To be seen in its full floral beauty this charming tree requires a background of lofty trees, as in our own case; this adds greatly to the effect produced by such harmony and association.

There are a vast number of really beautiful trees described and illustrated in the *North American Sylva* that ought to find a home in every garden capable of growing such noble and magnificent examples. T. A. Sanders, *Gardener to J. N. Larking, Esq., The Firs, Lee, S.E.*

MARKET GARDENING.

FRUIT AND VEGETABLE FARMING V. PROFIT.—A year or so ago one of the foremost amongst modern statesmen suggested fruit growing as a remedy for the ills that cultivators of the soil and others have to contend with. Doubtless on the recommendation of so high an authority many holders of suitable lands, who hesitated previously, commenced planting fruit trees. In any case more persons have consulted me during the past year or two than at any time previously as to the actual prospects attached to fruit tree planting and growing hardy fruits generally for the home markets, added to which many intending planters have written simply asking for lists of varieties of fruits, chiefly Apples and Pears, suitable for marketing purposes.

I have not hesitated to advise the utmost caution in regard to all enquirers who seem inclined to risk much on ultimate success. I have suggested that even long leaseholders should secure suitable markets at remunerative prices before entering too deeply

upon such highly speculative work. This advice being based on the facts, that young fruit plantations of such kinds as Apples, Pears, Plums, and Cherries take too long time to arrive at such a state of maturity, as to, under more favourable circumstances than really exist, recoup tenant planters the outlay made, when considerations of conservation from birds, &c., gathering, baskets, transit and commission, are fairly calculated in addition, as a set off against the actual returns of crops.

In regard to bush fruits matters are not much more promising as regards returns. These fruit bushes may be planted with a certainty of quicker returns, though good market prices have ceased to be the rule for excellent fruit from old-established growers; and there is but small hope that beginners at the trade will be able to do as well as they.

It will be well, moreover, in connection with this phase of the subject, to explain that, whilst well grown produce, ably marketed, may hope to vie with the latter as regards prices, it will prove anything but a remunerative speculation to grow moderate quantities of fruit, in addition to other branches of farming. Moreover, unless the grower is his own salesman, the wool will not be worth the cry, and he is not likely to realise good returns for his crop.

It may be asked, why so great a disparity should exist between demand and supply, seeing the extent of population and the limited area of land under fruit culture within these islands?

Several causes can be pointed out, though it would be difficult to enumerate all. The importations of foreign fruits, though advantageous to the residents in the metropolis and all large towns, prove very injurious to the home growers' interest. The cost of transit as shown in the comparison between prices charged for the carriage of foreign fruits and that of British, terribly handicaps home growers besides. Railway companies charge as much for the carriage of such goods from Kent to the metropolis—if not more—than for an equal weight consigned from a sea-coast town. Indeed, by through carriage in express trains the foreign consignments are conveyed at extremely low prices. By this means foreign fruits inundate our markets before the home grown crops are ripe, hence the latter realise only inferior prices.

There is besides another fact connected with these consignments and the foreign fruit industry, which must not be overlooked. Apart from the fact that land is cheaper, tithes and taxes lower, seasons more equable, and labour cheaper, foreign growers are well satisfied with a very low scale of profits. For instance, they persist in sending their produce at auction prices; and there cannot be any question that a profit of 2d. up to 6d., per parcel satisfies them well. Take, by way of illustration, the French baskets of fresh Plums: the baskets alone, with lids fitted, &c., are generally sold empty and second-hand, by the original purchasers of the Plums, at 6d. each. Yet these baskets (filled with selected fruit and in measure more than half a sieve) are sold at our markets for 2s., more or less. If the gathering and selecting of the contents of each basket, carriage beyond sea to rail or boat, commission on sale, &c., is taken into account, it will be seen that I have not understated the case.

Apart from the quality of the fruit these are the more readily saleable, both wholesale and retail, owing to the fact of their being first fruits. By this mode all subsequently gathered fruit of English growth are made seconds. It matters not how good the quality of the latter may be, consumers do not care for them after the first flush is over. Nor is it enough to rob home growers of their undoubted rights in this way, for a practice is gaining ground of packing foreign fruits in English baskets and selling them as home grown. This is more particularly the case with the green French Plums which first arrive so neatly packed in wooden boxes. As the crops ripen they are sent over in greater profusion, and are transposed, as stated, to other baskets, and palmed off to the public as English Gages, by which is meant Green Gages, though they are very inferior in quality to the latter.

If we take into consideration the rent of good land, tithes, rates, and labour, along with the too general unkindly spring weather experienced, it must be seen that the home grower labours under much disadvantage. I maintain, as a grower, judging crop for crop, supposing it is well secured by the home grower, not only has the foreigner the advantage in our markets, but beyond that, holders or owners of

matured orchards do not find them remunerative; how then is it possible for planters to expect to profit greatly by planting new ground with the same?

If we take the varieties of fruit *seriatim*, we find Plums proverbially "give good crops once in ten years." We have an illustration of what a good crop is this season. With the trees bearing very heavy crops of fruit the growers' hopes may be allowed to rise; but in reality, however, his profits are next to nothing. Apples, too—a very uncertain crop generally—are mostly either very thin or very heavy over large areas of the country. In the former case large trees, even though dotted over with a partial

not be attempted; and for this reason, that unless a "bird tenter" can be maintained from break of day till dusk during the whole time the fruit is ripening together with a certain expenditure of gunpowder, it is useless to expect to save the crop. Even good wall-grown Cherries do not commend themselves. I have sold, years ago, Morellos so grown, at 1s. 6d. per pound; the best offer I could obtain for a cwt. of these this year was "a shilling a dozen" (1d. per pound.)

As regards Pears I assume there is no risk of new growers burning their fingers by planting too extensively. Notwithstanding the influx of Jersey

look is anything but cheerful, either present or prospective. It may be interesting to refer in this place to the matter of grower *versus* consumer. Though wholesale prices are so low consumers unfortunately do not generally benefit. I will, by way of illustration, take Raspberries as being more exclusively English grown than other kinds of fruits, and hence less likely to be influenced one way or the other by foreign produce. I have shown that the nominal wholesale price during the present season has been 3d. per pound, and after the rains came, in certain instances, sales could not be effected at that; yet consumers within the large area of the western and southern



FIG. 98.—SNOWY MESPILUS, AT THE FIRS, LEE, KENT. (SEE P. 488.)

crop, pleasing to the eye, prove very bad basket fillers. I have just had five fine large young thrifty trees of Dumelow's Seedling (Wellingtons) gathered, and the result is a sieve and a half. Even if the fruit fetch 18s. per sieve, as they sometimes do during bad seasons, the result will nevertheless prove very barren as to returns. On the contrary when good crops abound, these, like the Plums, give wretchedly bad returns, and Cherries furnish a similar result. With a good crop such as was experienced this season, we have seen them sold retail in London at 2d. per pound. Few growers would care to gather them for this money, yet how greatly is even this sum reduced by the time it reaches them. Cherry growing, except in the form of large orchards, should

"Williams" good samples grown in this country fetch fairly good prices, but no reliance can be placed on securing a crop.

Small, or bush fruits show great fluctuations. All have fallen considerably in price during the last five years. Raspberries I have sold at 1s. per pound, and as I gathered 1 cwt. from a piece of ground measuring 27 yards long by 26 yards wide, a return of £5 12s. was an exceptional profit. Latterly, however, 3d. per pound has been the nominal market price, and as the season advanced this year this was not obtainable, indeed, instances occurred where they could not be obtained at any price. Gooseberries have not repaid, in many instances, the cost of gathering.

But I need not follow the subject further: the out-

skirts of the metropolis were all but invariably charged 1s. per pound for them.

Why this great disparity between wholesale and retail? It is not far to seek. Retail sellers have each their round of customers the generality of whom are ignorant or unconcerned as to the abundance of supplies first hand, and who are charged at the higher prices. They continue to cater for these alone; given so much mixed produce for so many good customers, and they require no more. It is not to their interest or convenience, however cheap or abundant fruits and vegetables may be, to purchase double quantities at low prices, and to cart them home for the benefit of customers. They know, too, that low prices at one time militate against good prices gener-

ally, and thus the interests of sellers and buyers are placed in direct antagonism. Nor are the sellers really to blame; they have, taking all seasons together, many risks to undergo, beside having the particular characteristic of their countrymen—a desire to make their fortunes as quickly as possible.

The fact remains, nevertheless, that the interests of growers and consumers are identical, and no effort should be wanting on the part of both to come into more direct communication with each other. How this is to be brought about is a difficulty that will have to be met. It may be said, however, that consumers are to blame for not going to the wholesale markets when they require sieves of fruits of any kind, and by not endeavouring to effect wholesome reductions by arranging with their greengrocers beforehand. Unlike other trades, I have not observed there is anything like a "ring" at any of our great vegetable and fruit markets. Buyers able to take care of their own interests can buy at market prices, and they will do well to make an early morning trip for trial, when a very interesting sight will meet their view.

As regards vegetables, precisely similar differences exist between wholesale and retail prices. During the present season Runner Beans frequently have barely repaid the price of picking. Vegetables Marrows and Cabbages often only fetching 1s. 6d. a tally, or by weight 1d. for about 20 lb. of produce! Assuredly the land must groan by very superabundance ere growers can recoup their heavy outlay at such prices. Figures will more than corroborate my statement. I give here a copy of a Covent Garden salesman's return to a grower, for produce sold:—

To 5 tallies Vegetable Mar-	s. d.
rows sold .. .. .	.. 7 6
Per contra:—Carriage ..	3 0
Commission	2 6
	6 3
Profit returned to grower ..	1 3

This does not include the cost of gathering, packing, wear of baskets, &c., to say nothing regarding the outlay of growing, &c., and if growers' expenses are, taking the year throughout, barely met, where ultimately is the rent of land to come from? *William Earley.*

ODONTOGLOSSUMS.

It is interesting to read of the very successful management of *Odontoglossums* out-of-doors in Mr. Sme's garden (see p. 424). It is there stated that *O. ciriosum* did better out-of-doors than *O. crispum*. Probably some may infer from this that the first named is the hardier of the two, and that it is likely to do as well or better in the cool-house than *O. crispum*. We have grown it very successfully in our collection ever since it was introduced, but I was not long in finding out that it required a higher temperature during winter than *O. crispum*, or at least it requires more sunlight. If the house is an airy span-roofed one, well exposed to the sun, the plants do not suffer from the low temperature, but they will do so from one where the sun does not shine upon them at all for three or more months in winter. The leaves continue to die off at the points all through the winter until they are quite unsightly in a low temperature and no direct sunlight. This I have proved by removing some of the plants to the Cattleya-house and leaving others in the cool temperature. They are now making their growths, and will continue to do so during the winter; and it is quite natural that at that time they should have as much sunlight as they can get during the late autumn and winter months, but failing that a minimum temperature of 55° is better than one of 45°. In the higher temperature they make large bulbs, which throw up at once grand branching flower-spikes. It flowers during March and April, and in this respect is different from *O. crispum*, which is never out of flower, making its growths at all times and seasons. *O. crispum* will grow and flower well year after year in a lower temperature than any other species known to me, but the question with most people who value their plants is, not how low can the temperature be kept without injuring the plants, but what temperature is best? In a sufficiently heated and well constructed Orchid-house the difference in the cost of fuel to keep the minimum temperature at 50° instead of 45° is not worth consideration at all; on the other hand, if it could be demonstrated that the lower temperature is best for the present and future of the plants, it would

be easy enough to give them 45° instead of 50°. The *Odontoglossums* and other Orchids from the mountainous districts of South America are maintained in health by studying other requirements of the plants as well as temperature. We read of them being enveloped in mist in their native habitats, and are too ready to come to the conclusion that an atmosphere saturated with moisture night and day is best for the plants, but we forget to take account of the difference between our plants with their artificial existence and that which they enjoy in the free air of their native mountains. The plants exist there under conditions in which they will naturally grow and increase freely; we can never expect to imitate them. I have grown cool Orchids under various conditions for many years—it does not matter how many, but long enough to find out, that growths of *Odontoglossums* made in a close, moist atmosphere in winter, are much inferior to those made in a more airy house and a moderately moist atmosphere. Sometimes the difference of placing a plant on the stage, or suspending it from the roof, makes all the difference between success and failure. The small-growing species, and those with soft growths, such as *O. nebulosum*, do best quite close to the glass roof. I would like to remark, further, that no cultivator of Orchids need expect to be successful by imitating some one else. The treatment required in our house may not do in another. I can give an instance of this in the case of *Lycaste Skinneri*.

Perhaps no one ever grew this species better than Mr. John Ward when gardener at The Pophars, Leyton. The plants grew into great specimens in quick time. Our cool-house is the same form, and our plants are grown very much as Mr. Ward grew them; in fact he saw the house and the plants, and told me it was so, and yet they will not even do well with us in that cool-house, probably because some small detail is neglected, or some of the internal or external arrangements of the house are not right. We grow this species very well in another and warmer house.

I stated some time ago that *Odontoglossum Rossi*, *O. membranaceum*, and some few others of this type (of which the supposed hybrid forms of *O. Humeanum* and *O. asperum* are included) did remarkably well in our cool-house, summer and winter; they are doing well now. Some one writing in the *Gardeners' Chronicle* took exception to this, and stated that they required warmer treatment. This is sufficient evidence that, given a fair general training in the culture of Orchids, every one must to a certain extent feel his own way, and find out from his own practical experience the special requirements of each individual specimen; and this can only be done by unremitting attention and watchfulness of the changes in the health of the plants. The quick eye of an earnest and experienced cultivator can soon tell whether there is any change in the plants for better or for worse, and will not be slow to take prompt and decided action. *J. Douglas.*

LUTON HOO.

THIS fine house and garden, the residence of Mr. de Falbe, Danish Minister Plenipotentiary at the British Court, are situated on rising ground, at a short distance from the Midland Railway, from whence the traveller can see the mansion and its background of trees, and is about midway between the emporium of straw plait, Luton, and Rothamsted, of agricultural notoriety. Aged timber abounds in the park of 900 acres, but the main proportion of the plantations, which are young, were formed by the late Mr. Leigh, within the last forty years. The planting, in so far as could be observed in a day's ramble, is generally successful, the belts and groups having formed effectual shelter to what was formerly a somewhat bleak and bare hillside. The roads that intersect the property are broad, well made, and of bold outline, whilst the stretches of park land on each side are not frittered away by searching for effects or by the mistaken dotting and small group method seen in some modern examples of landscape planting.

In the neighbourhood of the mansion, a rather plain building in stone and stucco, fine Cedars abound, especially *C. Deodora*, and as these stand apart from any other trees, their symmetrical forms and healthy appearance add no little effect to the garden landscape. A specimen of *C. atlantica*, of grand proportions, stands not far from the north-eastern end of the terrace, and is probably one of the finest in the

country. *Sequoia gigantea* (Wellingtonia) forms a noble tree on this soil, and several are found at various points of vantage near the house; other Conifers consist of *Abies Douglasii*, *A. obovata*, *A. Pinsapo*, *Pinus excelsa*, all of them of goodly proportions. *Pinus* change of any kind has been effected in the immediate vicinity of the flower garden; the broad expanses of lawn remaining as they were originally planned. Owing to the adoption of the ha-ha wall the stretch of lawn appears almost endless, looking towards the north, only coming to an end with the distant woods and cultivated upland fields.

The flower garden, that was originally on the north of the mansion, has been removed to the east side, and with the obvious advantage of having the near neighbourhood of trees and shrubs to act as a setting, instead of the indefinite hazy finish of continuous grassland, as in the former case. The beds are large and not numerous, the Pelargonium being largely employed for its brightness of colour.

Carpet beds do not find much favour owing to their want of colour and the difficulty with which the pattern can be discerned at a little distance off.

A feature of the flower garden is the number of fine Bay trees in tubs which stand about. These are in great vigour, and formed dense cones and globes, some of which measured 9 feet in diameter.

Dahlias of various kinds, single and double, are much employed, and the finer border perennials find place in the foregrounds of shrubberies and in parterres set apart for these—indeed they are indispensable in a place where cut flowers find so many uses; and flower borders are found not only about the flower garden itself, but by the sides of the kitchen garden paths and of glass-houses of various kinds—indeed, wherever a favourable site can be obtained, and all are planted with the one idea, that of furnishing flowers for use for indoor decoration.

The kitchen garden is worthy of the place, being 12 acres in extent, divided into two main areas, one of which is octagonal in shape. This season the fruit crop has been very abundant on trees of every kind and in most aspects, which, as regards the walls in and outside the octagon, were varied. Trees of either standard or pyramidal forms line the cross paths in these gardens, the latter finding general use as boundaries to the vegetable quarters. The high site of this part of the estate is, in dry seasons, the cause of a great want of water, so that vegetables often suffer much in the late summer months.

The numerous glass-houses are distributed in groups and ranges in various positions, one long range occupying the northern boundary, with all the necessary offices, sheds, boiler-house, bothy, packing sheds, and fruit-stores in the rear. The arrangements are most commodious, admitting of the carrying on of the work of a large garden with but little loss of time and labour.

One of the prettiest of the houses is one planted with Roses—hybrid perpetuals and Teas. The house is of quadrangular form, 30 feet by 50 feet, and of considerable height at the sides. Standing apart from any other, the house has a handsome appearance, and the interior during the months of March and April is a picture of beauty rarely met with. The inmates, mainly planted out in narrow winding borders and small beds, are grown in the pillar, bush, and climbing forms.

There are at present seven houses devoted to Vines; Black Alicante and Lady Downe's occupy a house in which Mr. Baillie, the gardener, has found it necessary to entirely remake the borders, the work having been very inefficiently done at some previous time. In one house Muscats were carrying a good crop, and there was no shanking; in another Heliotrope President Garfield covered the back wall, furnishing abundance of fragrant bloom for bouquet purposes. In the front young Vines of Black Hamburg were doing well, and at the back part of the inside border a row of Tomatos in full fruit had reached the roof. One more house was planted with Black Hamburg Vines, which had been prepared in an uncommon manner, that have made great progress since being planted. The plants had the whole of the earth washed from the roots, which were then spread over the surface of a wooden raft with a covering of 2–3 inches of soil. A month afterwards, in May last, these Vines were planted out in large shallow holes and treated in the usual way; their growth has exceeded that of any others by quite 6 feet in length. One large viney was well furnished with splendid bunches of Gros Colmar, a Vine or two of Alwinck

Seedling, which the gardener does not like, occupying one end. This variety has also had the border renewed.

A vine originally filled with Black Hamburgs, which succeeded admirably, had the Vines worked with the showier Gros Colman, fine bunches and berries were here preferred to the more modest excellence of the first-named variety. A house of Fig trees in tubs is one of the sights of the gardens. The plants will average 8 feet in height, and occupy a house entirely to themselves, standing in two long lines on the border. These cylindrical bushes are wonders of fruitfulness, Thompson's Vine manure and stable manure assisting to maintain them in health. The sorts consist of the following:—White Naples, White Ichia, and Brown Turkey, the latter being preferred. A house in which are Palms, and another for Ferns, all with the idea of affording plants for indoor furnishing, were observed, filled with the usual species and varieties. There are small houses and divisions for the cultivation of Calanthes. Tree Carnations, tuberous varieties of Begonias, and *B. nitida*, zonal Pelargoniums, Roses in pots, *Eucharis amazonica*, a mixed collection of houseplants, and a small collection of Orchids of ordinary kinds, although of these latter a beginning of better things was observed in some finer species and varieties lately purchased.

The kind of cultivation carried on at Luton Hoo is that of the production of masses of a few "useful" plants, good for a certain purpose only; and but few plants of any thing rare or remarkable are found in the many houses. This is to be deplored, as, with all its abundance, there is a certain lack of the interesting in horticulture.

Order, neatness, and good culture are visible on every hand, the place having decidedly advanced since the appointment of Mr. Baillie to the post of head gardener, about eighteen months ago.

GARDEN PALMS.

(Continued from p. 55, vol. xxx.)

MANICARIA, Gertner.—There are but two species in this genus, both of them natives of South America, where their gigantic leaves are largely used as a thatch.

M. saccifera, the Troolie or Bussu of British Guiana, is the only one known to be in cultivation in Europe, but it is as yet represented only by very small plants, being difficult to keep in health, and as it is not particularly ornamental when young, probably no effort has ever been made to obtain and establish large specimens. There are several 4-year-old plants at Kew, and these were raised from seeds; they thrive only when kept in a very warm and steamy house, and liberally supplied with water. Although not attractive when young this Palm is one of the most striking and singular in appearance when mature. Its stem attains the height of about 15 feet, and is often crooked; the lower part is marked with closely set scar-rings, whilst the upper is covered by the broad persistent bases of the petioles, and crowned with numerous semi-erect entire leaves, often 30 feet in length and 5 feet in width, the margins serrated, and the blade here and there split when old. The form of the leaves is that of the largest leaves of *Musa Ensete*, but as they are rather rigid, channeled, and point upwards, the whole plant presents an unique appearance. The drooping spadices are produced in the axils of the lower leaves, and are enveloped in curious cloth-like spathe, 3 feet long, and shaped like fool's-caps, and, according to Wallace, these spathe are much valued by the Indian, furnishing him with a durable cloth. Taken off entire they form bags, or may be used as caps, and even as landing nets by fishermen. The seeds are usually enclosed in threes in corky 3-lobed shells, the cork-like covering being broken up into angular gibbosity; the seeds are round, smooth, black-brown, 1½ inch in diameter, and hollow like a Cocoa-nut, which they also resemble in that they contain milk. The creoles in Demerara greedily drink this milk, which they consider to be an unfailing remedy for coughs and asthma (In Thurn). Seedling leaves bipartite, dark olive-green. This Palm is found only in tidal swamps, and is therefore not easily accommodated under cultivation. It would be a grand Palm for the collection at Kew if a full-sized example of it were possible. The second species,

M. Pluvinetii, is supposed to be found in Trinidad and Guatemala, and, according to Sereno Watson, it is pretty clearly distinct from *M. saccifera*, which, till

recently, was considered the only species. There is probably some confusion of the two species in botanical works.

MARTINESIA, Ruiz et Pavon.

In the *Genera Plantarum* it is stated that seven species of *Martinesia* have been enumerated, in a recently issued number of the *Botanical Magazine* fourteen species is the number given. Five of these are in cultivation, but they do not find much favour as ornamental plants owing to their requiring a high temperature, and to their lack of distinctive beauty when young. *M. caryotefolia* is the best known kind, and it has been cultivated in England many years; a plant which flowered at Kew last year, and was figured for the *Botanical Magazine*, having been grown from seeds collected by Purdie in 1845. This plant is about 12 feet high. None of the species form large trunks, 30 feet in height by about 9 inches in diameter being about the limit. They are all more or less clothed with rings of blackish spines, as also are the petiole and rachis. The leaves are borne on the top of the stem, where they form a rather thin but gracefully arching crown; they are about 5 feet long, pinnate, the pinnae broad, about 1 foot long; the apex broad, lobed, and truncate as in *Caryota* and *Wallichia*; seeds globose, smooth, half an inch in diameter, and reddish-yellow when fresh; seedling leaves bipartite. Being all natives of the tropics of South America, these Palms require stove treatment and plenty of moisture both in the atmosphere and at the root. They are healthiest when allowed a liberal amount of root-room. In some botanical works this genus is sunk in *Aiphanes*.

M. Aiphanes, Kl. (*Aiphanes aculeata*, Willd.).—Caracas.

M. caryotefolia, H. and K.—New Grenada. *Bot. Mag.*, t. 6854.

M. disticha, Hort. (*M. leucophora*, Hort. ?)—Hab ? *M. erosa*, Hort. Lind.—West Indies.

M. Lindeniana, Wendl.—New Grenada.

MAURITIA, Linn.

Like the *Manicaria* this genus is represented in English collections by only very small plants of one species, viz., *M. flexuosa*, although six or seven are described, all of them large handsome Palms with columnar and smooth, or slender and armed trunks; leaves fan-shaped, very large, on long slender curved petioles, and in a cluster on the top of the stem. The seeds are oval or globular, varying in size from that of a Victoria Plum to that of a Damson, and covered with small horny imbricated scales, pointing downwards and shining brown in colour. *M. flexuosa*, Linn., the Ita Palm of Brazil and Guiana, is described as one of the most noble and majestic of the American Palms. Its stem reaches to a height of 80 or 100 feet, and bears a head of spreading fan-shaped leaves divided almost to the base into numerous narrow rigid pinnae, which are drooping at the tips. The diameter of a full grown leaf is 9 or 10 feet, whilst the petiole forms a solid beam 10 feet long, very straight and thick, with a broad clasping base, the whole being quite a load for a man; the spadices also are very large, and when loaded with fruit, are of immense weight. This species grows in moist, very rarely wet ground, chiefly in places where the ground is flooded only in the wet season. Its leaves, fruit, and stem are all of great value to the natives, the leaves being used as a thatch, yielding a strong fibre, and, when young, forming the best Palm Cabbage; from the fruits a favourite beverage is produced, and also from the sap of the trunk, whilst the pith is made into sago. It is placed first among the useful Palms of America, and the name, *Mauritia*, which means "the tree of life," is said to have been given to this Palm in recognition of its great value to man. Small plants of *M. flexuosa* may be seen at Kew, where it is grown over a hot-water tank (temperature, 80°–85°), with the pot partly in the water. A picture of this species is shown in the "North" gallery, No. 119. We have said that *M. flexuosa* is the only species in English collections, but the firm represented by M. Linden have young plants of what they call *M. Carana*, which was named by Wallace, and is figured in his *Palms of the Amazon*, where it is described as a large species allied to *M. flexuosa*, but with leaves less deeply divided, and the sheathing bases of the petioles thickly matted in fibre, as in the *Piassaba*. A small plant of M. Linden's *M. Carana* is in the Kew collection; it is very distinct in a young state from *M. flexuosa*, the petioles being smooth, terete, and

covered with a white powdery bloom, and the blade, which is divided almost to the base into two segments, being pale green above and white below.

MAXIMILIANA, Martius.

The three described species of this genus are among the most magnificent of the South American Palms. Humboldt wrote of *M. regia*, now referred to *M. Martiana*, that "Nature has lavished every beauty of form on it; its smooth trunk, rising to between 64 and 75 feet, its leaves standing almost vertically in the air, their extremities curled like plumes and fluttering lightly and airily round the slowly-balancing midrib of the leaves." When young and stemless this Palm is both stately and graceful, as may be seen in the large examples of it at Kew, where it is planted in a tub and bears twelve leaves, each 25 feet long, with pinnae from apex to base, the lower ones being 4 feet 6 inches long, and as plumose and elegant as *Cocos plumosa*. The *Maximilianas* belong to the same group as *Cocos*, *Attalea*, and *Scheelia*, most of which are characterised by the same gracefulness as the *Maximiliana*. This genus is distinguished by its tall, erect, smooth stems, very large irregularly pinnate leaves (*Spruce* describes *M. regia* with leaves 34 feet long, each with over 400 pinnae), the pinnae long, narrow, drooping, and arranged in groups of from three to five at intervals along the midrib, from which they stand out in different directions, so as to form an immense plume, like a curled ostrich feather. The bases of the petioles are persistent, often covering the stem quite down to the ground. The spadices are very large, as also are the spathe, which are woody and boat-shaped. Specimens of spadix and spathe may be seen in the Museum at Kew. Seeds as in *Attalea*, but smaller; they are about the size and shape of pigeon's eggs, with a prolonged tip, and are smooth, brown, and pulpy. According to In Thurn, the Indians of British Guiana live almost entirely on this pulp in times of scarcity. They are also used to breed a kind of maggot of which the Indians are fond. Humboldt compared these fruits with Apricots. Various articles of food, clothing, &c., are obtained from other parts of this genus, which, next to *Mauritia flexuosa*, is the most useful of all the Palms of Guiana. Seedling leaves large, entire. When very young the *Maximilianas* are not particularly ornamental, and it is not until their leaves are 10 feet or more long that their handsome character is shown. They require stove treatment and plenty of water.

M. caribaea, Grisebarch and Wendland.—West Indies.

M. Martiana, Karsten (*M. regia*, Martius; *Attalea Marapa*, Wendland).—"Marcepa," North Brazil and Guiana. *W. W.*

The Apiary.

MAKING HIVES, &c.

THOUGH most or all of the outdoor work connected with bees is now finished, or, at any rate, ought to be, yet the enthusiastic beekeeper will find plenty of things to do. Everything ought to be put away clean, frames ought to be scraped, as well as sections, and put away in a dry place. If the stocks have been doubled up, as explained previously, the beekeeper may expect early swarms, and will prepare for them. If you have enough hives, or think you have enough, you need only clean them out, and when they are thoroughly dry give them a coat of paint. But if you have not enough hives you had better take time by the forelock and make them at once. This is far better than leaving things till the spring, as, in all probability, you will then be so busy that the work would be scamped, while now it can be done easily and carefully. At one time I could make hives well enough, but had to call in the tinner or the carpenter to make the cover; but one lucky day I heard of the Willesden Paper and Canvas Company, and since that time have done everything for myself except the frames.

Willesden paper is waterproof and rot-proof, and is also proof against the ravages of insects, especially ants, and yet it can be cut with a pair of scissors. You cannot possibly have better roofs for hives than this paper. The principal kinds are 1-ply, 2-ply, and 4-ply. The 4-ply is the cheapest and best roof covering; it is so stiff that no boarding is required,

as it can be battened at once. If you believe in small hives the 2-ply would be strong enough; if you like, this paper can even be used for the sides of the hive as well, and I have seen many hives made so. It will also answer admirably for making crates for sections, for dividers, and also for dividers between the frames to keep the honeycomb flat, as recommended by Mr. Simmins, of Rottingdean. Of course in the latter case you would not use any kind of dividers in the brood nest, but only between frames which are intended for the extractor. I have found it an excellent plan to put the frames a little farther apart than the orthodox 1½ inch (from centre to centre) towards winter, and to leave them so till spring. This allows the bees to cluster closer together during the season of repose, and carries out the idea that the best "packing for bees is bees." In spring it is a good thing to bring the frames closer together to keep the brood warm—a most essential thing. Before the end of October cover up the bees with one or two pieces of carpet and see to the roofs. *Walter Chitty, Penury.*

FORESTRY.

HEDGING.

HEDGING should now be proceeded with, but "ribbing in" and "heading down" had better be deferred a little till the ordinary work is done. Still keep on with cleaning the sides of all live fences before frost and snow put an end to the work. Ground intended for the reception of young Quicks should be trenched over and prepared so that planting may be engaged in during the next two months—bearing in mind that as the Quick is one of our earliest plants to start into growth, early winter planting must be engaged in. In hedging, above all things sharp tools must be used, else a ragged appearance is imparted to the fence. A sharp pruning knife or switcher in the hands of a dexterous workman is as good as anything, but an ordinary labourer who is unacquainted with hedging usually employs a shearing hook tied on an old rake handle and commits havoc that it requires years to repair. It is therefore as well to have on every estate two or three practical hedgers.

FENCING.

Plantation fences, whether of wood or stone, will require occasionally looking to, as farm stock will be apt to attempt to enter the "illicit acre" now that the woodland grass is superior to that in the fields.

The old adage that "A stitch in time saves nine" is most applicable in the case of holes in fences, &c., as the animals, if not stopped soon in their attempts at breaking through, become a source of great trouble.

In repairing stone walls see that "binders"—stones running through from one side to the other—are put in at short distances apart, as a wall without these and formed of small loose stones is but little better than a makeshift. Later on, any gaps in existing hedges may be effectually shut up by inserting good, strong, bushy, and well-rooted Quicks in the openings, the greatest care being exercised to prevent injury to the roots of the adjoining Thorns. Loosen the soil with a pick—not a spade, carefully remove it, plant the Quicks, and substitute fresh soil from a field or the woodland for that taken out. Where the gaps are large we often find it necessary to drive in stakes at about 6 inches apart first of all, and afterwards to plant the Quicks close to these, the stakes acting as a protection to the newly planted Thorns as well as preventing the encroachment of the farm stock.

TRIMMING OVERGROWN EVERGREENS.

Some people prefer the present time to early spring for cutting back and overhauling evergreen banks, &c., and singly planted specimens. In my opinion the choice of time is not of great importance, so, if time and hands can be had, by all means let it be done now. Do not cut-in too severely, for the frost sometimes tells tales on large unhealed wounds, more especially on semi-tender subjects like the *Laurustinus*, *Sweet Bay*, &c. Laurel banks may, however, be trimmed in as much as is desired, and Yew, &c., will be all the better for another overhaul before the winter sets in. Ornamental nursery hedges might likewise be improved by a second cutting just now.

We always make it a point to trim our nursery lawn, and village hedges, twice each season—once

early in June, or when the growths have attained full maturity, and again in September or October. Be careful to gather up prunings and have them burnt.

ROADS, WALKS, AND DRIVES.

These should be repaired where necessary, the metalling mentioned in a former article being used for the walks. Pick over, not too deeply, the parts of the roads on which the stones are to be placed, as this will cause them to set quickly and well. A coating of gravel, or screenings from a stone-crusher is a great help to consolidating and levelling newly repaired or newly constructed roads, and a still further help is to run a heavy roller over the surface after a night of rain. Bye-paths through the woods must be examined and repaired. *A. D. Webster, Penrhyn Castle, North Wales.*

THE FIELD MUSHROOM:

AGARICUS CAMPESTRIS.

THE field Mushroom is now common in pastures and plains, and on hill and roadsides where the grass is kept short by the grazing of sheep and horses, and where grass may be said to be growing with some little difficulty. The field Mushroom does not grow in meadows or in any position where grass is preserved, or where it grows luxuriantly. During each autumn correspondents of the *Gardeners' Chronicle*

(see D in section, fig. 99). The structural characters belonging to a Mushroom are best seen when an example is cut in two from top to bottom, as shown in fig. 99. The first point to be observed is the gills; these never really reach the stem, but remain free from it, as at A, A. It should be noted that the frill belonging to the stem reaches to the base, as at B, in young examples, and that it at first entirely hides the gills (see C, D, as shown in the smaller section). It then breaks apart, as shown at C, D, in the larger section, which represents a mature example. The frill or veil is continuous over the top of the Mushroom, as at E, E, and it is this veil which is peeled off before cooking is commenced. The possibility of peeling the top of a Mushroom is one test of its genuineness. The purple-black spores which answer the purpose of seeds are very minute, and if enlarged 500 diameters are seen as at F.

It is possible that the Horse Mushroom and field Mushroom may be one and the same plant under different conditions of growth, for one species gradually blends into the other. Both have many varieties. One certain fact is that the bedding Mushroom, raised from Mushroom spawn, is not the true *Agaricus campestris*, but a variety sometimes named *A. hortensis* or other names. The bedding variety may be a distinct form of *A. campestris* or of *A. arvensis*. From what one sees of the habit of true *A. campestris* it does not seem to be a species likely to revel on a bed of dung and earth; the Horse Mushroom, on the

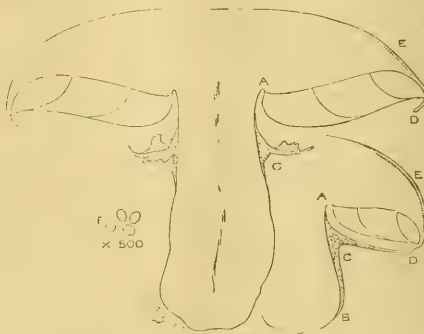


FIG. 99.—SECTION OF AGARICUS CAMPESTRIS.

are constantly sending doubtful examples of Mushrooms for an opinion as to their genuineness or badness. In the majority of instances the specimens sent are true Mushrooms, but in some cases other fungi are sent, sometimes very different from the genuine Mushroom. At times the examples are from Mushroom beds, in other instances from fields. One cause for doubt originates with the Mushroom itself, for it is an extremely variable plant, differing in its various forms immensely both in colour, size, and taste. It however alters very little in structure, or, if the expression may be allowed, in design. The general design is well fixed, the variation rests in the proportions of the parts and their tints. Like all other esculents, Mushrooms vary in quality. As a rule Mushrooms are small and elegant plants, not larger, but often smaller, than the group shown in the illustration. Very large or gigantic field Mushrooms are almost or quite unknown; the gigantic Mushrooms sometimes described in newspapers belong to the coarse and inferior Horse Mushroom, *Agaricus arvensis*. The nature of the frill which encircles the stem of a true Mushroom is shown in the illustration (fig. 99), and the gills are at first white, then pale rose-salmon, and at length purple-black. The gills of the Horse Mushroom change to a pallid clay colour, and then become black. The change of colour is caused by the gradual, and at length profuse, growth of the spores, which at length cover the surfaces of the gills. It is the spores that really change colour, not the gills themselves. The frill which encircles the stem reaches to the edge of the cap, where traces of it may always be seen hanging below the general level of the gills

contrary, commonly grows in close juxtaposition with dung. If it can be proved that the spores of the true Mushroom will really grow in dung, it must be conceded that in so growing the resulting species becomes the Horse Mushroom, or, in other words, the two species are identical, but possess slightly different characters on different habitats. With the difference of habit a great change may be observed in the taste, for the tastes of a bed Mushroom and field Mushroom are hardly comparable, the latter being beyond measure the better, more tender, more delicious and juicy of the two. The Mushroom bed is a fertile breeder of parasites and Mushroom diseases: it often swarms with microscopic thread-worms (Nematodes): these minute worms enter the Mushroom at the base of the stem, and soon infest every part of the fungus; they are, of course, invisible to the unaided eyes, but only too familiar to persons who are frequently looking at Mushrooms in health and disease, and in all stages of growth, with the aid of the microscope. A diseased Mushroom is always unwholesome (like a diseased oyster or crab), and it may prove poisonous.

It would seem desirable to attempt the artificial cultivation of some of the more fleshy and delicious varieties of *Agaricus campestris*, but if grown on the usual Mushroom bed they would probably degenerate into the inferior and coarse bed Mushroom. It would probably be difficult to artificially imitate the habitats of some varieties—the sweet pure breezy air of hills and commons is so different from the confined air, laden with vapours from dung, such as one meets with in Mushroom sheds. In the Rev. John Stevenson's excellent new work on British fungi, he says the

Mushroom grows "in meadows, &c." I have never seen one in a meadow, but always in short pastures, and on plains and hills and roadsides, where the grass is constantly nibbled short by grazing animals. Several varieties of the Mushroom and several allied species turn rufescent or even blood-red when cut or broken. The change of colour generally causes surprise, and sometimes suspicion; but the variety of the true Mushroom which turns crimson, sometimes pale, sometimes dark, is probably superior to the type in taste. The Horse Mushroom and its varieties commonly change to yellow or yellowish-brown when cut or broken; so does the bed Mushroom.

AUTUMN TINTS.

In modern landscape gardening too little attention is paid to the value of deciduous trees in producing effect. In recent years great importance has been attached to the planting of evergreen trees, chiefly Conifers, a class, without doubt productive of excellent results when judiciously arranged, and planted at proper distances so as to ensure their perfect and natural development. But they should not be allowed to monopolise the parks and pleasure grounds of an estate to the exclusion of native and exotic deciduous trees that play their part so conspicuously

night, although it takes some considerable time to regain its wonted green colour on the return of spring and milder temperature. *Thuia gigantea*, *Retinospora squarrosa*, and *Cryptomeria elegans*, may also be cited as familiar and well-known instances amongst Conifers, that assume a characteristic brown hue in winter.

The cold and chilly nights of the latter end of September and October seem to have the effect of hastening the brilliant coloration, so strikingly characteristic of the decaying foliage of *Liquidambar styraciflua*. Trees in open, exposed places assume tints of great richness, while those that are sheltered by other and taller trees retain their summer coloration of the foliage much later into the autumn, and if frost suddenly sets in they may drop while comparatively green. The numerous shades of colour on the same tree are also noteworthy. The upper surface of a leaf may be of the deepest blood-red, while the under-surface is green; and this precedes another stage, where the upper surface is of the liveliest and warmest crimson, almost scarlet, with the under-surface yellow, and uniformly diffused, or more or less broken into zones or blotches. What applies to this tree with regard to exposure applies in a similar manner to *Parrotia persica*, by some authorities considered as genealogically allied, and these again with the Plane. The decaying foliage of the latter is characterised by more sober tints of pale brown and yellow. Grown as a tree in the open, the *Parrotia* is all aglow with yellow and crimson or red by the end of September, exhibiting a more universal coloration and shedding its leaves earlier than plants grown against a wall.

The red American Oaks form quite a series of trees assuming in several instances tints as rich and varied as the *Liquidambar*, but which unfortunately have been greatly neglected in landscape gardening since the days of Loudon who used so frequently to refer to the rich collections at Chiswick, Syon, and Hackney, part of the first-named collection being still preserved at Devonhurst. The huge lobed leaves of *Quercus coccinea* die off of a dull purplish-red, finally becoming yellow and pale brown before dropping. Those of *Q. coccinea* and *Q. palustris* are handsomely cut and lacinated, and on the approach of cold weather assume unmistakable tints of red deepening to scarlet. Another tree worthy of special mention is *Q. tinctoria*, with broader and more massive leaves, the uppermost and youngest of which are the first to colour, forming crimson and green rosettes where the shoots have been late in maturing or have formed a second growth. It is sometimes known as *Q. quercitron*, and specimens under both names may be seen in the extensive collection at Kew. *Q. ambigua*, with deeply lobed leaves, and *Q. imbricaria*, with oblong entire leaves, also assume handsome crimson or red colours early in the season.

Trees of more sober hues, including our native ones, play an important part in landscape scenery; and the serene and yellow leaf of *Tilia vulgaris* serves to deepen by contrast the verdant tint of those that ripen later, or such as *Populus nigra*, *F. balsamifera*, *Acer Pseudo-Platanus*, and the sombre hue of Conifers generally. The *Tilia* in question is but too frequently planted in the streets of London, where the dryness of the climate hastens the fall of the leaf early in September in dry, hot seasons, and where the murderous backing to which it is frequently subjected to keep it in bounds renders the tree a hideous object of pity. *T. petiolaris*, a handsomely drooping tree, from the Crimea, with long slender petioles, and foliage white beneath, is even more attractive in autumn when thickly interspersed with leaves of a clear rich canary-yellow. Those of the Beech become first yellow and then of a rich shining brown previously to their final dull brown stage. Who has not observed the young unfolding leaves of *Populus nigra*, a mixture of red and yellow, after most trees have been in leaf for some time, changing to a deep shining green, and ultimately changing to pale yellow before they fall? The clear pale yellow of *Acer platanoides*, and the brown, heavily blotched, mature and falling leaves of *Acer Pseudo-Platanus* are familiar objects in hedges, woodland, and avenue scenery. The red and bronzy leaves of *Vitis tricuspidata* (Veitchii), especially in the upper reaches of tall climbing plants, and the glowing crimson and flame colour of different individuals of *V. hederacea*, together with hosts of other subjects, must not be forgotten in an enumeration of autumn tints. J. F.



FIG. 100.—*AGARICUS CAMPESTRIS*: THE FIELD MUSHROOM.

There are six or more species of British fungi all closely allied to the true Mushroom, and all edible. Some of these species have many very distinct varieties. Varieties and species alike have a strong tendency to blend with each other in various ways. The structure of all, however, is permanent, and agrees with the outline sections given with this description. *Worthington G. Smith, Dunstable.*

HENNA, the pulverised leaves of *Lawsonia alba*, is an article of export from Persia to all Mohammedan countries. The best comes from Chabir, east of Kerman, and it contains about five or six times more dye-stuff than any other. It costs on the spot about 9d. per pound, English, and second quality about 7d.

with every changing season. Compare the sober tints of spring, the deeper shades of summer, and the fading glories in yellow, brown, crimson and ochreate hues of deciduous trees in autumn with the perennial green in one or other shade of most Conifers, and it will be seen by any unprejudiced eye that the former appeal with no uncertain though silent call for our recognition. The form is endless and the habit varied, but the changing hues of autumn form a study in themselves that defy the brush of the most skilful artist. Individuals are extremely dissimilar in the time of shedding and depth of colouring of the foliage, due partly to soil, situation, exposure, and other conditions. Climatic influence is a powerful agent in modifying the time and depth of coloration. In evidence of this witness the crimson and glowing red of *Berberis aquifolium* it may be after a single frosty

NOTES FROM ASHTON COURT.

In the new winter garden here the plants have made good growth. The rockwork with which the walls are faced and the margin of the irregular crescent-shaped pool is now well clothed; the Ferns, *Lycopodiums*, *Begonias*, and other things planted out have progressed apace, so that the whole has a fully furnished appearance. The tufa and water-worn stone from the Cheddar Valley used is congenial to the growth of the native mosses, that have been freely employed—the mellow colours of which adds much to the general effect. In choosing the plants for planting care was taken to confine the selection to such kinds as would maintain an even growth, so that the too common result in such arrangements, of a few over-vigorous growers smothering the rest, has been avoided. Of Ferns, *Adiantums*, *Davallias*, *Pieris scaberrula*, and others of like habit, have been used as a setting for *Nephrolepis exaltata* and other elegant habited sorts, intermixed with silvery-leaved *Begonias*, *Aspidistras*, &c. *Richardia ethiopica* is at home round the edge of the pool, where, either in or out of flower, it looks well. The caps of the columns that support the arches on which rest the walls have been hollowed out so as to hold enough soil to grow such things as the variegated *Tradescantias* and other trailing habited subjects. Hanging baskets are filled with *Lycopodiums*, *Adiantums*, and *Nephrolepis* of various kinds, Ivy-leaved *Pelargoniums*, and *Ficus repens*, with a few plants of blue *Lobelia* here and there to give a bit of colour. In one of the recesses where there is comparatively little light the wall is clothed with a plant of one of the ordinary fruiting Figs that does well in the situation. The roof is getting nicely draped with such things as *Acacia Ricciana*, *Passifloras*, *Asparagus plumosus*, the green and the variegated varieties of *Cobaea scandens*, the two latter kept thin, so as not to darken the plants below too much. Right and left of the aviary, which occupies a central position at one side of the house, there is a handsome pair of *Araucaria excelsa*, about 15 feet high, in pots; they just suit the position, associating well with the other large plants employed. Spare elegant habited *Palms*, such as *Cocos Weddelliana*, with *Cycas revoluta* and *Dasyliroa acrotichum* occupy prominent positions. Amongst the larger growing plants the somewhat scarce variegated leaved *Camellia*, *C. japonica variegata*, is represented by a fine pyramid-shaped specimen some 7 feet high. Flowering plants of such things as happen to be in season, to give the requisite amount of colour, are introduced amongst the fine-leaved kinds, which latter necessarily, in a structure of this character, play the most important part.

The conservatory was gay with the usual summer flowering subjects associated with the permanent occupants of the house. A pretty effect in combination of colour was here secured by running the shoots of one of the crimson-flowered *Tasconias* amongst those of the variegated *Cobaea scandens*, the creamy-coloured foliage of which set off the brilliant flowers of the *Tasconia*.

Bouvardias and perpetual flowering *Carnations* may be said to be indispensable where a supply of sweet-scented flowers is required through the winter. Mr. Bethell, who is very successful with these favourite flowers, turns the plants out in pits in the spring; the beds are well raised, so as to keep their heads up to the glass. Good, well-established stock are used and encouraged to make as much growth as possible during the summer; the plants remain here to bloom, heat being turned on, and regulated as required. So treated an amount of bloom is secured such as pot-grown plants will not produce.

FRUIT.

Peaches and Nectarines in the early house were a grand crop, both as regards the size and quantity of the fruit. The second house was of a similar character. In one of the lean-to houses in the Peach range occupied by Black Hamburg Vines, there was a fine crop just ripe, full-sized bunches, beautifully coloured. In the Muscat-house, and also in the house containing late black kinds—Black Alicante, Lady Downe's, and Alnwick Seedling—good crops were approaching maturity; of the last named very setting variety there were some handsome bunches. Here, as in not a few places, Pines have been given up, and Melons have taken their place. Of these there are large

quantities grown, so as to keep up a supply from as early in the season as they can be had, up to the end of summer. There was a fine lot of ripe fruit, whilst the plants to come on were promising.

FLOWER GARDEN.

Here, as in most places this season, bedding plants after being put out were so chilled by the continued cold weather that they made little or no progress at first, but the lost time has been recovered so that the flower garden was fully furnished later on. The style of planting adopted by Mr. Bethell is such as calculated to avoid the stereotyped sameness which is one of the worst features of modern flower gardening. Most of the beds are filled with a combination of various kinds of plants differing in habit and in the colour of their flowers, avoiding so far as possible violent contrasts. Enough of the higher colours have been introduced to give the requisite warmth to the floral picture, yet subdued shades predominate in the beds that are occupied by the ordinary flowering plants, as in the carpet arrangements. The effects produced by combinations such as purple *Verbena* and the old Mangles' variegated *Pelargonium*, as seen here are not easily beaten. T. B.

Florists' Flowers.

WINTER FLOWERING CARNATIONS AND PICOTÉES.

At the end of last year some doubt was expressed, in the columns of the *Gardeners' Chronicle*, as to perpetual or Tree Carnations blooming in the autumn months, and through December, January, and February. Mr. Turner asserts that a large number of the named varieties in his collection will do this; and it is also stated that the varieties that are winter-bloomers are very few indeed. I think any one visiting the Royal Nursery, Slough, during November and December, will see a house of winter-flowering Carnations yielding bloom. Be this as it may, Mr. Harry Turner appears to have hit upon an admirable plan for securing a good bloom of these Carnations during the dull season of the year. In January last some seed of winter-flowering Carnation was sown, and the pans placed in a warm greenhouse, with the result that the seeds germinated quickly: the young plants were grown on, and planted out in prepared beds in the open ground in March. Three beds were planted out, about 700 plants being placed in each. The plants are now either in bloom, or very near flowering, and it is worthy of note that the cases of plants not flowering are very few and far between. Mr. Turner states the plants will be lifted, placed in pots, and arranged in a house that can be heated when it is necessary to keep out frost and dry up damp. That these plants will bloom—and bloom abundantly, too—all through the autumn and winter, there can be no doubt. They have all the vigour characteristic of seedlings; they will be lifted with good balls of soil adhering to the roots, and be put into pots only just large enough to take them. Here, then, we seem to have a happy method by which a head of bloom on winter-flowering Carnations can be secured just when it is most needed. That these plants will mature their blooms there can be no doubt; but they will have the advantage of being in a house by themselves, where they can have the treatment they require. Probably the difficulty that some experience in blooming these Tree Carnations in midwinter is because they have to grow them in a house with other plants in an atmosphere too close for them.

I could not help being struck with the fine quality shown by these seedlings. If seed can be obtained that will produce flowers of such quality as those seen in the seed-beds at Slough, then the distinguishing of many particularly good varieties by naming them will be rendered unnecessary, as it is in the case of *Calceolarias*, *Cinerarias*, &c. There were fifty flowers that appeared to be worthy of names; but, as Mr. Turner observed, if he commenced naming, his difficulty would be where to stop.

By the side of these beds was another raised from seeds sown in the ordinary way in March. These were much later, but the seedlings had made good plants, and Mr. Turner stated that he should lift these also, pot them, place them in a cold frame for a time, and he anticipated they would all, or nearly all,

flower in early spring. If this be so then we are not far off from the time when we may expect to have Carnations and Picotees in bloom all the year round, for Mr. Turner has demonstrated that by means of seed sown in heat in January Tree Carnations can be had in flower very soon after the ordinary summer varieties have done blooming, and those that will bloom in spring will carry on the floral succession until the summer flowering bizzars, flakes, selfs, and fancier, and all the sections of Picotees, together with the many border sorts, will be making June, July, and August glorious with their fine scented blossoms. It will thus rival, even if it does not excel, the Chrysanthemum in its perennial duration of flower. R. D.

CARNATIONS AND PICOTÉES.

Mr. E. S. Dodwell recently stated, in a communication to a friend who sought his direction as to the best date for potting up the layers for the winter: "If I could have 4000 potted up in one day, I should choose October 20 for the operation, but that not being possible, we work from the beginning to the end of the month, or even into the first ten days of November." Happily, this is work that can be done under cover; and if wet weather has set in, some of the pots or layers should be got under cover a day or two previous at least, so that the rain can drain from these. Mr. Dodwell regards premature potting as a "grievous evil," and he remarks "all that is required is that the plants shall freely feel the sides of the pots with their roots, so as to ensure perfect drainage and sweetened soil before going off for their winter's sleep; but on no account should they become pot-bound, or the very worst evil may be expected to result;" and it may be of interest for some if I quote a little further: "The soil required is a good sweet sandy loam, with the addition of a fifth or sixth part of sweet leaf-mould, and such well-washed sand or pounded crocks as may be needed to ensure a free percolation of air and water. Various sized pots should be used, according to the strength of the plants. Over-potting is a great evil. When potted, place in a cold frame and keep close for some days, shading from the bright sun. Water sparingly." R. D.

TREES AND SHRUBS.

GLEDITSCHIA.

INDEPENDENTLY of the beauty of the trees belonging to this genus, they are singular and interesting in many respects on account of their habit of producing spines on the lower part of young trees and also on the trunks of older ones, while the leaves are not only pinnate and bipinnate on the same tree, but on the same branch, and this character even is displayed very frequently on one and the same leaf. In the economy of the plant this varied character of the leaves is, no doubt, a facile and ready method of adaptation to conditions and surroundings. On slow growing specimens and on the basal parts of branches where the internodes are short, and again on old trees making but little growth, the most predominant leaf is the simply pinnate form; but on vigorous growing young trees and on the upper part of vigorous branches the bipinnate leaf is the prevailing form, and gives the tree an uncommonly handsome appearance. Excepting in a few favoured old places, comparatively seldom do we find the *Gleditschia* enjoying that prominence in a landscape to which its uncommon and graceful character entitles it. At Devonhurst, the grounds of which formerly constituted the pleasure-grounds of the Royal Horticultural Society, are three trees, forming part of the once rich collection which happily yet exists in a goodly number of fine old specimens. The bulk of these are Oaks, Elms, Maples, and Limes, rather thickly planted in places, but still enjoying robust and vigorous health. The tallest of the three *Gleditschias* is the Honey Locust, *G. triacanthos*, a most variable tree, and often with difficulty recognisable under different conditions. This generally applies to young as contrasted with old trees, the former of which often assume a very leafy state, with numerous bipinnate leaves and small leaflets. This character disappears more or less in old specimens, and then they have the addition of their singular scimitar-shaped, pendulous, flat, reddish-brown pods, as in the present instance. The other two specimens under notice are *G. sinensis*, inferior in height to *G. triacanthos*, especially the smaller, more

typical, and shiny one, which forms a spreading head, and does not exceed 25 feet in height. This latter is bearing numerous pendent pods—in this instance green; and, owing to the spiny character of the otherwise naked trunk, it is the most interesting of the group. Fresh branching spines, which are in reality aborted branches, continue to be given out annually, and, being green, make a conspicuous contrast with the formidable looking brown and dead ones. The leaves are equally variable as are those of *G. triacanthos*, and the leaflets much broader, ovate-elliptical, obtuse. The third tree, which is intermediate in height between the other two, would seem to be a semi-spinescent variety of *G. sinensis*, although Loudon states it to be dwarfer than the type. The five or six species composing the genus are extremely difficult to discriminate on account of their variability. *Y. F.*

FRITZROYA PATAGONICA.

We have a good specimen of this growing in the pinetum here; it is from 20 to 25 feet high, and is well furnished with its dense small growth; it stands in a position very much protected from all the cold winds and frosts. It is of very slow growth, but is deserving of a place amongst a collection of Conifers, it being very distinct from any other species.

SEQUOIA SEMPERVIRENS.

There is a specimen of this growing in the pleasure-grounds here; it has probably been planted from thirty to thirty-five years, which is from 60 to 70 feet high, and girths 8 feet at 5 feet from the ground, is well branched from top to bottom, and is a handsome object as seen from the carriage-drive. *Edward Ward, Hoveall Gardens, Bromsgrove.*

CEDARS AT BEECHWOOD PARK, HERTS.

Noting the measurements of Cedars at Bretby Park and Bayfordbury, it may be interesting to some to know we are here somewhat famous for Cedars. There are eight fine trees growing near the mansion, the girths at 5 feet of which are as follows:—No. 1, 15 feet 2; 2, 15 feet 6 inches; 3, 17 feet 6 inches; 4, 18 feet 6 inches; 5, 19 feet; 6, 20 feet; 7, 21 feet; 8, 26 feet. The tallest of them are about 100 feet high. No. 8 is a grand old tree. I hope to be able to get a photograph of it after the fall of the leaf, as it is surrounded by other trees. Some of the trees have suffered from wind and heavy falls of snow, but those that have escaped with but little injury are still handsome trees. I do not know if it is common for these trees to ripen seed in this country. I have two seedlings I raised about fifteen years ago: the tallest is now 15 feet high. [Seedling plants of all ages come up all over the grounds at Bayfordbury. ED.] *J. Freeman, Beechwood, Oct. 11.*

The Flower Garden.

BULBS, TUBERS, &c.

In planting Scillas, Grape Hyacinths, winter Aconites, and hosts of other hardy bulbs are often planted without effect, from being put too wide apart. If planted in lines, two or three lines should be planted side by side; if in clumps, three to four or five dozen should be planted in a circle about 1½ to 3 inches apart, according to the spread of the foliage. Where soil and situation are light and dry Ranunculus and Anemones may now be planted, but in cold heavy soils this had better be deferred till February; but if the situation be well adapted for autumn planting the plants will be much stronger, and will flower more satisfactorily than spring planted ones.

Jonquils never flower well the first year after planting. It is better to let them remain undisturbed for three or four years. Irises should now be planted; the sooner this is done the stronger will they flower; those which have been planted for two or three years should not be disturbed. A good top-dressing will be all that is necessary for the latter.

Narcissus should not be disturbed unless they have become densely matted together; once in five years will be often enough to separate them. The sooner the operation the better, as they will soon begin to emit fresh roots. A liberal addition of well-rotted cow-dung and fresh soil should be given to the beds previous to replanting.

Liliums should be planted as soon as received; if allowed to become flaccid through light and drought they sustain serious injury. *L. auratum*, and many others of the better sorts, succeed admirably planted in Rhododendron and other peat beds; they should, however, receive slight protection with dry leaves in severe weather.

Auriculas should now be housed for the winter. Carefully examine the drainage of each pot to see all is right; remove moss and other weeds from the soil, carefully guard against a stagnant state of the atmosphere, and do not over-water them.

The same applies to other alpine plants in pots. The sashes should be placed over them during fogs and rains. *Wm. M. Baillie, Luton Hoe Gardens.*

PLANTS AND THEIR CULTURE.

THE STOVE.

WHERE room is limited much may be done to increase it by taking from their trellises such things as Allamandas, Clerodendrons, Combretums, Dipladenias, &c., and tying them to stakes in an upright position; this will give growing plants more room, and will not hinder the ripening of the wood of those thus treated. Any plants of *Ixoras* that have grown to a considerable height should be pruned back, cutting well into the old wood, and if mealy-bug or scale be present the plants must be washed with an insecticide in the proportion of 6 or 8 oz. to the gallon of water, and this operation must be repeated several times at intervals of three or four days, but not carried over a period of a fortnight, as the plants will break in about that time, and the young growth would be injured. Now is the best time in the year to eradicate insects in the stove, and any plants infested ought to be thoroughly washed with a strong solution, repeating it until the pests are quite destroyed. Any plants about which there is any doubt as to their being thoroughly cleaned in this way should be cut back, as it is better to sacrifice a little of the flower the next season, than that insects should get the upper hand and be a source of annoyance the whole year. Where many subjects are infested, remove all plunging material, old plaster, &c.; have the walls whitewashed twice, stopping up every crevice, painting all woodwork, so that everything be quite clean. Be careful when bringing in young plants not to put them in contact with the older denizens until you are satisfied the latter are quite clean. Late Allamandas should be kept well up to the glass, as the blooms they put forth will be very useful during the next three weeks. Another useful plant is the old *Ixora coccinea*, whose large trusses of an uncommon colour are much appreciated. This department should now be quite gay with *Tydzas*; the varieties that I grow for late work are *aurantiaca*, *zebrina*, *Madame Heine*, *Madame Halphen*, *tricolor*, *M. Lavelle*, and *Robert le Diable*; these, arranged with early *Gardenias*, *Eucharis*, *Pancratiums*, *Gesneras*, plants with fine foliage, and an ending round the stages of *Panicum*, *Torenia*, *Smilax*, or *Cyrtodora fulgida*, are very pleasing. Late *Caladiums*, *Gloxinias*, and *Achimenes*, when the leaves begin to turn yellow, should be placed in a warm corner and watered more sparingly, but avoid the error of drying off too quickly, otherwise their coroms and tubers will be shrivelled. The same rule applies to *Gloriosas*, *Bilbergias*; these latter beautiful plants will soon be showing their blooms, and care should be exercised in the use of the syringe so as not to fill their crowns with water or the flower spike will rot and if by chance this should happen they must be turned upside down to drain. *A. Evans, Lythe Hill, Haslemere.*

THE BULB GARDEN.

AUTUMN AND WINTER CROCUSES AS DECORATIVE PLANTS.

I CAN fully endorse all that Mr. Douglas says in favour of autumn-flowering Crocuses, as they now form one of the most decorative features in my garden here, and it is surprising that the old and well known species, such as *speciosus* and *nudiflorus*, which respectively multiply so rapidly from bulbils and stolons, are not more widely cultivated. By far the greater number of known species have been introduced within the last ten years, and as yet there has scarcely been time for extensive multiplication and distribution. My object in writing is to point out how easily all the species of *Crocus* can be multiplied from seed, and how soon the little-known species ought to be within the reach of horticulturalists as common decorative plants. The seed should be gathered as soon

as the capsule commences to open, and at once sown in the open border.

Such of the autumn-flowering species as produce leaves at the flowering-time will vegetate in the autumn, and the remaining species in the spring, but many of the seeds may remain dormant for a year or two, and then vegetate. The seedling coroms of the first year are so small that they cannot be easily handled, and looking at the fact that dormant seeds will vegetate in the second year, I think it best to leave the seed-bed undisturbed for two or three years.

A few flowers may be produced the second year after sowing, and in the third year the plant has reached its maturity and flowers freely. The seed patch should then be taken up and replanted.

Of the autumnal species suitable for the open border the following may be enumerated for successional flowering:—

- C. Scharojani*.—Orange; early in August.
- C. vallicola*.—Straw-coloured; August and September.
- C. zonatus*.—Vinous-lilac; August and September.
- C. nudiflorus*.—Blue; September and October.
- C. pulchellus*.—Bluish-lilac; September and October.
- C. speciosus*.—Blue; September and October.
- C. iridiflorus* (byzantinus).—Blue; October.
- C. medus*.—Purple; October.
- C. asturicus*.—Purple, lilac, or white; October.
- C. cancellatus*.—White, blue, or striped; October.

Of the numerous varieties of *C. sativus*, *Cartwrightianus*, from the Greek Archipelago, is the most ornamental and floriferous, and in fine weather will produce an abundant display of its beautiful vinous-purple or pure white flowers. In a fine autumn *C. Boryi*, white; *C. Tournefortii*, lilac; and *C. lævigatus*, feathered purple, will all flower out-of-doors, but cannot be relied upon with the same certainty as the earlier autumnal species.

Ten years ago there were barely twenty species of *Crocus* in cultivation, now we possess almost the entire genus, and I have in my garden fifty-eight out of a genus of sixty-nine species. Their multiplication is only a question of time, and I hope in a year or two to assist in their distribution; but at present, in reply to numerous correspondents and applicants, I regret that I am not in a position to further diminish my stock. *George Mason, F.L.S., Benthall, Kenley, Surrey, October 6.*

FRUITS UNDER GLASS.

VINES.

LATE varieties should have all the sub-laterals removed forthwith, together with the tops of any unduly long main laterals, so as to allow of more light reaching the bunches as well as the wood. The plumpest bud on the lateral that is nearest to the main stem should be selected for producing fruit next year, cutting out all the other buds carefully so as not to injure the leaf at the base.

MELONS.

To ripen Melons satisfactorily in October and November suitable pits or houses should be provided, and these should have a good supply of top and bottom-heat (hot-water pipes) at command with which to maintain a night temperature of from 65° to 70° (according as the weather is cold or mild) and 70° to 75° by day, running it up to 80° with sun-heat, having a little air on at the same time. To attempt to grow Melons in the absence of proper accommodation during the late autumn months must end in failure, inasmuch as fruits grown under less favourable conditions must necessarily be deficient in size, colour, and flavour. To attain these points the temperature maintained in the houses during the ripening period of the fruits should be somewhat high, and dry and airy. Therefore the linings of frames in which Melons are grown being made up after the end of September, with a view to ripen or hasten the maturation of the fruit, is not only labour misapplied, but it is also calculated to thwart the quicker ripening and flavouring of the fruit, inasmuch as the steam which arises in the frames and settles upon the fruits is accompanied by a humid and stagnant atmosphere, and renders the flavour of the fruits thus grown little better than that of a Turnip.

Atmospheric moisture should after this date be distributed very sparingly in houses in which the plants are swelling their fruits, supplying only sufficient to promote gentle growth, using the syringe freely in the morning and afternoon of bright sunny days, at other times and states of the weather not at all; and as soon as the fruits approach maturity moisture, other than that arising from application of water at the roots, when necessary, and which should then be given in the morning, should not be distributed in the house. This remark applies especially to the houses in which fruit of such thin-skinned varieties as *Hero* of Lockinge are now ripening. *H. W. Ward, Longford Castle.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Oct. 18	Sale of Dutch Bulbs at Protheroe & Morris' Rooms. Sales of Dutch Bulbs and Plants from Ghent, at Stevens' Rooms.
TUESDAY,	Oct. 19	Sale of Nursery Stock, at Kilburn, by Protheroe & Morris. Clearance Sale of Nursery Stock, at the Anger Nurseries, Cambridge, by Protheroe & Morris (three days).
WEDNESDAY,	Oct. 20	Sale of Greenhouse Plants, Bulbs, &c., at Protheroe & Morris' Rooms. Sale of Nursery Stock and Greenhouse Plants, at the Loughborough Nursery, Brixton, by Protheroe & Morris. Sale of Dutch Bulbs and Plants from Ghent, at Stevens' Rooms.
THURSDAY,	Oct. 21	Apple and Pear Show at Exeter (two days). Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Sale of Established and Imported Orchids, at Stevens' Rooms. Sale of Imported Orchids, at Protheroe & Morris' Rooms.
FRIDAY,	Oct. 22	Clearance Sale of Nursery Stock, at The Nurseries, Lewisham, by Protheroe & Morris. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
SATURDAY,	Oct. 23	Sale of Dutch Bulbs and Plants from Ghent, at Stevens' Rooms.

IF there be any truth in popular opinion, the present autumn should be singularly favourable for RIPENING THE WOOD. No doubt in this case, as in many others, popular opinion is substantially correct. It is when we come to deal with explanations, and when we draw inferences from these so-called explanations, that error creeps in. A popular expression like this of "ripening the wood" requires overhauling now and then, in order to ascertain to what extent and in what manner it is representative of the truth. No doubt the expression was adopted by reason of the close analogy that exists between the ripening of the fruit and the maturation of the wood. That the two processes are similar is unquestionable, but that they are identical in their nature can hardly be true, seeing that permanence or continuity is aimed at in the one case, while the fruit is in general only a temporary device for securing the dispersion of the seed. Where it serves also as a protection, as in the case of the shell of a Coconut, the analogy between the two processes of ripening—that of the fruit and that of the wood—is of course closer. Close also is the analogy between the ripening of the wood and that of the seed.

Ripening of the wood involves two distinct things, one consolidation of structure, the other storage of nutritive matter. If consolidation were the only result it might be advantageous from the timber merchant's point of view, but it would be of much less moment from the standpoint of the fruit grower or of him who looks for the development of flower-buds in autumn. Consolidation is brought about by the deposit of woody matter in the cells. Of the two it is rather a sign of death than of life. Storage takes place principally in the cells of the bark which have a more active vitality than those of the wood, both actually and potentially. The storage that takes place is of starch, of fatty materials, of Grape-sugar, or other substances capable of supplying food either directly or more frequently indirectly for the use of the young bud when stimulated into renewed growth by the increasing heat of spring. But the food material has not only to be stored, it has to be made first, and this manufacture goes on all through the summer, being dependent on adequate supplies and appropriate combinations of light, heat, and moisture.

Ripening, then, in so far, is no new process specially peculiar to autumn. It has been going on to a certain extent during the summer in association with the growth or actual formation of new cells. This latter process during the autumn months receives a check from the diminished temperature and the lessened absorption and circulation of water; less food-matter is in consequence used up, and a proportionately larger amount stored for future use, while in all probability the chemical changes in the stored up matter are also proportionately

more active than before. Ripening of the wood, then, in a general sense, implies consolidation or hardening of tissue, drying up by diminished absorption of water, storage of and change in the nature of the food material. If these go on well and uninterruptedly the plant goes to rest as the temperature falls, such rest, however, not by any means being absolute inaction. But if after this natural process of ripening the temperature does not fall sufficiently, while the rainfall becomes excessive, growth continues or recommences, to the detriment of the tree when, later on, frost occurs. The wonder is that this second growth in late autumn does not happen oftener than it does, especially when it is borne in mind that growth in spring often recommences at a period when the conditions, so far as temperature is concerned, would seem less favourable than they are in autumn. All this seems to imply that the so-called rest of plants, the importance of which cultivators insist upon, is really a period of chemical action and change in the stored material, and that growth is not favoured until that action is advanced towards completion. How much growth has been prolonged and maturation deferred this autumn was apparent at the great Fruit Show held this week at Kensington, when, although the Apples were large and of good quality, they were deficient in colour as compared with their tint in an earlier season.

—PROFESSOR PYNARET.—We understand that the *flte* in honour of M. PYNARET, on the occasion of his entering upon the twenty-sixth year of his professorate at the Ghent School of Horticulture, will be held at the Casino, Ghent, at 4 P.M. on October 24, when a splendid work of art in bronze, together with an album of portraits of his friends, will be presented to him "avec grande solennité."

—THE PRIMULA CONFERENCE.—The report of this meeting, with the full text of the papers read and the discussion which took place, is now completed, and will, we believe, shortly be published in a number of the *Journal of the Royal Horticultural Society*. Appended to the report are full lists of the cultivated species of Primula, as well as of those not yet introduced into cultivation, and numerous documents likely to interest growers of these plants. Mr. RIDLEY's paper on "Orchid Nomenclature" at the provincial show of the Royal Horticultural Society at Liverpool will also be published in the same number, together with a summary of the discussion that took place on that occasion.

—BRITISH FUNGI.—The second volume of the Rev. JOHN STEVENSON'S *Enumeration of the British Hymenomycetes* has just been published by Messrs. BLACKWOOD & SONS. It contains the systematic description of numerous genera and species of Hymenomycetous fungi, with very neat illustrations by Mr. WORTHINGTON SMITH. A very useful feature consists in the explanation of the names. If in a future edition the accented syllables could be marked as a guide to pronunciation, the advantage would be enhanced. Another most desirable innovation for those who have to refer to foreign books, is the adoption of the metrical system for measurement, while to meet other requirements ordinary English measurements are also added.

—"BOTANICAL MAGAZINE."—The plants figured in the October number of the *Botanical Magazine* are the following:—

Tillandsia fenestratis, t. 6898.—The figure of this noble Bromeliad is taken from a plant that formed part of the collection of living plants of this order purchased for the Royal Gardens, Kew, from the representatives of the late Professor MORREN. As a foliage plant the broad leaves are remarkable for the numerous dark green veins which form little chequers or squares on a lighter-coloured ground. The flowers here shown are borne on an erect unbranched scape, bearing its yellowish flowers in two rows, each flower being about 2 to 2½ inches long, with green calyx and primrose-yellow corolla. The flowers exude an acid secretion tasting of vinegar, and which reddens litmus paper.

Begonia Johnstoni, t. 6899.—An interesting plant, inasmuch as it is a native of the tropical African mountain, Kilimanjaro, presuming the plant to be the same as that collected by Bishop HANNINGTON in the Masai country, a district far to the north-west of Kilimanjaro. The species has erect stems, oblique lanceolate crenate leaves, and clusters of small pink flowers.

Leontice Alberti, t. 6900.—An interesting and pretty plant, discovered by ALBERT REGEL in the Western Alatau Mountains between Tashkend and Samarcand. From a subglobose tuber proceed two leaves, with large oblong leafy stipules at the base of the long stalk, the blade of the leaf being palmately divided into five oblong, broad, obtuse segments rolled inwards in the young state. The flower-stalk is erect, provided near the apex with leafy bracts, from whose axils proceed yellow flowers, forming a pyramidal raceme, each flower being nearly 1 inch in diameter. The conformation of the flowers is curious, like that of most of the genera of the order to which it belongs (Berberidaceae).

Colchicum Troodi, t. 6901.—A very pretty species, flowered by Mr. ELVES in his garden at Cirencester. It is a native of the island of Cyprus, and has a corn like a Chestnut, from which is thrown up in late autumn a tuft of numerous white flowers, each with a very long slender tube and a limb divided into six linear oblong segments. The leaves do not appear till the following spring; they are long, strap-shaped, and rounded at the tips.

Iris Eulkefzi, t. 6902.—A native of Eastern Turkestan, with bearded flowers of a generally lilac colour, but described as of extraordinary beauty and delicacy, very difficult to describe. The plant dies down late in autumn, and does not shoot again till March or April. The plant has flowered in the collection of Professor FOSTER, also in the Botanic Gardens of Kew and Cambridge. Professor FOSTER says that it should be kept dry and under glass in summer in the same way as *I. Iberica*.

—"MALESIA."—The last part of this fine publication is devoted to the description and illustration of various Asiatic and especially Bornean plants collected and observed by Signor BECCARI. Signor UGO LINI MARTELLI describes the *Dillenia* collected by the same indefatigable explorer. Six lithographic plates, illustrative of structure, accompany the text.

—ORCHID SEEDS.—In a communication read before the Paris Academy of Sciences (*Comptes Rendus*, ciii., p. 357), and quoted in the *Pharmaceutical Journal*, M. PAUL MAURY points out that in the greater number of indigenous Orchids the ovules are not fully developed when the pollen-masses are ripe, and consequently it is only the ovaries at the base of the inflorescence which usually have fertile ovules, these being probably fertilised by the pollinia of the upper flowers. This slow development of the ovules may, he thinks, account for the remarkable tendency to hybridise manifested by many genera of Orchids.

—ERYNGIUM PANDANIFOLIUM.—The plant exhibited by JAMES BATMAN, Esq., from his garden at Worthing, at South Kensington, before the Floral Committee on Tuesday, was not a large one when planted out last spring in the open border, where it grew freely, and in a very short time from its showing flower produced the stem shown, which (measuring from the base) was upwards of 10 feet high. The leaves were some of them 8 or 9 feet long, and the general aspect of the plant very imposing.

—CHISWICK YOUNG GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—Under this title a society, which promises to be very beneficial from an educational point of view, was inaugurated on the 8th inst. amongst the men employed in the Royal Horticultural Society's gardens at Chiswick. Mr. A. F. BARRON was invited to act as President; Mr. JOHN FRASER, of Kew, to whom the idea is due in a great measure, was appointed Chairman, and Mr. J. BARRY, Secretary. Papers (with discussion) on various subjects connected with horticulture were announced to be read at future meetings.

—TONQUIN BEANS.—Reporting on the trade in Tonquin Beans (*Dipteryx odorata*) our contemporary, the *Chemist and Druggist*, says the crop of this article, especially the *Angustura* variety, has been an abundant one, amounting, it is said, to 150 tons, which would suffice for two years' consump-



"THE PHOTOGRAPH BY MR. J. M. MORTIMER, LONDON, E.C."

WHITE CLEMATIS JACKMANNI. (NOBLE).



tion, but the quality is stated to be below average. Nearly the whole has been consigned to New York, where all stocks are held by speculative operators, who seem firmly resolved to hold out for high prices. The British Consul at Bolivar, in Venezuela, in his report for 1885, just published, states that last year no Beans whatever were gathered in his district. The natives would not take the trouble to go to the Caura forests to collect the fruit, on account of the low prices at which they are compelled to sell it to the agents of the parties who hold the exclusive privilege of collecting and exporting the vegetable products of the immense forests of the territory of the Caura.

— PLANTING IN THE ISLE OF MAN.—Extensive planting operations have taken place in the Crown lands in this interesting island during the last four years. In 1882 contracts were entrusted to MESSRS. LITTLE & BALLANTYNE, Carlisle, which involved the planting of $3\frac{1}{2}$ millions of trees on five hundred acres of mountain land; and it is the success of these extensive operations which has led the Commissioners to go further into this important matter, and extend the number of trees annually. A competent forester from the Carlisle nurseries is in charge of the plantations and superintending the planting under the Department, which is now done as far as possible by native labour. Half of the trees which are to be planted this year have been again obtained from Knowefield.—Forest tree planting is about to be done on an extensive scale in the Isle of Man on the Crown lands, where shelter is much required. During the past week the Commissioner of Woods and Forests inspected and purchased over 300,000 forest trees from the well known Hexham nurseries, Messrs. WILLIAM FELL & CO., who tendered with samples for the supply and succeeded in securing this extensive order from the Government. Messrs. DICKSONS, of Edinburgh, and Mr. MITCHELL, of Stranraer, have also received orders. The Commissioners of Woods and Forests, having adopted the wise policy of putting down a mountain nursery to nurse and acclimatise the trees before being finally planted on the mountains, will insure greater success than when trees are removed from a distance direct to their permanent situations. We believe that Mr. MITCHELL has been commissioned to supply many timber trees less known than older ones, but which are doubtless destined to supplant them—e.g., the Douglas Fir, the Nordmann Fir, and *Thuja gigantea*.

— SEEDS OF EUROPEAN PLANTS IN THE TROPICS.—M. THIERRY, the Director of the Botanic Garden at Martinique, asserts that seeds of European plants lose their vitality much sooner in the tropics than in Europe; thus Cabbage seed does not retain its vitality for more than eight months instead of from eight to ten years in Europe; Artichoke three months as compared with five years; Lettuce three to five months instead of as many years; Peas four months against four years, and so on.

— A HAILSTORM NEAR PARIS.—The losses occasioned by the hailstorm of August 23 in the Department of the Seine, are estimated by a committee of the National Horticultural Society of France to amount to 5,500,000 francs (£220,000), thus distributed:—Florists, 2,500,000 francs; market gardeners, 1,500,000 francs; fruit growers, 1,500,000 francs. Great injury was done at Montreuil, where Peaches, Pears, Calville Apples, and other fruit, are grown against the walls. On these walls, especially those facing west and south, the fruit was battered to pieces, and the trees themselves destroyed. The Vines, of course, suffered proportionately. A loss of such severity will of necessity, from the circumstances of the case, be felt for several years. Among the market gardeners of Vincennes and Montreuil no fewer than 35,000 *clôches* are destroyed, while the growers of market plants and cut flowers have had their houses with their contents utterly destroyed.

— ANTHURIUM MOOREANUM x.—In our number for August 21, p. 230, Mr. N. E. BROWN described an Aroid cultivated by Mr. W. BULL under this name, and added that the native country was unknown. With reference to this plant Messrs. CHANTRIER FRÈRES, of Montefontaine, write as follows:—"Anthurium Mooreanum x is one of our hybrids, procured by the fertilisation of *Anthurium crystallinum* by pollen of *A. subsignatum*. It

was dedicated to Mr. F. MOORE, of the *Gardeners' Chronicle*, who saw the plant in our establishment." With this letter Messrs. CHANTRIER enclose an extract from their Catalogue for 1885, in which they give a description of the plant, stating that the leaves attain a length of 80 cm. by 50 cm. in width, supported by thick cylindrical stalks 50–60 cm. in length. The blade of the leaf is oval, with the basal sinus moderately wide, the primary and secondary nerves prominent on both surfaces, with a tendency to assume the form of *Anthurium subsignatum* in its rounded basal lobes. The leaf is above of a deep shining metallic green, with silvery-white nerves.

— UNSEASONABLE FRUIT AND FLOWERS.—The warmth of the season has, in the garden of Mr. J. WILLING, at Cricklewood, as in many other places, induced the Laburnum to put forth its long racemes, on the upper part of which the seed pods have formed; and the Raspberry to bear a late crop of fruit. That good sort of Gooseberry, Red Warrington, also comes to us from this garden in good eatable condition. Botanists who are familiar with the structure of these plants will not see anything very marvellous in such facts.

— LIQUORICE CULTURE IN DAMASCUS.—A considerable amount of business, it seems, has recently been done in Damascus and Syria generally in the exportation of Liquorice root to the United States. About four years ago, one of the partners in an American firm in Philadelphia largely concerned in the commerce of this article, visited Damascus with the object of ascertaining the amount and quality of the Liquorice root grown in the country, and of making purchases. The result of his enquiries having proved satisfactory, he gave orders for somewhat large consignments to be shipped to the United States, and appointed an American gentleman in Beyrout, well acquainted with the language of the people and having a thorough knowledge of the country, to act as agent of the firm. The Liquorice root can be obtained in considerable quantities to the north of Damascus, and in the neighbourhood of Lattakia and Antioch, and a regular business is now being carried on in this article. The amount exported last year from Damascus and other parts of Syria was valued at £30,000.

— LINNEAN SOCIETY.—Meetings of this Society will be held at Burlington House, on the following Thursdays, at 8 P.M.:—1886: November 4 and 18; December 2 and 16;—1887: January 20; February 3 and 17; March 3 and 17; April 7 and 21; May 5 and 14 (anniversary meeting at 3 P.M.); June 2 and 16.

— TRITOMAS.—M. LEBEUF makes a suggestion in a recent number of the *Garden* that growers of these plants should send specimens to the botanist most competent to deal with the subject and should moreover, subscribe a sufficient sum to defray the expenses of printing the monograph. The proceeds of half the copies sold it is suggested should be handed over to the botanist as his honorarium, the moiety to be sold for the benefit of any horticultural work that may be decided on. This is a new idea. The weeks and months and sometimes years that a botanist labours at a monograph without thought of fee or reward, are little appreciated or known to outsiders. If the time occupied and the drudgery undertaken by a competent monographer be considered, it must be admitted that a daily labourer receives far better wage than the man of science unless he be an engineer or a chemist who both contrive to make science pay, while the botanist but rarely gets paid at all, or when he is paid gets little more than the cost of pens, ink, and paper. This is a monstrous injustice to the botanist, but we fear M. LEBEUF's proposal, even if it were carried out, would not do much to meet the evil. In this matter of Tritomas, M. LEBEUF has overlooked the fact that Mr. BAKER has already monographed them in the *Journal of the Linnean Society*, vol. xi., 1871, p. 361, under the generic name of *Kniphofia*, and that he has supplemented that monograph by a synopsis of the Cape species in the *Journal of Botany*, 1885, p. 277. Several are figured in the *Botanical Magazine* and in the *Refugium Botanicum*. The cultivated species mentioned by Mr. BAKER are *K. sarmentosa* (Tritoma media, *Bot. Mag.*, 744); *K. pumila* (*Bot. Mag.*,

764); *K. Burchelli* (*Bot. Reg.*, t. 1745); *K. præcox* (*Refug. Bot.*, 168); *K. Roperi* (*Jardin Fleuriste*, t. 368, and *Garden Companion*, i., 113); *K. aloides* (*K. uvaria*, *Bot. Mag.*, 4816, *Tritoma uvaria*, *Bot. Mag.*, t. 758); *K. infundibularis* (*Journal of Botany*, 1885, p. 277); *K. Macowanii* (*Bot. Mag.*, 6167); *K. corallina* x, Hort. Deleuil, a hybrid between Macowanii and aloides; *K. caulescens* (*Bot. Mag.*, t. 5946). It should be stated that in his more recent recension Mr. BAKER includes under *K. aloides* (*aliar uvaria*) the variety maxima, *Bot. Mag.*, 6553, which is the *Tritoma grandiflora* of some gardens. The *K. præcox* of BAKER is referred to this variety as also the *Tritoma Saundersii* of CARRIÈRE. The var. nobilis is a still more robust form, figured in the *Revue Horticole*, 1885, p. 252. Altogether, much as we should like to see a monograph of *Kniphofia* with good illustrations, there is a multitude of genera in which the need is much greater.

— THE ROMAN FIG.—*Apròpos* of the recent discussion as to seedling Figs it may be of interest to note that in the *Hortus Duraveni* (1831), a nursery catalogue drawn up on a scientific plan, it is stated (p. 112) that the Roman Fig must be considered as a curiosity merely, it being planted by that people against the south-east side of the fortification Regulium, now Reculver, where it still grows in a wild state, and occasionally produces a fruit that attains perfection. It would be very interesting to know if that Fig is still in existence at Reculver, and still more so to know whether it produces seed. If some correspondent in that neighbourhood could secure a specimen of the fruit and foliage it would be very interesting, for whether it be of Roman origin, or whether, as seems more probable, it was planted by monks in later times, the fact remains that Mr. MASTERS, who was an excellent observer, with a good knowledge of botany, speaks of it as growing in the "wild state," and as "a curiosity."

— NEW SEEDLING PEAR.—The Pear, British Queen, exhibited by Mr. LAXTON, Bedford, at the Royal Horticultural Society's Show at South Kensington on Tuesday last, has been re-named Laxton's Bergamot, as there is already a Pear, British Queen, raised by the late Mr. THOMAS INGRAM, Frogmore.

— INDIAN FORESTS.—MR. RIEBENTROP, the officiating Inspector-General of Forests to the Government of India, has issued a "Review of Forest Administration in British India" for the year 1884–85. It comprises a series of statistical tables showing the area and boundaries of the forests in the several provinces of India, details of the surveys and working plans, statements as to the measures taken to protect and improve the forests, together with a statement of the working and yield, and the financial results. The reserved forests form about 53 per cent. of the total area of British India. Protection includes the carrying out of forest ordinances as well as protection from fire. As to this latter matter, it is pointed out that the enormous progress that has been made at the cost of hard work, anxiety, and exposure on the part of officers of every grade can hardly be sufficiently appreciated from the mere study of the tables appended. Experience already proves that trouble and money expended will be amply repaid by the final results. As a rule, protection is sufficient to ensure natural reproduction of the forest even in districts which have been temporarily ruined by neglect and former ill-treatment. Adequate protection, and the exercise of patience seem all that is required in most cases. The most hopeless cases are those in which the surface soil has entirely disappeared, and where the rainfall is scanty; but even there we imagine the clinks of the rocks contain deposits of fertile soil which could be utilised. The general results for all the provinces show a surplus revenue of more than 3,000,000 of rupees. The export of Teak for the year in question amounted to 47,556 tons (each ton = 56 cubic feet), valued at 112 rupees per ton. In addition, the exports comprised caoutchouc, shellac, Cardamons, Sandalwood and other ornamental woods, Gambier, Myrobalans, &c.

— ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT OF THE MADRAS PRESIDENCY, 1884–1885.—This report is drawn up on the same general plan as that for British India in general, but contains a formidable mass of detail, even the full return of stores and tools, such as rat-

traps, measuring tapes, penknives, rulers, and all the armamentarium required in the forests themselves or in the several offices are printed, with tabular statements of the number received or issued, their destination, value, and the comparative statements with past years. As some of the names of the native villages comprise some eighteen or twenty letters each, such as Sakarappanyakanur or Salupappillyarattamkammy, it is evident that the printing account of the Madras Government must be somewhat high, and it is questionable whether the cost of printing the record and destiny of tin boxes and the like does not, in many cases, outweigh the value of the articles themselves. In the Anamalai Mountains natural reproduction does not seem to be satisfactory, and planting will have to be carried out. Valuable lists of native trees, with the vernacular names, are appended.

NATIONAL CHRYSANTHEMUM SOCIETY.

The usual October general meeting of members of the above Society took place at the "Old Four Swans" Tavern, Bishopsgate Street, on Monday last, E. SANDERSON, Esq., President, in the chair, there being a large attendance of members. The minutes of the annual general meeting of January 26 last having been read, the Honorary Secretary announced that the first summer show took place at the Royal Aquarium on September 10, and proved highly encouraging as an experiment, the sum of £68 5s. having been awarded in prizes; also that application had been made by societies affiliated with them for forty-one medals and forty-three certificates. Twenty-four new members were proposed and elected, bringing the number up to a total of 360 in all. As showing the remarkable growth of the Society it may be mentioned that when Mr. W. HOLMES became its Honorary Secretary in 1874, there were fifty-seven members and a sum of something like £50 was offered in prizes. When the Society adopted its broader designation of National, about three years ago, there were just over one hundred members, now there is the large number just stated, and about £250 was paid in prize-money in 1885. The Honorary Secretary announced that Messrs. WOOD & SON, coal merchants, of Colney Hatch, had offered special prizes for Chrysanthemums, which would find a place in the schedule for 1887. The Honorary Secretary was empowered to make all necessary arrangements for the great show on November 10 and 11. Some discussion then took place in reference to the Reserve Fund, which consists of something like £80, and a resolution was unanimously passed directing the Honorary Secretary to communicate with the Treasurer with a view of placing the fund upon a more satisfactory basis. A cordial vote of thanks to the President closed the proceedings.

BARLEY EXPERIMENTS.—Professor GILBERT has published in the *Agricultural Students' Gazette* the lecture delivered by him at the Royal Agricultural College, Cirencester, and comprising an account of the experiments on the growth of Barley for more than thirty years in succession on the same land at Rothamsted. These experiments were conducted on the same plan as those for Wheat already discussed, and they illustrate the influence of exhaustion from long cropping, the effect of manures, and of variations of season. The general results show a close correspondence with those of Wheat when allowance is made for the fact that Barley is a spring-sown crop, and the Barley has less time to develop itself. Wheat, moreover, has a much greater root range than Barley which is more dependent for its food supplies on the surface soil, hence the decline of produce on the continuously unmanured plots is considerably greater than in the case of Wheat. The paper, like others that emanate from Rothamsted, is replete with statistical details, which are of the highest value for reference, and will ever continue to be so, for nowhere is there such a record of the effects of manure and season on the growth of plants, and physiologists and practical men must continue for long to base their work on these details. By way of illustration we may mention, that it is found at Rothamsted that the better the straw, the less the proportion of silica in it—a result amply borne out by the experiments, but one at variance with preconceived opinions. The strength of the straw depends more on the favourable development of the woody substance. The abolition of the malt-tax has not been productive of the advantages that were anticipated. "It would seem that the high duty served as

a bounty on the higher qualities of our own production, and that when this was removed the greater demand for medium qualities has given an advantage to the foreign grower." Nor has the removal of the duty led to an extended use of malt for feeding purposes. This is in accordance with the opinion long ago expressed by Sir J. LAWES and Dr. GILBERT as the result of experiments at Rothamsted. Barley, like Wheat, exhausts the soil of nitrogen, and also in greater proportion than Wheat takes up mineral matters; hence it is more directly benefited by superphosphate and mineral manure than Wheat. These comparative studies on the life-history and requirements of two grasses are not only of direct practical importance, but most valuable contributions to the physiology of vegetation.

TOBACCO IN HAVANA.—In a report on the trade of Havana it is stated that the prospects for 1886 were very good, the crops were very large, and the guano is now nearly worked out of the ground, which will make a large difference in the flavour of the ordinary crops. It is further stated that at the Antwerp Exhibition, 1885, where Tobacco of all climates formed one of the main exhibits, the highest awards were all obtained by manufacturers of Havana.

PLANTS UNDER MORE THAN ONE NAME.—It is alleged that the new Rose, *Schöne Namenlose*, raised by M. DEGEN, and sold by him for 1000 marks, has been renamed *Kneza Leontine Fürstberg* (*Fürstine Leontine Fürstberg*), and that it is offered to the trade under both names. If the facts be as stated, the practice is reprehensible.

CYPRIPEDIUM SEDENI.—A correspondent sends a flower of this species with a flat lip (regular perianth), and a column with three stamens, a 1, a 2, a 3. The three sepals were also separate—an interesting case.

BANANAS IN TENERIFFE.—The exportation of Bananas from Grand Canary is reported to be considerably on the increase, and it is expected that it will soon become one of the principal exports, as direct communication between Grand Canary and London is established. During last year from 40,000 to 50,000 clusters of this fruit were shipped to Europe, averaging 3s. per cluster, Grand Canary alone contributing between 25,000 and 30,000 clusters.

GARDENING APPOINTMENTS.—Mr. H. MUNDAY, Gardener to the late R. C. RANSOME, Orwell Lodge, Ipswich, has been appointed Head Gardener to W. H. TREGO, Esq., The Brookes, Reigate, Surrey. —Mr. A. PORTEOUS, late Gardener, Aldenham Abbey, has been appointed Gardener and Bailiff to B. E. GREEN, Esq., Midgham, Reading, Berkshire.

FREE-FLOWERING CLEMATIS.

[SEE EXTRA SHEET.]

PROFUSION of bloom rather than size in the individual flowers is the essential requisite to make a plant really effective, especially in such things as are intended to be seen in mass. A favourite exhibition Rose with its finely shaped blooms is beautiful, yet it is insignificant compared with an example of a climbing variety allowed to scramble on the side of a house, or the stump of a tree bearing quantities of flowers individually inconspicuous, but which, when seen in their thousands, put the small tree with its half dozen faultless flowers in the shade; so it is with Clematis. The flowers of the profuse blooming Jackmanni section are deficient in size as compared with many of the large varieties, still what they lose on this score is more than made up for by the immense sheet of bloom the plants bear. Not the least remarkable thing connected with gardening is the length of time it often takes for a desirable plant to become sufficiently known. Most people at all conversant with gardening matters are acquainted with C. Jackmanni, and only a little less so with its nearest relative, C. rubella, the only fault of which is that, though differing in colour, it is still, in this respect, too near C. Jackmanni. Several others of the same type there are, varying from dark mulberry to reddish-claret, but none of these have made their way in the estimation of the gardening community as C. Jackmanni has done through the fact of their not being sufficiently distinct from it in colour.

In the case of plants that come freely from seed when a cross has once been effected it does not often happen that there is any great length of time to wait before varieties sufficiently distinct in colour appear. But with this section of Clematis it has not been so, for until C. Jackmanni alba turned up with Mr. Noble there was a blank in this direction; and it seems that after a new variety of Clematis has been obtained more time is required to decide its merits than is necessary with most plants. I understand that it is something like eighteen years since C. Jackmanni alba was raised, and it is only within the last half-dozen years that one peculiarity connected with it has appeared, and which, by the way, is no doubt directly traceable to its parentage. The plant is, I believe, the result of crossing C. Jackmanni with the pollen of one of the white varieties of the patens type, which are spring bloomers. Five or six years back the plant began to produce a few flowers in spring, the time the patens section blooms; these were ragged muddy-coloured abortions, as indifferent in appearance as they well could be; and each season since a few of these have appeared, even on plants that are quite small. After this the growth that bears the full crop of autumn blooms goes on. It is best to pinch off these useless fugitive flowers as soon as they are seen. The illustration is from a photograph of the plant in the Sunningdale Nursery, as it appeared in the latter part of August; it covers a pole about 10 feet high, showing its floriferous character in a way that requires no comment. It is a robust, free grower. When the plant has acquired sufficient strength, it keeps on growing and producing flowers more or less until late in the autumn. This disposition to produce flowers in the spring of a different character to those forthcoming in the autumn is not confined to C. Jackmanni alba, alone. *Proteus*, a light coloured variety raised by Mr. Noble, produces each spring a crop of flowers perfectly double, and almost as large as a moderate sized *Proteus*. After these are over the plant makes fresh growth, blooming freely again in August, but at the second flowering the flowers are all single—not the least sign of doubleness about them. They are six-petalled, and about 5 inches across. The plant is well named after the mythological representative of all change, but there is nothing formidable in the appearance of its flowers.

C. *viticella rubra grandiflora*, a late-blooming variety, one of the viticella section, which comes in at the same time as the Jackmanni division, though apparently little known, is one of the best and most distinct coloured in cultivation. The flowers, when newly opened, are bright ruby-red, getting darker with age. It is a profuse bloomer, a plant in the Sunningdale Nursery—growing, like the others, on a stout pole—was covered with a mass of flowers that almost hid the leaves. If asked to name three distinct coloured autumn-blooming Clematis that give a profusion of flowers I should say C. Jackmanni, C. J. alba, and C. *viticella rubra grandiflora*.

REPORT ON SOME KINDS OF SEEDS OF THE HARVEST, 1886.

MESSRS. J. CARTER & CO., Holborn, London, send us the following:—

Red Clover.—The English crop, although not large, will be a very good one, as the fine summer and autumn has been most favourable to its development. The reports from Germany, France, Denmark, Italy, and other producing districts, vary considerably, the general estimates appearing to point to an average crop. American reports are, if anything, less promising than last year, the general opinion indicating that supplies will not be more than is likely to be required for the home consumption. Judging of the standard qualities from samples that have come into our possession, they are very sickly and poor in appearance, when contrasted with European-grown seed. It may therefore be reasonably expected the red Clover crop taken all round will be of quite an average character, and the quality of the English and European samples may be taken to range even better than those of last year.

White Clover.—There is again a fair average crop of good English seed, which must have been harvested in excellent condition. The predictions we have made in earlier reports as to the probable Continental output have been more than confirmed, and it is now an undeniable fact that the crops, both in Europe and America, are deficient in quantity and quality. In Moravia and Bohemia especially the crops are exceedingly meagre, whilst Galicia and Poland fine qualities will be few and

far between. In Austria and Hungary crops are reported exceedingly small, and the bulk of inferior quality. *Alfalfa*.—As usual some pretty English samples are advised as coming forward; reports of the Continental crop are uncertain at present, the general opinion being that the average will turn out a satisfactory one. It is rather early yet to expect reliable reports from Canada and the United States, but it will be remembered these districts produce such small quantities of this seed as to have little or no effect upon the market.

Trefoil is again an average crop, both in English and foreign seed, and no perceptible advance is expected for some time. Samples are bold and of good colour.

Lucerne is reported a little below the average, but some samples of excellent quality have come before us. *Timothy*.—The dry season in the United States has had the effect of considerably shortening the crop of this seed, and from the same cause the seed is more hulled than usual. On the other hand, the German crop is reported better than usual.

Italian Ryegrass.—The English, Irish, Scotch, and French crops are very large and of excellent quality; in fact, the present price for French grown is lower than it has been for many years. The samples of home-grown seed that we have handled show fine quality.

Perennial Ryegrass.—This proves to be an abundant crop both in Ireland and Scotland, and excepting where the rainfall has been exceptionally heavy, samples are bright in colour and of excellent quality; the natural weight per bushel is also heavier than the last few preceding years.

Rape continues remarkably low in price, and samples of the new crop bear indications of very fine quality. Unusually low values may be expected to rule for this article for some time.

Mustard.—A good average crop, of fine quality and bright colour.

Canary and Hemp.—Fair average crops.

Sweet and Turnips.—In quality exceedingly good, but the crops have come in short in some districts, whilst in others the very favourable summer and harvest has tended to deliveries exceeding in quantity the earlier estimate formed of the probable quantities.

NATURAL GRASSES.

Anthoxanthum odoratum.—This grass is reported to be only about a one-fourth average crop, owing to frost during the time the plant was in flower.

Agrostis stolonifera.—Both in Germany and America this is reported to be an average crop of fine quality.

Alphacurus pratensis is probably one of the shortest harvests for many years, and a large proportion of the samples show an exceedingly low range of germination.

Cynosurus cristatus may be taken generally to be quite an average crop, the samples of Dutch grown seed being remarkable both for colour and germination. On the other hand, the German and Irish samples are all more or less damaged by rain.

Dactylis glomerata in all producing districts is a very large and excellent crop, giving a high standard of vitality.

Festuca tenuifolia.—This crop is almost a failure, and it is fortunate that its principal use is in the formation of mixtures for lawns and pleasure-grounds, as there is not a sufficient supply of the seed in reliable quantity to meet any demand that might be created for the purposes of permanent pastures.

F. duriuscula is a heavy crop, and the seed is of excellent quality. Prices must range lower than usual.

F. pratensis.—The crop of this important grass is also a most satisfactory one, whilst the germination of such samples as we have tested has proved exceedingly good. Present prices rule very reasonable, and may be expected to continue.

F. elatior.—This grass is still exceedingly scarce, the principal source of supply being from the Australasian colonies. The average quality may be described as very good, and the germination up to the usual standard.

Poa trivialis and *P. nemoralis*.—Both are reported as scarce, the damage to the crops by rain being very great.

P. pratensis, on the other hand, both in Europe and America is reported to be a large crop, and all the samples we have seen give signs of excellent quality.

There is always a great range of values in these goods, as the price entirely depends upon vitality and purity. As usual there is an abundance of low quality seed upon the market at all sorts of prices.

are they particularly distinct or attractive in colour. In fact, it is too mild to be worth growing for garden decoration or for cut flowers, and is not good enough for exhibition, being just one of those worthless varieties that ought never to be distributed. T. W. Girdlestone.

Notices of Books.

The Flora of Oxfordshire.

MR. DRUCE'S *Flora* of this county has been recently published by Parker & Co., of Oxford. It is on the plan of Trimen and Dyer's *Flora of Middlesex*, and is preceded by an interesting introduction. While the flora of the immediate vicinity of Oxford is well known, it must be remembered that the city itself is on the borders of Berkshire, in which county the rich hunting ground of Bagley Wood is situate, and that the outlying districts of the county are little known by Oxford residents, who will, in consequence, be under obligations to Mr. Druce. Mr. Druce enumerates in all 910 species, a rather large number, and the enumeration is enlivened by numerous illustrative notes from the author's own pen, or from the works of his predecessors. A very interesting part of the work is his chapter on the botanists connected with Oxford, among which we find an appreciative note of the labours of the late William Baxter, one of the keenest botanists that have ever contributed to the knowledge of British plants; but we miss any account of the "weeds" of the Botanic Garden, which from the long establishment of the garden are of an interesting character, and some of which have spread in the neighbourhood. No doubt *Senecio squillidus*, the greatest ornament of the Oxford walls, was originally an escape from this garden. Transported from the dry oolitic walls to the flower garden, the plant alters its character, becomes much more robust and luxuriant, and produces a profusion of long-continued flowers; but, in any case, it belies its name, for it is a particularly ornamental plant, and how or why Linnaeus called it *S. squillidus* is a mystery. Oxfordshire, from the variety of its soil, is particularly well suited for investigation of the relation between the nature of the soil and the character of the plants growing on it, but this is a subject but little attended to in the present volume. Mr. Boswell adds a list of mosses and Hepaticæ, and other lists are given of Lichens and fungi.

Origin of Cultivated Plants.

A third edition of M. Alph. de Candolle's *Origine des Plantes cultivées* has been recently published by Felix Alcan, 108, Boulevard Saint Germain, Paris, the text having been revised and a few additions made. Amongst other things reference is made to Mr. Baker's paper on the tuberous species of Solanum and to his opinion that the *S. Maglia* of Molina and Dunal was not the origin of the cultivated *S. tuberosum* as Sabine, Lindley, and Darwin, and A. de Candolle himself, considered. Had M. de Candolle been aware of the result of the experimental culture made by Messrs. Sutton at Reading this year, he would have been more than ever convinced of the correctness of his views, for it is certain that *S. Maglia* received from Kew, and cultivated by Messrs. Sutton, has this year gone away from the *Maglia* form and assumed very much that of ordinary *tuberosum*. It may here be added that some mistake has crept into M. de Candolle's work at p. 374. The Potato flowers examined by Dr. Masters were grown at Chiswick, not at Kew, as stated, and though some 150 varieties have been under observation only a small proportion have flowered, although all of those that did flower bore out M. de Candolle's opinion. As to the origin of the *Gossypium barbadense*, generally cultivated in Tropical Africa, it seems probable that it originated from the species described by Dr. Masters as *G. Kirkii*, a native of Zanzibar, but further evidence is required.

Illustrated Handbook of Victoria.

We have already alluded to this excellent handbook to the colony of Victoria, and to the display made by this colony at the Colonial Exhibition; but the receipt of a copy from the Commissioner gives us an opportunity of again calling attention to it. No one thinking of taking up his residence in the colony

should do so without consulting this richly illustrated volume. Mr. J. L. Dow, M.P., writes on the agriculture of the colony, Mr. W. Elliott on the horticulture, due credit being given to the unwearied labour of Baron Von Mueller, and to the energy of Mr. Bosisto. Public gardens are common throughout the colony, and many of them are described as very handsome—a statement borne out by the numerous photographs exhibited at the Colonial Exhibition. The condition of the Melbourne Botanic Garden reflects great credit on the director, Mr. Guilfoyle. Numerous horticultural societies exist—one, the Royal Horticultural Society of Victoria, at Melbourne, having an experimental garden.

Subtropical Cultivators and Climates.*

The object of this book, as stated by the author, is to call attention to some of the lesser-known agricultural industries of subtropical regions, which are sources of wealth to the inhabitants, but which are almost unknown to the ordinary class of settlers in our Australian and other colonies. With the exception of Sir Ferdinand Mueller's *Select Extra-Tropical Plants*, we had no book which dealt authoritatively with this subject, and Mr. Haldane's carefully compiled and eminently practical work is destined to have a useful career. In it are given plain hints as regards the cultivation of fruits, alimentary plants, condiments, vegetable wax and tallow, oil-plants, fibres, drugs, tanning materials, dye-plants, as well as tables of the mean temperatures of subtropical countries in both the Northern and Southern Hemispheres. Mr. Haldane, himself an experienced and successful planter, brings to his aid a large and varied experience gathered in many lands, and hence his book is not merely a compilation, but the result of practical knowledge and observation, which fits it in a special manner to meet the requirements of "colonial settlers and emigrants." The chapters on Tea, Coffee, Olive, Fig, Orange, give within a short compass all that is necessary to enable an intelligent planter to draw his own conclusions as to the suitability of these industries to the temperature, soil, and climate of the country in which he dwells. Cinchona, although it bears a cooler climate than Coffee, is for some unexplained reason left out. The chapter on fibres is possibly the weakest in the book, for while it gives *Sorghum dura* as the first on the list of textile materials, it omits the celebrated China-grass, *Bemheria nivea*, and passes over the Agave fibres, which latter supply, next to hemp, the chief rope materials of the world. These and similar omissions will, no doubt, receive due attention in a subsequent edition, and by means of judicious pruning in such chapters as those on Tobacco, Cotton, &c., the size of the book need not be greatly enlarged. As a first attempt to deal in a practical manner with subtropical cultivations Mr. Haldane's book is decidedly a success, and the publishers have done everything they could to issue a neat and attractive volume.

CEYLON.

In a paper on this country the author says:—

Attention was first called to the fact that the island of Ceylon was practically known to Europeans only by its south-west part, being about one-fifth of the whole area, but including the chief European centres, the planting districts of the hills, and the railway system. The remainder of the country is thickly covered with jungle, thinly inhabited, and rarely visited by Europeans, save Government officials and sportsmen. This difference was shown to be due to climate, especially to rainfall. The distribution of the rain, so far as is shown by annual amount, was exhibited by a map, in which the great advantage to the south-west of the lofty forest-clad escarpment of the central mountain-mass of over 7000 feet was exhibited. The south-west monsoon wind commencing at the end of May deposits an immense quantity of rain here, especially in the neighbourhood of Adam's Peak. In the rest of the island this wind becomes dry, and the country is parched and arid until the arrival of the north-east monsoon, which commences in October. This wind brings rain to the whole island, and is the only rain which the dry districts get; in many places it all falls in a few weeks, when

* *Subtropical Cultivators and Climates*. A Handy-book for Planters, Colonists, and Settlers. By R. C. Haldane. Blackwood & Sons, 1886, pp. 308.

† On the *Flora of Ceylon*, especially as Affected by Climate. By Henry Trimen, M.B., F.L.S.

The Rosery.

ROSE ABBÉ GIRARDIN.

THE above Rose is a Bourbon variety sent out by Bernaix in 1881. It is not very vigorous, being of slender dwarf habit, though, like all Bourbons, it flowers freely in autumn. The flowers when opening are of a pleasing pointed shape, of a soft rose colour; but the bloom very rapidly opens out perfectly flat, and assumes a dull lilac tint.

It has been generally discarded, as it is not vigorous; its flowers are not large nor well enough formed, nor

the country is completely under water, though parched with drought for the rest of the year. This is very different to the well-known south-west of Ceylon, where, save in February or March, a fortnight's drought is a very rare event. In some parts over 200 inches falls in the year. In these respects Ceylon is an epitome or continuation of the southern Indian peninsula.

The peculiarities of the flora were then gone through in some detail, taking first the low country of the wet districts up to 3000 feet—in which the number of introduced tropical plants was commented upon; then of the lower hills, the principal home of the planting enterprise and Tea and Coffee estates; and next of the higher or true mountain districts above 5000 feet. In the low country the forest has been much destroyed by the indolent and improvident native mode of cultivation called *chena*, and but little virgin forest remains in this portion of Ceylon. From 3000 to 5000 feet the agent of destruction has been European planting, and the forest has almost wholly disappeared. Above 5000 feet land is no longer sold by Government. Attention was specially called to the concentration of endemic species in this wet district—over 80, or nearly 30 per cent. of the whole flora—and to the strongly Malayan, as distinguished from Peninsular Indian, type of these and of the whole flora.

There are no alpine plants in the Ceylon hills; dense forest covers their summits, but a number of temperate genera are represented. This flora is entirely Indian in type, with no genus represented which is not also found in the Nilghiris, but the number of endemic species is very remarkable, only about 200 being common to both mountain ranges.

A few remarks were then made upon the naturally open grass lands, called "patana," in the hills, and their peculiar vegetation. The flora of the great dry tracks of Ceylon was then considered. It is completely distinct from that already considered, being mainly the same as that of the Carnatic or Coromandel coast of India, with no Malayan admixture, and very few endemic species. The whole country is covered with forest, apparently primeval; but in reality much of it is secondary, and not more than 800 or 1000 years old, as is reported by native tradition, and evidenced by the vast remains of temples, tanks, and ancient buildings now overgrown with trees. Most of the timbers of importance in trade are obtained in these districts, and, owing to a very faulty forest conservancy, there is now but little first-class timber remaining, save in very remote places. The botanical characters of this forest, which is everywhere evergreen, were given; and the paper concluded with a few remarks on the coast flora, which is very uniform throughout the tropical belt of the world.

TSUGA BRUNONIANA.

SOME short time since (July 17, p. 73) we were favoured by Sir Joseph Hooker with a very picturesque description of this beautiful Hemlock Spruce and a drawing of the tree as found in its native country. We have now the opportunity of figuring a branch with cones from the rich collection at Dropmore (fig. 101). As seen there, the plant in its present state forms a dense oblong bush rather than a tree, the trunk being concealed by the thick pendulous branches. The leaves measure nearly an inch in length, and are of a very beautiful silver-grey on the under surface. The young cones, too, which are ovoid pointed in outline, are of a beautiful glaucous colour. From many of them the axis protrudes in the form of a small leaf-bearing shoot. We have also seen cone-bearing specimens from Mr. Rogers' nursery at Southampton, and from Mr. Farrant's grounds in the Isle of Man, and are familiar with the plant in various places, but nowhere have we seen it in more beautiful condition than at Dropmore. In most places it is considered tender. Representatives of this genus occur in north-eastern and in north-western America, in Japan, and in the Himalayas. The plants are like true Spruces, in their branches being provided with little peg-like projections; their pendulous cones with their persistent scales are also Spruce-like. Their flat leaves twisted at the base are more like those of the Silver Fir, but differing from all other Conifers in having one single resin canal in the centre of the leaf beneath the midrib.

All the Tsugas are of ornamental character, but, so

far as is known, of little value as timber trees. They have not been long enough in the country to enable any judgment to be formed as to their value for timber. The Canadian species, the Hemlock of Longfellow's "forest primeval," is, however, valued here for the sake of its bark, which is used for tanning.

HOME CORRESPONDENCE.

Burnt Earth for Alpine Plants.—Cultivators of alpine plants know how difficult it is to maintain in a healthy state for any length of time those species which in their natural habitats are limited to the fissures of rocks, e.g., many of the small hard-foliated Saxifrages and Androsaces, which seem to delight, not in high living, but to support themselves on a bare hard rock-surface with little apparent food-supply. Three or four years ago I made some experiments on the pot-culture of such species, one set being planted in a mixture of grit, peat, and a little loam and sand; a second in finely pulverised fire-brick; and a third set in finely pulverised soft red brick material. The ordinary treatment met with the ordinary result, the loss of a considerable proportion of the plants, the remainder becoming sickly and impoverished in a year or two. Those planted in the pulverised burnt brick dust formed a marked contrast to the first set, not only in the proportion of survivors, but in the thoroughly healthy aspect of the plants. In one case all died that were potted in the grit compost, those in the burnt brick dust remaining vigorous and healthy up to the present time. I believe that the most delicate alpine could be grown successfully in finely pulverised fire-brick refuse with a very slight admixture of peat and loam. Such a material insures perfect and immediate drainage, and from its absorbent qualities has the advantage of retaining the necessary moisture without becoming sodden. Burnt earth, calcined clay, and almost all burnt materials are absorbent of gases and ammonia, and thus become reservoirs of plant-food. The pulverised red-brick and pulverised fire-brick refuse produced very similar results, but I think they were slightly in favour of the ground fire-brick refuse. This can be obtained at most fire-brick works, and is technically known as "ground sherds." *George Maw, F.L.S., Bentham, Kentley, Oct. 6.*

Influence of Heat and Moisture on Fruit Crops.—The contrast between the crops of the three principal tree fruits, viz., Apples, Pears, and Plums, this year and last, is so great that it is worth while considering its cause. It will probably be admitted that the conditions necessary for producing good fruit crops are—1. A high temperature and moderate rainfall during July and August of the previous year. 2. An absence of severe (for the time of year) frost when the trees are in bloom. To these I venture to add—3. A rainfall of at least 2 inches (more or less according to the nature of the soil) in May when the fruit is setting. Generally speaking in 1885 there were poor crops of Pears and Plums, and fair to good crops of Apples. This year there have been remarkable crops of Plums, good crops of Pears, and poor crops of Apples. In my own garden at Colwyn Bay, where my observations have been made, all three crops were poor in 1885, while this year there are the best crops of Plums and Pears I have ever known, and fair crops of Apples, some varieties having good crops and others none. The orchard is on a terrace slope facing south-east, and the soil is porous and warm, being a decomposed clay-slate with many stones. In the accompanying statement the temperatures are taken from daily observations on instruments verified at Kew and in a Stevenson case. As regards these—1. Temperature of preceding year.—In 1884 the mean maximum temperature for July was only 1° lower than in 1885, but the hot weather was chiefly at the beginning of the month, when growth was or ought to have been going on, and there were 4.43 inches of rain. In July, 1885, the hot weather was from the 22d to 31st, without rain. In August, 1884, there was the unusually high mean maximum of 70°·6, the hottest weather being from the 1st to the 24th, with little rain. In August, 1885, there was a mean maximum of only 64°·7, the daily maxima being continuously above 65° for one week only, viz., from the 20th to the 26th. The difference of rainfall in the two years was not material. 2. Frost at time of blossom.—1885.—The lowest temperature registered in May (the Pears and Plums were not fairly in bloom till the first week in May) was 35°·3. The lowest in April, 32°·3, on the 17th, 1886.—On April 30 the thermometer registered 28°·7. An entry in my diary on May 9, that "many Pear trees have shed their petals," shows that most of them must have been in bloom on April 30. This is further shown by the fact that the Pear trees at the bottom of the hill in my kitchen garden have scarcely a Pear on them, the frost being, of course, more

intense at the lowest point. 3. Rainfall in May.—In 1885 this was 1.41 inch, in 1886 4.91 inches. We see, therefore, as regards the crop of 1885 that there was in July, 1884, a fairly high temperature at the beginning, but a high rainfall. August was an unusually hot and dry month. There was no frost in 1885 at the time of blossom. So far all is favourable to, at all events, a good crop of Apples. But the total rainfall for April and May, 1885, was only 2.93 inches. Taking now the crop of 1886, we have hot weather at the end of July, 1885, but a very cold August, and a sharp frost at the blossoming time of Pears and Plums. But the total rainfall for April and May, 1886, was 7.29 inches. The inference I draw from the above facts is, that to have good crops of Pears and Plums it is necessary that the latter half of the preceding July should be hot and dry, and for Apples, the first three weeks of August; while for all three a considerable rainfall in May is necessary. Spring frost had no effect where the trees were properly planted, i.e., Pears and Plums at the top of the slope and Apples at the bottom. This plan I adopted in planting my orchard, with the result that, in spite of thinning, there are breakdown crops of Pears in it while the older trees in the kitchen garden at the bottom of the hill have, as already stated, no crops. I would only add that, as we have not had a decent crop of Pears since 1879, periodicity will hardly account for it. If Plums we have never before had a fair crop, nor it much to boast of even this year; our summers are not hot enough. In my garden here (Chester) there is the finest crop of Pears I ever remember. Old standard trees have borne a crop which never did before—at all events, since 1870. *Alfred O. Walker, Chester.*

A Primula Sport.—One of the oddest of foliage sports from the Chinese Primrose I have yet seen Mr. James has in his capital collection of those florists at Weddell, Farnham Royal. The parent of the sport is a semi-double bright red, the which again sported from the Chiswick Red. But in the case of the new sport, of which there are six plants, and all from a batch of seed of the semi-double, saved and sown this year, has leaves utterly unlike that of any ordinary form of Primula; indeed, they are about the size and shape of Cyclamen leaves, or perhaps more nearly resemble those of Saxifraga sarmontosa, the edges almost rounded, and slightly serrated at the base. The stems are of the usual length, and dark red in hue. It will be exceedingly interesting to note what kind of flowers and floral habit will be later shown on these plants. *A. D.*

Helianthus latiflorus.—Amongst many gay autumn flowering plants which now brighten my garden on October 6, none surpasses *H. latiflorus* (Persoon), of which I have sent four flowers. This plant might easily be considered a tall late variety of *H. rigidus*; but Asa Gray notices its singularity in this class—has confirmed its position as a distinct species. The differences, however, are slight and hard to define. *H. latiflorus* in my garden is six weeks or two months later, and nearly 2 feet taller, than *H. rigidus*, reaching to nearly 7 feet. Asa Gray notices also a slight difference in the arrangement of the involucre bracts, which I have found more conspicuous in the bud than in the flower. The disc of *H. latiflorus* when in flower is less dark than that of *H. rigidus*. The former has more limited geographical range, being confined to the States touching Lake Michigan on the west and south. The flowers I have sent are of a semi-double form, a variation often assumed in cultivation by this section of Sun-flowers making them more ornamental. *C. Wolley Dod, Edge Hall, Malpas, Oct. 6.*

The Potato Crop and Cultivation.—The early and second early varieties suffered somewhat from drought during the early part of the season, but the crop has been good and free from disease, the tubers being rather smaller than usual. The varieties to which I allude are, Veitch's Ashleaf, Myatt's Ashleaf, Early Gladstream, Beauty of Hebron, Covent Garden Perfection, and Welford Park Kidney; International, with us, was very badly diseased. Late varieties, which we have not finished taking up, are most excellent, both as regards quantity, size, and being free from disease. Yorkshire Hero and Schoolmaster are two excellent varieties for dining-room purposes; Reading Hero and Snowflake also crop well; Magnum Bonums are a heavy crop, and much larger in size than last year; Wormlight Seedling is also an excellent crop. This variety carries us through for supply till new ones come in again, in quantity, next year. I find in cultivation (after some years' experience) that leaf-soils suit the requirements of the Potato better than anything else in the shape of manures; and I use it largely for this purpose. I have annually raised together in the park, from forty to fifty wagon-loads of leaves, principally Oak and Beech, which I use for the plunging of Pines, forcing Potatoes, and a variety of other purposes; and after it has served this purpose I have it turned over once or twice to help decay, and then apply it to the

ground intended for Potatoes. It is suitable for either a wet or dry season, and it invariably produces a crop of tubers of the best table quality. *Edward Ward, Hewell Gardens, Bromsgrove.*

Picea ajanensis.—Referring to the note of your correspondent, J. Douglas, respecting *Picea ajanensis*, I could agree with him that it is a very pretty

silvery on all its surfaces. *P. ajanensis* is pretty because of its dwarf, compact habit. *P. Parryana glauca* is something more than pretty because of its free, robust, and vigorous habit, combined with a uniform silviness. Mr. Douglas' note suggested to me the desirability of your correspondents indicating the situation or kind of soil to which their remarks apply. Mr. D. says, "Our ground is now parched

Planting-out *Bouvardias* during the Summer. —This practice has been followed during the past summer at the Royal Nursery, Slough, and with the best results. Three varieties appear to be in the largest demand—*Humboldtii*, *Hogarthii*, and *Alfred Neuner*. A goodly number of plants of these were planted out in the open ground as soon as danger from late spring frosts was over; they are now being lifted with good balls of soil to their roots and potted, placed in a cold frame, and kept a little close for a few days. They are already in bloom, and in a few weeks will be charming bushes of flowers; the growth is very robust, and the plants are all that can be desired in the matter of cleanliness. *Humboldtii* has large white long-tubed flowers, and it is the most fragrant of all, the perfume exhaled from the scented petals being much more noticeable in the evening than in any other part of the day. I have often seen *Bouvardias* summered in pots with great care and labour, and successfully, too, but they never appeared to me to possess the rich, vigorous, healthy, clean appearance the planted-out plants at Slough do. *R. D.*

A New Plant-Protecting Material.—Will you allow me space to call the attention of gardeners to Mr. Eddy's new waterproof canvas for protecting plants, &c., in pits and frames during winter, as I think it is superior to mats as a protection against frost and cold rain or snow? I used it here last winter for covering Pine pits, and found it excellent material, and after using it for six months it is almost as good as when first put on the pit, which is a great thing in its favour, for I believe it will last three times as long as the best Russian mats, and the cost is very little more than the mats would be to cover the same space. It can be had any width to cover ordinary pits. It has brass cyclet-holes fitted in the borders to prevent its being blown off by the wind. It should be had a little wider than the pit, so that the sides may lap over the back and front of the pits, as by so doing it keeps the inmates much warmer, and is less liable to blow off. I have no doubt Messrs. Eddy, the net manufacturers of Portliver, would supply estimates and all particulars to any one that might like to try the new covering. I feel sure whoever may do so will be pleased with the results. *J. Budd, Lacherby Hall Gardens.*

Bouvardia Humboldtii corymbiflora.—The most compact bushes that I have seen of this sweet-scented white flowering plant were in the gardens at Clarendon Park, near Salisbury, a short time since. The plants were planted out in good soil in an open space in the kitchen garden with several other early autumn and winter flowering plants, towards the end of May, and were afterwards attended to in the way of watering and pinching off the shoots, with the result that sturdily grown and compact plants were secured. At the time I saw them they had just been potted up, and stood under a temporary shading, and were covered with their beautiful *Stephanotis*-like flowers, which filled the evening air with a delicious perfume. Mr. Yarden, head gardener to Sir F. H. Bathurst, grows a goodly number of these easily managed plants, which he finds of great service for cut flowers adapted for all purposes. *H. W. W.*

Wasps.—Judging by the exceeding plague of wasps which trouble Mr. Fish so exceedingly, and with such remarkable singularity, this season, it would seem as if East Anglia were suffering some sort of insect affliction for special sins. It was very odd that being in a kitchen garden in Bucks, and right in the midst of literally thousands of acres of woodland, one morning lately, I should have remarked to a friend on the evident absence of wasps in such a district this season as afforded in splendid crops of Golden Drop Plums, ripe and luscious, yet hanging unprotected on wall trees, and also of Marie Louise Pears the same, and yet not a wasp to be seen. An exceedingly interesting query is thus presented for explanation by our entomologists, Why should wasps be so singularly scarce in the southern and western districts, and yet be so abundant in the cooler regions of East Anglia? I hope not only Mr. Fish but all gardeners of that unfortunate district are doing their best to destroy the nests, as, combined with the scarcity of these pests found elsewhere, something may be done to render them generally scarce for several years to come. *A. D.* [In another part of *Middlesex* to that in which our correspondent resides there has been no lack of wasps. *Ed.*]

Veitch's New Pea, Prodigy, and Others.—Several correspondents have given their opinion of this Pea, but not a favourable one. As I purchased it in quantity from Messrs. Veitch I wish to state how it has answered here. I was certainly disappointed with it to a certain extent, but believe it to be partly due to a bad season, as Peas in general were not a satisfactory crop in this neighbourhood after the first crops were gathered, mildew having been prevalent. I



FIG. 101.—*TSUGA BRUNONIANA*: HIMALAYAN HEMLOCK SPRUCE. (SEE P. 500.)

Japanese Spruce, but I think it unfortunate that he should compare it with a kind from another country, which it in nowise resembles, and I must demur to his expression that it is "a much prettier Spruce Fir than *Picea Parryana glauca* (*Picea pungens*), inasmuch as a Fir that is only silvery on one (the under) side would not in the eyes of many persons look prettier than a Fir that is

for want of water, but this suits the Japanese Conifer." From this I suppose he is speaking of a heavy, retentive soil, whilst here, on a light sandy loam, I find the Japanese Conifer revel in a wet season. This, as far as I remember, accords with the description of the abundant rains, or, rather, continuous drippings, spoken of by Miss Bird in the *Narrative of a Visit to Japan*. *J. S. G., York.*

think Prodigy is not a strong growing kind, and when the crop was in full bloom on a dry soil, and with a scorching sun (and no means of watering), most of the blooms fell off without setting; but after a nice rain made a second bloom, from which I had some nice gatherings for some time after. In a good season I have no doubt it will be much better, and hope to try it again; it has two points which should recommend it—cooking a nice green colour, and good at table. I exhibited a beautiful dish of Prodigy, amongst other kinds, at a local show in August, where none were named—it was not noticed by the judges; the first honours were given to a sort said to be Telephone, but nothing like the Telephone I have seen before, and which I have grown several times, but shall not do again. I am much more disappointed with Eckford's Duke of Connaught, sent out by Mr. Bull. After such high recommendation, and high price too—2s. 6d. per quarter pint—one expects to get something good for the money; it is also a mixed sort. I cannot see any improvement on many other kinds, and in my opinion it is certainly not equal to some such as Veitch's Perfection, Ne Plus Ultra, and the old Knight's Wrinkled Marrow, and others; but some of these cannot be had now, as there are so many so-called new kinds in the market, and gardeners are often driven to save their own seeds, as they are not to be depended on from other sources. I am beginning to think raising new Peas and new kinds of Potatoes must be a very profitable business, and after so much disappointment shall now keep to older varieties principally till I see something worth having and growing. *W. Divers, Kellon Hall, October 8.*

Carnivorous Nepenthes.—Has it been observed that the flowers of the Nepenthes Hookeri attract and catch the large beetles, and that even those with wings have no power of getting off the cup? My attention was attracted by the noise of their claws clattering on the sides of the cup of the flower. *Thos. Christy, Sydenham.* [Pitchers, not flowers, are probably meant by our correspondent. Ed.]

Amasonia punicea.—This introduction from British Guiana is fair to be a most valuable addition to our stove plants, and will, without doubt, be extensively cultivated when better known. Its inflorescence is most brilliant, the contrast between the vermilion-erimson bracts and creamy-white flowers is very effective. As a decorative plant it will prove to be a most distinct and useful subject. *Jas. Hudson.*

Grafted Grapes.—Under the above heading, in your last issue, p. 470, your correspondent, "Vitis," advises "J. S." to graft his Golden Queen Vine with Black Alicante or Gros Maroc. I beg to say that during my experience, which extends over thirty years, I have never been able to produce satisfactory black Grapes of any kind when worked upon a white variety, neither have I seen a good coloured sample result from such unions. It was of no interest to some of your experienced Grape growers who would furnish their experience on this subject. *T. L., Oakley Court, Windsor.*

Rhus radicans: Toxicodendron.—I enclose leaves of Rhus radicans; even the very wet weather we are having does not dim the singular beauty and brilliancy of its scarlet and yellow autumn colouring, if the plant be placed in a somewhat sunny position. It seems to be grown in various parts of the country as *Amelopsis japonica* [The plant was cultivated in some nurseries under this name, but the error should be corrected or the consequences may be serious. Ed.] and sometimes as a shrub, but as a climbing plant, against a wall, however, it develops Ivy-like roots, and climbs well. The following account of its poisonous qualities is given by Professor Kalm, in his *Travels in North America*; but as yet we have found no ill effects from growing it against the house, and using its beautiful autumn colouring for indoor decoration. These leaves have no smell, but the leaf-stalk has a very strong and disagreeable taste. Possibly the poisonous qualities may be lessened when the leaves change colour or from difference of climate. Professor Kalm says:—"When the stem is cut it emits a pale brown sap of a disagreeable scent. This sap is so sharp that the letters and character made upon linen with it cannot be got out again, but grow blacker the more the cloth is washed. Boys commonly marked their name on their linen with this juice. If you write with it on paper, the letters never go out, but grow blacker from time to time. This species of Sumach has the same noxious qualities as the poisonous Sumach or Poison-tree, which I have above described, being poisonous to some people though not to every one. Therefore, all that has been said of the Poison-tree is likewise applicable to this, excepting that the former has the stronger poison. However, I have seen people who have been as much swelled from the noxious exhalations of the latter as they could have been from those of the former. I likewise know that of two sisters, the one could manage the tree without

being affected by its venom, though the other immediately felt it as soon as the exhalations of the tree came near her, or whenever she came a yard or two near the tree, and even when she stood in the way of the wind which blew directly from the shrub. But upon me this species of Sumach has never exerted its evil power, though I made about a hundred experiments upon myself with the greatest success, and the juice once squirted into my eye without doing me any harm. On another person's hand, which I had covered very thick with the skin a few hours after became as hard as a piece of tanned leather, and peeled off on the following days as if little scales fell from it." (Vol. i, p. 140.) From this account the plant appears to fully deserve its American name of "Poison Ivy." Mongredien omits it in his *Trees and Shrubs for English Plantations*, because it is so poisonous; Loudon says it is of and of R. toxicodendron, which it is a variety. "The terrible effects of their poison are frequent and well authenticated;" and Mr. Wallace says that R. venenata is a still more poisonous species, the touch and smell of which make many people ill. It would be interesting to know whether any baneful effects from R. radicans have been noticed in this country. It will certainly be a loss to gardens if this beautiful plant is found to be a dangerous one to cultivate in them. *C. M. Owen.* [It is a dangerous acrid poison; botanists using their hands instead of a vasculum, should be prepared for the consequences. Ed.]

A Good Cabbage.—Mr. Frost is rather proud of the capital strain of Cabbage which he has at Dropmore, and with good reason, for it is remarkably dwarf, even, and turns in handsome, conical, fair-sized, hearts early. It is distinctive also, for the leafage is of a rich glaucous green, lacking that pale or silvery tint seen on so many Cabbages when full grown. Whether this admirable garden kind has been "discovered" and put into commerce recently under some other name or not, it is known at Dropmore, where it has been grown for many years, as Briginshaw's Cabbage, and also as some one's Favourite. I venture to think that, whatsoever its name, it is one of the best and most distinctive kinds we have. The breadths at Dropmore were planted in rows at about 16 inches apart. There were three breadths, the latest having just been planted for spring cutting. *A. D.*

Reports of Societies.

ROYAL HORTICULTURAL:

October 12 and 13.

A sowing of hardy fruits, remarkable for the number and excellence of the exhibits generally, took place on the above dates. The number of exhibitors was considerably in excess of the space available in the conservatory, and but little else but the fruit could be accommodated in any part.

The special prizes offered by Messrs. Carter & Co., Holborn, and Messrs. Sutton & Sons, Reading, resulted in some capital kitchen garden produce of diverse kinds being brought together, especially good being the small collections of vegetables shown in response to the offer of the last-named firm.

APPLES.

Taking the fruit shown in the order of the prize list, we find Apples occupying the first place, and with collections not to exceed fifty varieties, not less than six fruits of each variety (this latter condition concerning the number of fruits to a dish held good in all the Apple classes). Here Messrs. G. Bunyard & Co., Maidstone, Kent, secured the highest honours among eight competitors with a very creditable and handsome collection. The individual fruits were clean, large, and of good finish. Many of the leading varieties were exhibited, the best shown being Warner's King, Red Hawthornden, Schoolmaster, very fine specimens of Cellini Pippin, Grenadier, Cox's Orange, Stirling Castle, Cox's Pomona, Tower of Glamis, The Queen and Peasgood's Nonsuch, both of which were represented by very handsome fruit; Eckinville Pippin, Mr. Mundell, Lady's Finger, Liberty, &c. Mr. G. G. Slater, Devon Nurseries, Heavitree, Exeter, was a worthy ad, following closely on the first lot, and showing that Devonshire is not far behind Kent for fruit. He had fine specimens of the following in his collection:—Peasgood's Nonsuch, Tom Patt, Lady Henniker, Tower of Glamis, Cat's Head, Hollow Core, Golden Noble, Blenheim Orange, Allriston, Warner's King, and York-shire Beauty. The fruits were not of such high colour as Messrs. Bunyard's. Mr. J. Watkins was 3d, with a collection of fine fruit, conspicuous among which were Cat's Head, Worcester Pearmain, Lord Suffield, Yorkshire Beauty, Warner's King, Gloria Mundi, Winter Hawthornden, Cellini, Transparent Codlin, Custard, and Peasgood's Nonsuch.

For the varieties of culinary Apples Mr. McKenzie, Linton Gardens, Maidstone, was awarded the 1st prize, a keen competition, and had as his best fruits, Empor

Alexander, Lodding Seedling, Gloria Mundi, Peasgood's Nonsuch, Frogmore Prolific, Warner's King. The fruits here were very large, good, and decidedly handsome—a fine lot altogether. Mr. T. Turton, gr. to J. Hargreaves, Esq., of Reading, came 2d, with good Cellini, Prince Albert, and the place being allotted to Mr. C. Ross, gr. to G. B. Eyre, Esq., Wilford Park, Newbury. This was also a good collection, and included Grand Duke Constantine, Blenheim Orange, and Mère de Ménage.

Then came a class for six culinary Apples, which brought into competition there was a splendid show of fruit in this class, the best collection being that of Mr. A. Smith, gr. to W. K. Sewell, Esq., Warren Hill, Loughton, Essex. We noticed in this lot good samples of Emperor Alexander, which, however, was not so highly coloured as usual; Gloria Mundi, Peasgood's Nonsuch, and Eckinville Pippin. Mr. Threadgold, gr. to R. Norton, Esq., Downs House, Yalding, was 2d, and a very near one too. His best fruits were: Emperor Alexander, Striped Bauhin, Lord Derby, Gloria Mundi, and Stirling Castle. The 3d prize was awarded to Mr. F. Miller, gr. Northdown, Margate, who had good examples of Frogmore Prolific, Stirling Castle, and Peasgood's Nonsuch.

Now followed two classes for dessert Apples, corresponding to the foregoing for culinary. In the first of these, for twelve varieties, there were seven exhibitors. Mr. C. Ross staged the finest lot. In that collection, which was a good representative one, the best fruits shown were Gravenstein, Cornish Aromatic, a seedling from Golden Reinette called Lady A. F. Eyre, Worcester Pearmain, Baumann's Reinette, Blenheim Orange, and Exquisite. Mr. J. McKenzie was 2d, also a good lot, in which were Worcester Pearmain, Melon Apple, Yellow Ingestre, Ribston Pippin, and Mabbot's Pearmain. The 3d prize lot came from Mr. C. Slater; the best fruits were King of the Pippins, Blenheim Orange, and Gravenstein.

In the class for six varieties there were the greatest number of exhibitors for the collections, Mr. C. J. Goldsmith, gr. to C. A. Hoare, Esq., Kelsey Manor, Beckenham, having the premier collection among nineteen; his finest fruits were Worcester Pearmain, Fearn's Hill, King of the Pippins, Ribston Pippin, Mr. W. Jacob, Pound Street, Petworth, and Mr. H. Virgo, Walton-in-Gordano, Somerset, were respectively 2d and 3d. The collections shown by these two exhibitors were almost identical with the 1st prize lot.

There were also some classes for single varieties each, and these brought in many instances very keen competition, as many as twenty-nine entries being sometimes in one class. In each of these classes each exhibitor had to show six fruits of the one variety, and in many cases magnificent fruits were shown.

For Blenheim Orange there were twenty-four dishes shown, all fine samples. The premier award was given to Mr. S. Haines, Colehill House Gardens, Highworth. This exhibitor's fruits were of splendid quality, clean, and large. Mr. W. Jacob, and Mr. A. Evans, Lythe Hill, Haslemere, were 2d and 3d, also with good fruit.

Cox's Orange Pippin.—In an extensive competition, Mr. T. Bailey, gr. to T. Drake, Esq., Shardeloes, Amersham, had the finest dish, being closely followed by Messrs. G. Bunyard & Co., and Mr. S. H. Godwin, Mereworth, Kent. Prizes were awarded to the owners of the names. It is hardly necessary to state that all the dishes were creditable examples when it is known that there were twenty-nine competitors.

Ribston Pippin.—Mr. H. Folkes, Great Gaddesden, Herts, was 1st here, and deservedly so; the 2d and 3d prize lots were respectively from Mr. T. J. Goldsmith and Mr. R. Silk, Whiteness Gardens, Margate.

King of the Pippins.—The prizes for these were keenly contested for, there being twenty-eight dishes of the fruit shown. A dish of splendid fruits from Mr. G. Thompson, Crosby House Gardens, Hounslow, was placed 1st; Mr. C. Davies, Mote Park Gardens, Maidstone, secured the 2d place; and Mr. E. Chadwick, Hanger Hill Gardens, Ealing, was 3d. All these lots were of very good quality, and the fruits clean.

Golden Noble.—The same was the best dish being that of Mr. W. Jones, Wallington Bridge, Carshalton. These fruits were very fine. Good samples also were those of the 2d and 3d lots, from Mr. D. C. Powell, Powderham Castle Gardens, Exeter; and Mr. E. Chadwick.

Mère de Ménage. There was not great competition, but Mr. C. Ross' fruits, which were given the 1st place, were very good samples; Mr. G. H. Richards was a close ad, and Mr. D. C. Powell 3d.

Lady's Finger.—Mr. C. Ross also secured 1st for this variety, and Messrs. G. Bunyard & Co. and Mr. T. Bailey were 2d and 3d.

Golden Noble.—Mr. D. C. Powell, whose fruits it would be difficult to beat, justly received the 1st prize for Golden Noble; he was closely followed, however, by Mr. J. Bolton, Cotman's, Sevenoaks; the 3d prize lot came from Mr. Slater.

Warner's King was best shown by Mr. T. Turton, who was awarded the 1st prize in a fairly large and good competition, for very good specimens; and Messrs. G. Bunyard & Co. and Mr. J. T. Nacton, Nacton, Ipswich, were respectively 2d and 3d. All staged good, large, and clean fruits.

Gloria Mundi.—Here Mr. Threadgold carried off the premier award with fruits which deserved that recognition. Mr. D. C. Powell was a good ad, and Messrs. G. Bunyard & Co. 3d.

Peasgood's Nonsuch.—The ten dishes exhibited in this class were all of fine quality, and made a good display, as this variety always does. The prize lots ran rather very closely, the 1st being from Mr. W. Edwards, Withington; Mr. T. Turton, 2d, and Mr. W. H. Bannister, Cote House Gardens, Bristol.

Dahlia Zephyr, orange-crimson, with distinct margins of yellowish-buff, quite distinct and novel.

Messrs. Keynes, Williams & Co., of Salisbury, had a large collection of show Dahlias also, clear and bright, and in fine character for the season; among them Colonel, one of their new varieties, which must be very constant, as they have been able to show it for the space of two months at least.

Messrs. Henry Cannell & Sons, Swanley, had a collection of Cactus Dahlias. A First-class Certificate of Merit was awarded to Lady Kerston, rich shaded crimson, with maroon margins, fine and distinct. With these was shown a wonderful collection of cut blooms of named double Begonias, of remarkable variety and excellent quality.

FIRST-CLASS CERTIFICATES.

To Mr. Stevens, Putney, for Chrysanthemum Mons. William Holmes.

To Messrs. J. Veitch & Sons, for Rhododendrons amabile and R. luteum-roseum.

To Messrs. Rawlings Bros., for Dahlia K. T. Rawlings.

To Mr. G. Masters, Nutsford, for Adiantum Capillus-Veneris imbricatum.

To Baron Ferdinand de Rothschild, for Angreum caudatum.

To Messrs. Cheal & Sons, for Dahlias Helena and Hugo.

To Messrs. H. Cannell & Sons, for Dahlia Annie Harvey.

To Messrs. H. Cannell & Sons, for Begonias (double) Mrs. Plunket and B. Paul de Vicq.

To Mr. C. Turner, for Dahlia (single) Zephyr.

Fruit Committee.

Present:—T. Francis Rivers, Esq., in the chair; Messrs. J. Burnett, C. Ross, T. Saltmarsh, W. Denning, G. Norman, J. Ellam, G. Bunyard, A. W. Sutton, H. J. Veitch, F. Rutland, W. Paine, W. Warren, R. D. Blackmore, P. Crowley, S. Ford, Harrison Weir, T. B. Haywood, G. Goldsmith, G. T. Miles, and J. Woodbridge.

Three large Pumpkins were exhibited, and attracted a considerable amount of attention. The smallest one came from Mr. Pionchon, Shanklin, Isle of Wight, and weighed 90 lb.; another, weighing 100 lb., and having a little carbolic oil in it, was sent by Mr. C. Stied, New Farm, Ealing; the third, which was the finest of the lot, was exhibited by Mr. S. Jacobs, Covent Garden, W.C. This enormous Pumpkin weighed 187 lb., and had a diameter of between 2 and 3 feet; it had been grown in France, and a great deal of time and patience had been expended in carving and decorating the surface with trees, birds, &c. A Bronze Medal was awarded.

Mr. Jacobs also showed twelve Duchess Pears, having an aggregate weight of 228 oz., or an average of over 19 oz. each; these Pears were really magnificent samples, as also were a dozen of Easter Beurre from the same exhibitor, weighing 154 oz. together.

Mr. Pionchon also sent with his Pumpkin an interesting and representative collection of vegetables, containing splendid samples of Carrot, Beet, Marrow, &c.

A most interesting feature was formed by a collection of Grapes ripened in the open air, sent from Hungliff by Mr. Anton, Broomfield, near Epsom, Surrey, and from Ungarn, Franksanagarasse 25. We reserve our remarks on these Grapes till next week.

Mr. Butler, gr. to A. J. Thomas, Esq., Orchard House, Sittingbourne, had a collection of Apples and Pears, being in all twenty-six sorts. Pear Louise Bonne de Jersey was particularly noticeable on account of its rich colouring, which gave it a very pretty appearance. Pitmaston Duchess was represented by fine and large fruit. An Apple, St. Christopher, which obtained a Certificate in 1885, was very well shown.

Mr. A. Evans, of Broomfield Hill, Sussex, contributed a dish of Apples gathered in October, 1885, to show the keeping quality of the variety, which was Easter Pippin. The fruits were well kept, but slightly shrivelled. Cucumbers were also sent by this exhibitor.

Mr. H. Devereil, Banbury, exhibited seven stands of good samples of the following varieties: Park Hero, Anglo-White Spanish, and Improved Wroton—fine bulbs, and large-sized, fifteen of the first-named variety weighing 22½ lb., and the bulbs varying between 16 and 18 inches in circumference. A Silver Medal was awarded to these Onions. Runner Bean Ne Plus Ultra was also shown; it is a fine looking one, and attains great length. Both the Onions and Bean were referred to Chiswick for trial and comparison. Carrots were shown by the same exhibitor, and called Exhibition Early Scarlet Horn and Exhibition Scarlet Intermediate. The committee was of opinion that the varieties did not differ from those already in cultivation. Hope's Middleton Park Favourite Beet was also shown by Mr. Devereil. It is a variety of small growth and good colour, suitable alike for use in the flower and kitchen garden.

Mr. Laxton, Bedford, contributed a varied collection of fruit and vegetables, including Laxton's Bouncer Potato, which was lately certificated at Chiswick. It is a very handsome sort, with white smooth skin; in shape it is round. A new Apple, September Beauty, which has obtained certificate from the Royal Horticultural Society and the Crystal Palace. Laxton's Open-air Tomato, Noble Strawberry, Dartmouth Crab, &c., all of which we have noticed frequently before.

Messrs. Saltmarsh & Sons, Chelmsford, sent the Queen Apple, a very handsome fruit; also they sent a number of Plums, of which the best were Coe's Golden

Drop, Jefferson, and Wyedale. Two varieties of Crabs were well shown, viz., Tartarian, scarlet Siberian, a small round one, and the Dartmouth.

Messrs. T. Rivers & Son sent four varieties of Plums, namely Monarch, which was considered the best; October Yellow, St. Devis, and Grand Duke. All were good fruit, clear, and large.

Mr. W. Cole, gr. to Commissary-General Perkins, of Richmond, sent a small collection of Apples and Pears, which, however, do not call for any special comment.

A Tomato of the yellow class was shown by Mr. R. Dean, Ealing; it was named Prince of Orange and was decidedly handsome, as well as being large. It is a hybrid between Stamfordian and Green Gate, stated to ripen well out-of-doors.

Mr. J. Falkner, Ipsden, near Hungerford, sent a dish of Cob-nuts of first-rate quality, and which have also the advantage of being large.

From Mr. S. Ford, Leonardlee, came Apple Ford's Seedling, stated to keep well till May. The committee asked to see it again then.

A Fine-apple, Lord Carrington, was shown by Mr. G. T. Miles, The Gardens, High Wycombe. Other exhibits do not call for particular comment.

NATIONAL CHRYSANTHEMUM: Oct. 13.

The Floral Committee of this Society held its first meeting of the season at the Royal Aquarium last Wednesday. Mr. E. Sanderson, President, was in the chair, and several members were present. Mr. G. Stevens, St. John's Nursery, Putney, had First-class Certificates for William Holmes, a fine new early-flowering Japanese Chrysanthemum, with reflexed blossoms of an orange-chestnut-crimson colour, with golden centre, an early form of the Callington type; also shown by Mr. H. Davis, of Camberwell, who obtained the same award. Certificates were also awarded to Japanese Chrysanthemum Mrs. Stevens, very delicate blush-pink, full and of good form, an early flower in the way of Fanny Bouchard; Thomas Stevens, delicate pink tinged with lilac, small, good form, and very pretty; commended. M. Simon Delaux, florist, Toulouse, sent a number of cut flowers of Chrysanthemums of the Christine or hybrid pompon type, the best being pompon Duc d'Orange, pale orange; commended; Mons. Van Hulle, bronzy-yellow and orange centre; Mons. Rivers, blush-pink, early; Mad. E. Rouges, delicate lilac-pink; Mad. Rivers, bright lilac; and Mdle. Rouges, blush.

From Mr. Beckett, of Elstree, came Japanese Carew Underwood, golden-orange centre and bronzy-lilac circumference, the flower being entirely suffused with the latter—a fine variety, awarded a First-class Certificate of Merit. Mr. W. E. Boyce, Archway Nursery, Highgate, had early pompon MM. Paul et fils, pale yellow, small; and Japanese Mons. Neville, a reflexed variety, with good flowers of a blush-pink colour. Mr. J. Wright, Temple Gardens, had pompon Elise Dordans, delicate blush-pink, large finely formed flowers, a good exhibition variety, awarded a First-class Certificate of Merit; and the same award was made to Mr. N. Davis for the same variety; also Miss Cannell, a Japanese variety, blush-pink, dwarf-growing, good habit, a capital decorative variety. Mr. Watson, Bowes Park Nursery, Southgate, had pompon Red Indian, pale bright chestnut-red compact flowers. Mr. H. Jones, Hope Nursery, Lewisham, had Mdle. Melaine Fabre, a reflexed Japanese, clear pink, good full flowers, dwarf habit; awarded a vote of thanks. Mr. Davis, The Nurseries, Camberwell, had pompon Alice Butcher, orange and pale red, sport from the red-lilac-coloured Lyon; awarded a First-class Certificate of Merit; and Japanese, Mons. Corsart, gold, shaded with bright cinnamon, small, but very pleasing, was Commended. A Bronze Medal was awarded to Mr. Davis for an admirable collection of early-flowering Japanese and pompon varieties.

Votes of thanks were awarded to Mr. Jones, of Lewisham, for a collection of cut blooms, capitally set up; to Mr. E. Boyce, for a stand of cut flowers. Mr. R. Owen, nurseryman, Maidenhead, had a collection of his new single annual Chrysanthemums, including Cloth of Gold, yellow; Yellow Perfection, white, with a ring of gold round a dark eye; Cloth of Silver, white, with broad golden band round a yellow centre; Mons. Hoste, a crimson Japanese Chrysanthemum; and some Cactus Dahlias.

PRESENTATION.—On the evening of Tuesday, the 5th inst., a testimonial in the shape of a handsome illuminated address was presented to Mr. F. NEWMAN, on his leaving E. SALT, Esq., Fernhurst, Shipley. The proceedings took place at 8, Otley Road, Shipley, when Mr. B. SPENCER, of Bradford, was entrusted with the duty of making the presentation on behalf of the subscribers. In making the presentation Mr. SPENCER eulogised Mr. NEWMAN as being an able horticulturist, and a man of a kind and genial disposition, which was thoroughly corroborated by Mr. ANDREWS, who spoke on behalf of the subscribers.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, OCTOBER 13, 1886.

MONTH AND DAY.	BAROMETER		TEMPERATURE OF THE AIR.					Hygrometrical Deviations from Glasgow's Tables 5th Edition.		WIND.	RAINFALL.	
	Mean Reading Reduced to Sea Level.	Departure from Average of 45 years.	Highest.	Lowest.	Range.	Mean for Month.	Departure of Mean from Average of 45 years.	Dir. Point of Wind.	Force of Wind.	Average Direction.		
Oct.	In.	In.	°	°	°	°	°	°	°	°	In.	
7	29.69	+0.00	61.0	50.0	11.0	55.3	+	2.7	54.0	99	E.	0.21
8	29.79	−0.20	59.0	59.5	8.5	54.4	+	2.9	53.6	107	S.E.	0.06
9	29.47	−0.39	50.0	50.5	12.5	55.8	+	3.9	53.5	92	S.E.	0.00
10	29.57	−0.13	50.6	50.4	0.4	61.7	+	0.1	61.6	71	S.W.	0.08
11	29.76	+0.06	50.5	46.1	0.4	55.7	+	1.4	55.3	76	S.W.	0.02
12	29.35	−0.45	50.6	50.5	0.1	57.5	+	2.4	53.4	93	S.W.	0.31
13	29.34	−0.46	51.4	50.0	0.4	59.9	+	1.5	54.4	84	S.W.	0.00
Mean	29.54	−0.16	50.6	48.2	11.4	53.5	+	2.4	53.6	87	S.E.	0.08

- Oct. 7.—Overcast all day, with occasional showers.
 8.—Overcast all day, very dull. Fog at night.
 9.—Morning misty, fine and bright at times.
 10.—Fine and bright till 1 p.m., overcast with rain at 3 p.m., fine afterwards.
 11.—Fine day, but frequently dull.
 12.—Overcast all day, rain falling from 2 p.m.
 13.—Fine and bright morning, but frequently dull afterwards.

LONDON: Atmospheric Pressure.—During the week ending October 9th, the reading of the barometer at the level of the sea increased from 29.90 inches at the beginning of the week, to 30.05 inches by the morning of the 3rd, decreased to 29.75 inches by the afternoon of the 5th, increased to 29.99 inches by 1 p.m. on the 8th, decreased to 29.42 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.78 inches, being 0.20 inch lower than last week, and 0.01 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 75° on the 4th and 5th; the highest on the 8th was 59°. The mean of the seven high day temperatures was 66°.5.

The lowest temperature in the week was 44° on the 3rd; the lowest on the 6th, was 54°.5. The mean of the seven low night temperatures was 51°.

The greatest range of temperature in one day was 25° on the 3rd, the smallest was 8° on the 8th. The mean of the seven daily ranges was 15°.

The mean daily temperatures were, 55°.5 on the 3rd, 64° on the 4th, 63°.6 on the 5th, 57°.9 on the 6th, 55°.3 on the 7th, 54°.4 on the 8th, and 55°.8 on the 9th. These were all above their averages, by 1°.6, 10°.5, 10°.4, 5°.0, 2°.7, 2°.2, and 3°.9 respectively.

The mean temperature of the week was 58°.1, being 0°.6 higher than last week, and 5°.2 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 121° on the 5th. The mean of the seven high readings was 97°.8.

Rain.—Rain fell on three days to the amount of 0°.50-inch.

ENGLAND: Temperature.—During the week ending October 9th, the highest temperatures were 79°.5 at Cambridge, 75° at Blackheath, and 72°.8 at Nottingham; the highest at Sunderland was 59°, at Bradford 63°.6, and at Sheffield and Newcastle 64°. The general mean was 68°.7.

The lowest temperatures were at Cambridge 41°.5, at Wolverhampton 41°.8, and at Sheffield 43°; the lowest at Brighton was 49°, at Bristol 48°, and at Nottingham 47°.6. The general mean was 45°.3.

The greatest ranges were at Cambridge 38°, at Blackheath 31°.5, and at Wolverhampton 28°.8; the least ranges were at Sunderland 13°, at Newcastle 17°, and at Bradford 18°.4. The general mean was 23°.5.

The mean of the seven high day temperatures was

SEEDS

LONDON: Oct. 13.—Messrs. John Shaw & Sons, Seed Merchants, of 37, Mark Lane, E.C., report to-day's market inactive, business being confined to very narrow limits. For the moment the consumptive demand is almost nil, whilst there is just now a complete absence of speculation also. Winter Tares move off slowly at the remarkably low rates previously noted. Some choice new American red Clover seed is just coming to hand. For blue boiling Peas and Haricot Beans the inquiry is meagre; the colder weather will greatly enhance the demand. There is no important change in the trade for Hemp and Canary seeds. Rather more money is asked for feeding Linsed.

CORN.

MARK LANE: Oct. 11.—Only a limited business in Wheat was concluded, and on the week prices are barely steady. Fine malting Barley was in steady request, at firmer prices, but ordinary and grinding descriptions were dull and in favour of buyers. Beans met less demand, and were 6d. lower on the week, and Peas from the same cause, with larger arrivals, were 1s. lower. Maize sold slowly without appreciable change. Oats, of which arrivals have been good, met a fair demand at generally firm rates.

Oct. 13.—The Wheat trade continued dull, but with very little change in prices. Flour was an equally slack trade, with prices nominally unaltered. Grinding Barley met very little inquiry, but sales have not been pressing. Good malting qualities continued firm. Beans and Peas sold slowly at Monday's rates. Maize was quiet, but steady in value. Oats showed a further hardening tendency, with a fair demand.

Average prices of corn for the week ending October 9:—Wheat, 30s.; Barley, 26s.; Oats, 17s. 8d. For the corresponding period last year:—Wheat, 30s. 7d.; Barley, 30s. 11d.; Oats, 18s. 8d.

FRUITS AND VEGETABLES.

COLUMBIA (East London): Oct. 13.—Plentiful supplies and trade good at slightly advanced rates. Quotations: Damsons, 2s. 6d. to 4s. 6d. per bushel; Plums, 2s. to 5s. 6d.; Apples, 2s. 6d. to 5s. 6d.; Pears, 3s. to 5s. 6d.; Cauliflowers, 1s. 6d. to 3s. per tally; Cabbages, 2s. 6d. to 4s. 6d.; Vegetable Marrows, 2s. to 4s. 6d.; Scarlet Beans, 1s. to 2s. per sieve; Broccoli, 1s. 6d. to 2s. per dozen bunches; Turnips, 2s. to 2s. 6d.; Carrots, 1s. 6d. to 2s. 6d.; Onions, 3s. 6d. to 4s. per cwt.; Carrots, 2s. to 3s. 6d. per ton; Mangels, 17s. 6d. to 20s. 6d.

STRATFORD: Oct. 12.—The market has been well supplied, and a fair trade has been done at the under-mentioned prices:—Cabbages, 2s. 6d. to 3s. 6d. per tally; Savoy, 4s. to 5s. 6d.; Cauliflowers, 1s. 6d. to 2s. 6d. per dozen; Turnips, 1s. 6d. to 2s. per dozen bunches; Carrots, household, 3s. 6d. to 4s. per ton; Mangels, 15s. to 17s. 6d.; Swedes, 2s. to 2s. 6d.; Onions, 8s. 6d.; do, pickle, 3s. 6d. to 4s. per sack; Watercress, 6d. per dozen; Apples, 3s. 6d. per bushel; Pears, 3s. to 4s. 6d.; Plums, 1s. 6d. to 2s. per half sieve; Damsons, 1s. 6d. to 2s. 6d.; Celery, 8s. to 9s. per dozen rolls.

POTATOS.

BOROUGH AND SPITALFIELDS: Oct. 12.—There were full supplies of indifferent quality, which were very dull of sale. Best qualities in moderate supply and supported in value. Quotations:—Kent Regents, 50s. to 60s.; Essex, 50s. to 80s.; Early Rose, 60s. to 70s.; Magnum Bonums, 50s. to 80s.; and Hebrons, 60s. to 95s. per ton.

COLUMBIA (East London): Oct. 13.—Quotations:—York and Lincoln Magnums, 50s. to 65s.; Regents, 60s. to 70s.; Victorias, 60s. to 70s.; Kent and Surrey Regents, 70s. to 80s.; Magnum Bonums, 50s. to 70s.; Cambridge-shire Regents, 60s. to 70s. per ton.

STRATFORD: Oct. 12.—Quotations:—Magnums, 60s. to 65s.; Regents, 60s. to 70s.; and Blackland, 50s. to 60s. per ton.

Imports.—The imports into London last week consisted of 28 sacks from Boulogne, 671 bags from Harlingen, 9 from Rotterdam, 54 tons from Roscoff, and 409 bags from Hamburg.

HAY.

WHITECHAPEL, Oct. 12.—The Clover trade was very depressed, with continued large supplies. Best hay meets a fair inquiry. Quotations:—Clover, prime, 88s. to 104s.; inferior, 70s. to 84s.; hay, prime, 70s. to 90s.; inferior, 30s. to 65s.; and straw, 27s. to 38s. per load.

Oct. 14.—There was a moderate supply on offer. The trade was very dull at late rates.

CUMBERLAND (Regent's Park): Oct. 12.—A large supply was on offer, but very dull trade, greatly influenced by the very large quantities of Clover, best, 84s. to 100s.; second, 70s. to 84s.; hay, best, 80s. to 85s.; second, 60s. to 75s.; and straw, 28s. to 36s. per load.

STRATFORD: Oct. 12.—Quotations: Hay, 80s. to 84s.; Clover, 90s. to 95s.; and straw, 30s. to 33s. per load.

Government Stock.—Consols closed on Monday at the prices of the preceding Saturday, viz., 100½ for delivery, and 101 to 101½ for the account. The final quotations of Tuesday and Wednesday were 100½ for delivery, and 100½ to 100½ for the account. The closing record on Thursday was 100½ to 100½ for delivery, and 100½ to 100½ for the account.

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CHEAP

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FLOWERING SIMULTANEOUSLY. Per 100. Per doz.

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Carters' Deep Rose ..	18	0	3	0
Carters' Light Rose ..	18	0	3	0
Carters' Rich Purple ..	18	0	3	0
Carters' Dark Blue ..	18	0	3	0
Carters' Light Blue ..	18	0	3	0
Carters' Pure White ..	21	0	3	6
Carters' White-Tinted ..	21	0	3	6
Carters' Canary-Yellow ..	21	0	3	6

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Choice Varieties of the following:—

- 12 TREE CARNATIONS, 6s.; 12 Yellow-flowered, 12s.
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- 12 AZALEA INDICA, covered with flower buds, 18s. and 24s.
- 12 "MOLLIS, duto, fine for cutting, 12s. and 18s.
- 12 CAMELLIAS, covered with flower buds, 27s., 30s., 42s.

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| 24 Tulips, single late. | 50 Spanish Iris. |
| 50 Narcissus, Polyanthus. | 24 Tritelia uniflora. |
| 50 Narcissus, incomparabilis. | 24 Gladioli. |
| 24 Narcissus, Poeticus. | 4 Lilium umbellatum. |
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| 6 Duc van Thol, red and yellow, single, scarce, [low. | 12 Scilla sibirica (pænoc). |
| Tulips, double early— | 12 "Sparaxis. |
| 6 La Candeur, pure white. | 12 "Oxalis. |
| 6 Rex Rubrum, fine crimson. | 12 Choice Hyacinths (H. bo-tryoides). |
| 6 Tuinsoort, [son. | 6 Franchis hymalis. |
| Crocus— | 6 Snowdrops. |
| 100 in 100 fine named varieties. | 6 Iris Favonia. |
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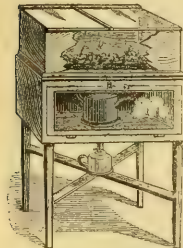
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116 inches, 395s.; 118 inches, 402s.; 120 inches, 410s.; 122 inches, 418s.; 124 inches, 425s.; 126 inches, 432s.; 128 inches, 440s.; 130 inches, 448s.; 132 inches, 455s.; 134 inches, 462s.; 136 inches, 470s.; 138 inches, 478s.; 140 inches, 485s.; 142 inches, 492s.; 144 inches, 500s.; 146 inches, 508s.; 148 inches, 515s.; 150 inches, 522s.; 152 inches, 530s.; 154 inches, 538s.; 156 inches, 545s.; 158 inches, 552s.; 160 inches, 560s.; 162 inches, 568s.; 164 inches, 575s.; 166 inches, 582s.; 168 inches, 590s.; 170 inches, 598s.; 172 inches, 605s.; 174 inches, 612s.; 176 inches, 620s.; 178 inches, 628s.; 180 inches, 635s.; 182 inches, 642s.; 184 inches, 650s.; 186 inches, 658s.; 188 inches, 665s.; 190 inches, 672s.; 192 inches, 680s.; 194 inches, 688s.; 196 inches, 695s.; 198 inches, 702s.; 200 inches, 710s.; 202 inches, 718s.; 204 inches, 725s.; 206 inches, 732s.; 208 inches, 740s.; 210 inches, 748s.; 212 inches, 755s.; 214 inches, 762s.; 216 inches, 770s.; 218 inches, 778s.; 220 inches, 785s.; 222 inches, 792s.; 224 inches, 800s.; 226 inches, 808s.; 228 inches, 815s.; 230 inches, 822s.; 232 inches, 830s.; 234 inches, 838s.; 236 inches, 845s.; 238 inches, 852s.; 240 inches, 860s.; 242 inches, 868s.; 244 inches, 875s.; 246 inches, 882s.; 248 inches, 890s.; 250 inches, 898s.; 252 inches, 905s.; 254 inches, 912s.; 256 inches, 920s.; 258 inches, 928s.; 260 inches, 935s.; 262 inches, 942s.; 264 inches, 950s.; 266 inches, 958s.; 268 inches, 965s.; 270 inches, 972s.; 272 inches, 980s.; 274 inches, 988s.; 276 inches, 995s.; 278 inches, 1002s.; 280 inches, 1010s.; 282 inches, 1018s.; 284 inches, 1025s.; 286 inches, 1032s.; 288 inches, 1040s.; 290 inches, 1048s.; 292 inches, 1055s.; 294 inches, 1062s.; 296 inches, 1070s.; 298 inches, 1078s.; 300 inches, 1085s.; 302 inches, 1092s.; 304 inches, 1100s.; 306 inches, 1108s.; 308 inches, 1115s.; 310 inches, 1122s.; 312 inches, 1130s.; 314 inches, 1138s.; 316 inches, 1145s.; 318 inches, 1152s.; 320 inches, 1160s.; 322 inches, 1168s.; 324 inches, 1175s.; 326 inches, 1182s.; 328 inches, 1190s.; 330 inches, 1198s.; 332 inches, 1205s.; 334 inches, 1212s.; 336 inches, 1220s.; 338 inches, 1228s.; 340 inches, 1235s.; 342 inches, 1242s.; 344 inches, 1250s.; 346 inches, 1258s.; 348 inches, 1265s.; 350 inches, 1272s.; 352 inches, 1280s.; 354 inches, 1288s.; 356 inches, 1295s.; 358 inches, 1302s.; 360 inches, 1310s.; 362 inches, 1318s.; 364 inches, 1325s.; 366 inches, 1332s.; 368 inches, 1340s.; 370 inches, 1348s.; 372 inches, 1355s.; 374 inches, 1362s.; 376 inches, 1370s.; 378 inches, 1378s.; 380 inches, 1385s.; 382 inches, 1392s.; 384 inches, 1400s.; 386 inches, 1408s.; 388 inches, 1415s.; 390 inches, 1422s.; 392 inches, 1430s.; 394 inches, 1438s.; 396 inches, 1445s.; 398 inches, 1452s.; 400 inches, 1460s.; 402 inches, 1468s.; 404 inches, 1475s.; 406 inches, 1482s.; 408 inches, 1490s.; 410 inches, 1498s.; 412 inches, 1505s.; 414 inches, 1512s.; 416 inches, 1520s.; 418 inches, 1528s.; 420 inches, 1535s.; 422 inches, 1542s.; 424 inches, 1550s.; 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926 inches, 3432s.; 928 inches, 3440s.; 930 inches, 3448s.; 932 inches, 3455s.; 934 inches, 3462s.; 936 inches, 3470s.; 938 inches, 3478s.; 940 inches, 3485s.; 942 inches, 3492s.; 944 inches, 3500s.; 946 inches, 3508s.; 948 inches, 3515s.; 950 inches, 3522s.; 952 inches, 3530s.; 954 inches, 3538s.; 956 inches, 3545s.; 958 inches, 3552s.; 960 inches, 3560s.; 962 inches, 3568s.; 964 inches, 3575s.; 966 inches, 3582s.; 968 inches, 3590s.; 970 inches, 3598s.; 972 inches, 3605s.; 974 inches, 3612s.; 976 inches, 3620s.; 978 inches, 3628s.; 980 inches, 3635s.; 982 inches, 3642s.; 984 inches, 3650s.; 986 inches, 3658s.; 988 inches, 3665s.; 990 inches, 3672s.; 992 inches, 3680s.; 994 inches, 3688s.; 996 inches, 3695s.; 998 inches, 3702s.; 1000 inches, 3710s.; 1002 inches, 3718s.; 1004 inches, 3725s.; 1006 inches, 3732s.; 1008 inches, 3740s.; 1010 inches, 3748s.; 1012 inches, 3755s.; 1014 inches, 3762s.; 1016 inches, 3770s.; 1018 inches, 3778s.; 1020 inches, 3785s.; 1022 inches, 3792s.; 1024 inches, 3800s.; 1026 inches, 3808s.; 1028 inches, 3815s.; 1030 inches, 3822s.; 1032 inches, 3830s.; 1034 inches, 3838s.; 1036 inches, 3845s.; 1038 inches, 3852s.; 1040 inches, 3860s.; 1042 inches, 3868s.; 1044 inches, 3875s.; 1046 inches, 3882s.; 1048 inches, 3890s.; 1050 inches, 3898s.; 1052 inches, 3905s.; 1054 inches, 3912s.; 1056 inches, 3920s.; 1058 inches, 3928s.; 1060 inches, 3935s.; 1062 inches, 3942s.; 1064 inches, 3950s.; 1066 inches, 3958s.; 1068 inches, 3965s.; 1070 inches, 3972s.; 1072 inches, 3980s.; 1074 inches, 3988s.; 1076 inches, 3995s.; 1078 inches, 4002s.; 1080 inches, 4010s.; 1082 inches, 4018s.; 1084 inches, 4025s.; 1086 inches, 4032s.; 1088 inches, 4040s.; 1090 inches, 4048s.; 1092 inches, 4055s.; 1094 inches, 4062s.; 1096 inches, 4070s.; 1098 inches, 4078s.; 1100 inches, 4085s.; 1102 inches, 4092s.; 1104 inches, 4100s.; 1106 inches, 4108s.; 1108 inches, 4115s.; 1110 inches, 4122s.; 1112 inches, 4130s.; 1114 inches, 4138s.; 1116 inches, 4145s.; 1118 inches, 4152s.; 1120 inches, 4160s.; 1122 inches, 4168s.; 1124 inches, 4175s.; 1126 inches, 4182s.; 1128 inches, 4190s.; 1130 inches, 4198s.; 1132 inches, 4205s.; 1134 inches, 4212s.; 1136 inches, 4220s.; 1138 inches, 4228s.; 1140 inches, 4235s.; 1142 inches, 4242s.; 1144 inches, 4250s.; 1146 inches, 4258s.; 1148 inches, 4265s.; 1150 inches, 4272s.; 1152 inches, 4280s.; 1154 inches, 4288s.; 1156 inches, 4295s.; 1158 inches, 4302s.; 1160 inches, 4310s.; 1162 inches, 4318s.; 1164 inches, 4325s.; 1166 inches, 4332s.; 1168 inches, 4340s.; 1170 inches, 4348s.; 1172 inches, 4355s.; 1174 inches, 4362s.; 1176 inches, 4370s.; 1178 inches, 4378s.; 1180 inches, 4385s.; 1182 inches, 4392s.; 1184 inches, 4400s.; 1186 inches, 4408s.; 1188 inches, 4415s.; 1190 inches, 4422s.; 1192 inches, 4430s.; 1194 inches, 4438s.; 1196 inches, 4445s.; 1198 inches, 4452s.; 1200 inches, 4460s.; 1202 inches, 4468s.; 1204 inches, 4475s.; 1206 inches, 4482s.; 1208 inches, 4490s.; 1210 inches, 4498s.; 1212 inches, 4505s.; 1214 inches, 4512s.; 1216 inches, 4520s.; 1218 inches, 4528s.; 1220 inches, 4535s.; 1222 inches, 4542s.; 1224 inches, 4550s.; 1226 inches, 4558s.; 1228 inches, 4565s.; 1230 inches, 4572s.; 1232 inches, 4580s.; 1234 inches, 4588s.; 1236 inches, 4595s.; 1238 inches, 4602s.; 1240 inches, 4610s.; 1242 inches, 4618s.; 1244 inches, 4625s.; 1246 inches, 4632s.; 1248 inches, 4640s.; 1250 inches, 4648s.; 1252 inches, 4655s.; 1254 inches, 4662s.; 1256 inches, 4670s.; 1258 inches, 4678s.; 1260 inches, 4685s.; 1262 inches, 4692s.; 1264 inches, 4700s.; 1266 inches, 4708s.; 1268 inches, 4715s.; 1270 inches, 4722s.; 1272 inches, 4730s.; 1274 inches, 4738s.; 1276 inches, 4745s.; 1278 inches, 4752s.; 1280 inches, 4760s.; 1282 inches, 4768s.; 1284 inches, 4775s.; 1286 inches, 4782s.; 1288 inches, 4790s.; 1290 inches, 4798s.; 1292 inches, 4805s.; 1294 inches, 4812s.; 1296 inches, 4820s.; 1298 inches, 4828s.; 1300 inches, 4835s.; 1302 inches, 4842s.; 1304 inches, 4850s.; 1306 inches, 4858s.; 1308 inches, 4865s.; 1310 inches, 4872s.; 1312 inches, 4880s.; 1314 inches, 4888s.; 1316 inches, 4895s.; 1318 inches, 4902s.; 1320 inches, 4910s.; 1322 inches, 4918s.; 1324 inches, 4925s.; 1326 inches, 4932s.; 1328 inches, 4940s.; 1330 inches, 4948s.; 1332 inches, 4955s.; 1334 inches, 4962s.; 1336 inches, 4970s.; 1338 inches, 4978s.; 1340 inches, 4985s.; 1342 inches, 4992s.; 1344 inches, 5000s.; 1346 inches, 5008s.; 1348 inches, 5015s.; 1350 inches, 5022s.; 1352 inches, 5030s.; 1354 inches, 5038s.; 1356 inches, 5045s.; 1358 inches, 5052s.; 1360 inches, 5060s.; 1362 inches, 5068s.; 1364 inches, 5075s.; 1366 inches, 5082s.; 1368 inches, 5090s.; 1370 inches, 5098s.; 1372 inches, 5105s.; 1374 inches, 5112s.; 1376 inches, 5120s.; 1378 inches, 5128s.; 1380 inches, 5135s.; 1382 inches, 5142s.; 1384 inches, 5150s.; 1386 inches, 5158s.; 1388 inches, 5165s.; 1390 inches, 5172s.; 1392 inches, 5180s.; 1394 inches, 5188s.; 1396 inches, 5195s.; 1398 inches, 5202s.; 1400 inches, 5210s.; 1402 inches, 5218s.; 1404 inches, 5225s.; 1406 inches, 5232s.; 1408 inches, 5240s.; 1410 inches, 5248s.; 1412 inches, 5255s.; 1414 inches, 5262s.; 1416 inches, 5270s.; 1418 inches, 5278s.; 1420 inches, 5285s.; 1422 inches, 5292s.; 1424 inches, 5300s.; 1426 inches, 5308s.; 1428 inches, 5315s.; 1430 inches, 5322s.; 1432 inches, 5330s.; 1434 inches, 5338s.; 1436 inches, 5345s.; 1438 inches, 5352s.; 1440 inches, 5360s.; 1442 inches, 5368s.; 1444 inches, 5375s.; 1446 inches, 5382s.; 1448 inches, 5390s.; 1450 inches, 5398s.; 1452 inches, 5405s.; 1454 inches, 5412s.; 1456 inches, 5420s.; 1458 inches, 5428s.; 1460 inches, 5435s.; 1462 inches, 5442s.; 1464 inches, 5450s.; 1466 inches, 5458s.; 1468 inches, 5465s.; 1470 inches, 5472s.; 1472 inches, 5480s.; 1474 inches, 5488s.; 1476 inches, 5495s.; 1478 inches, 5502s.; 1480 inches, 5510s.; 1482 inches, 5518s.; 1484 inches, 5525s.; 1486 inches, 5532s.; 1488 inches, 5540s.; 1490 inches, 5548s.; 1492 inches, 5555s.; 1494 inches, 5562s.; 1496 inches, 5570s.; 1498 inches, 5578s.; 1500 inches, 5585s.; 1502 inches, 5592s.; 1504 inches, 5600s.; 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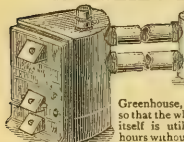
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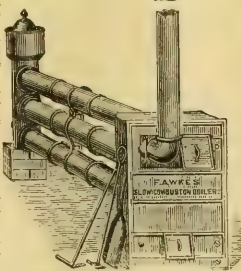
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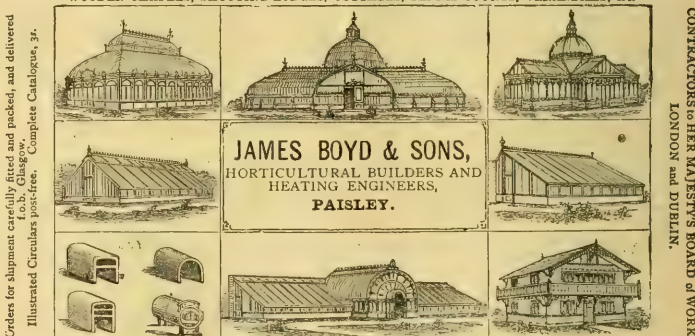
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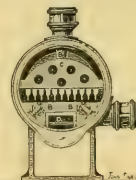
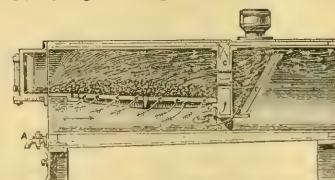
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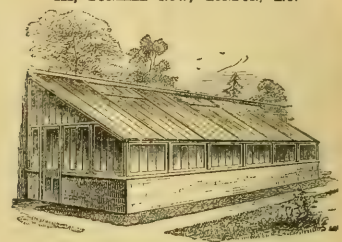
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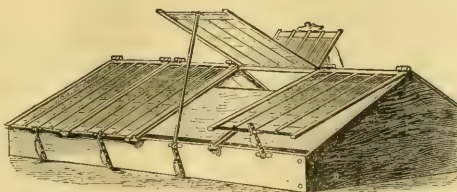
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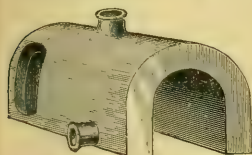
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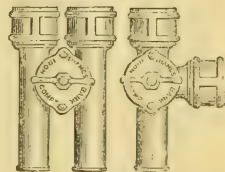
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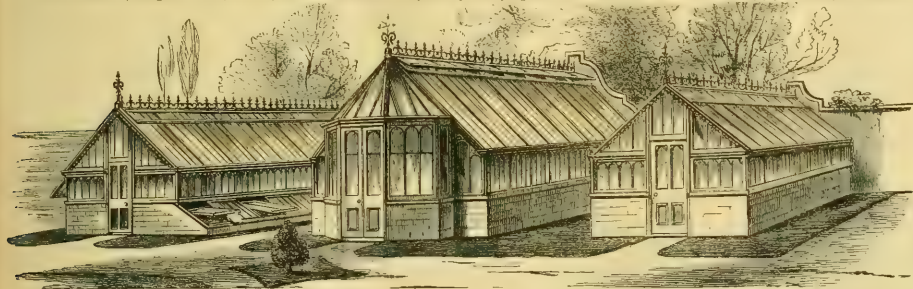


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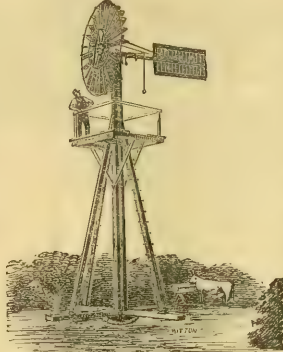
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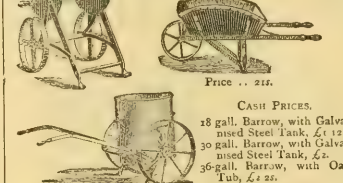
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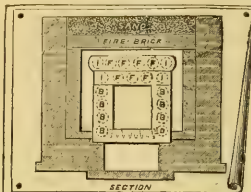
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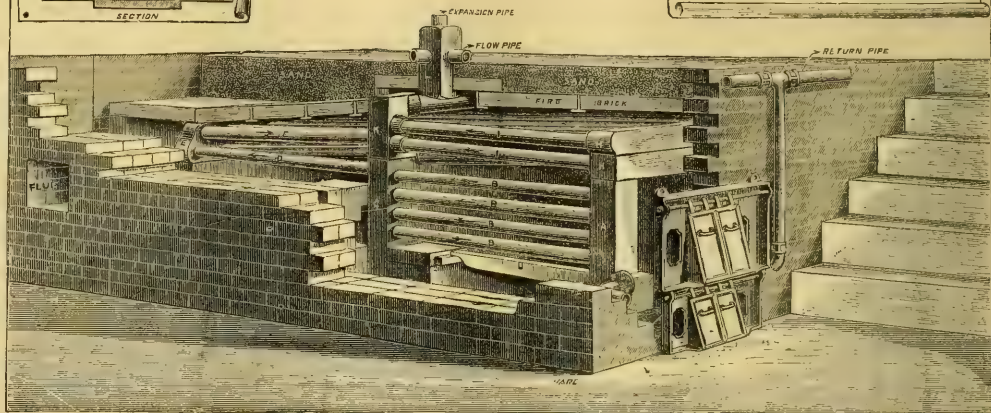
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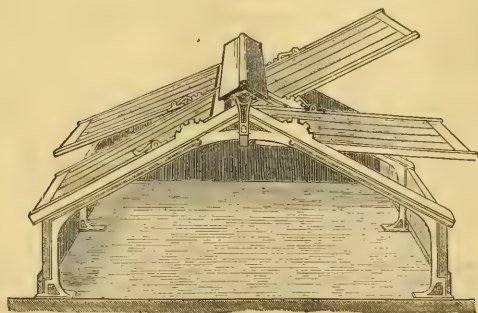
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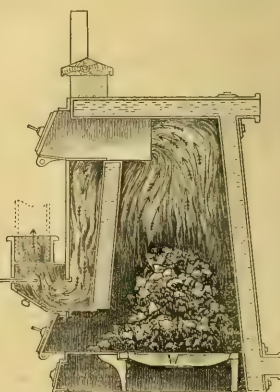
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ROYAL HORTICULTURAL SOCIETY,

South Kensington, S.W.

NOTICE!—MEETINGS. Fruit and
Floral, at 11 A.M., in the Conservatory, on TUESDAY NEXT,
October 26, and WEDNESDAY, October 27.
SHOW OF CHRYSANTHEMUMS, VEGETABLES, &c.
N.B. Open to Fellows, at 12 O'clock on Tuesday, and the
Public at 1 O'clock; on Wednesday at 10 O'clock A.M.

CRYSTAL PALACE.

ANNUAL CHRYSANTHEMUM SHOW,

NOVEMBER 5 and 6.

For Schedules, &c., apply to
Mr. W. G. HEAD, Garden Superintendent, Crystal Palace, S.E.

BATH CHRYSANTHEMUM SHOW,

NOVEMBER 10 and 11, 1886. For Prize Schedules

apply to
14, Milson Street, Bath. BENJ. PEARSON, Secretary.

CHRYSANTHEMUM SHOW,

YORK, 1886.—Held in the Fine Art Exhibition Building

on **NOVEMBER 17, 18, and 19.** Liberal Prizes for Plants,
Flowers, Fruit, and Vegetables. Schedules to be obtained of
J. LAZENBY, Spurgegate, York.

SHEFFIELD AND WEST RIDING

CHRYSANTHEMUM SOCIETY.

The **SECOND ANNUAL EXHIBITION** will be held in
the **Sheffield Con Exchange on FRIDAY and SATURDAY,**
November 19 and 20. Liberal Prizes in the Open Classes.
Schedules and further particulars to be obtained of
W. K. WOODCOCK, The Gardens, Oakbrook, Sheffield.

20,000 Azalea indica.

AUG. VAN GEERT, Continental Nurseries,
Ghent, offers the above, in compact heads, short stems,
free-flowering sorts, at low prices to clear—Particulars and
CATALOGUES free on application to **WILLIAM DENMAN,**
Salesman and Horticultural Agent, Covent Garden, W.C.

DOUBLE WHITE PRIMULA, grown
especially for winter blooming, extra strong plants, in
5-inch pots, 12s. per dozen, 75s. per 100; **EUCHARIS AMA-**
ZONICA, blooming bulbs in 5-inch pots, 12s. per dozen, 75s.
per 100; **EUCHARIS CANDIDA, 5 blooming bulbs in**
5-inch pots, 20s. per 100 bulbs. Cash with order to
TURNER BROS., Nurserymen and Florists, Green Hill
Nursery, Allerton, Liverpool.

Roses—Roses—Roses.

THE LIVERPOOL HORTICULTURAL
CO. (John Cowan), Limited, have a large and fine stock of
TEA and other ROSES in all the leading varieties; also a
fine stock of **MARECHAL NIEL, GLOIRE DE DIJON,**
and other **CLIMBING ROSES** in pots. Circular with prices
on application.

The Vineyard and Nurseries, Garston, Liverpool.

ROSES IN POTS.—Her Majesty, the
Bennet Rose, and all the best new English and Foreign
varieties. All the choicest well tried sorts, in pots, 12s. to 36s.
per dozen. Descriptive LIST free on application to
RICHARD SMITH AND CO., Nurserymen and Seed
Merchants, Worcester.

There is but one

CLEMATIS, WHITE JACKMANNI,
and Charles Noble is its Raiser.
The Raiser supplies 12s. 6d. and 25s. old plants at 3s. each.
All the finer old kinds at 12s. to 25s. each.
SPIRÆA PALMAEA.—The finest forcing clusters in the
world, and the largest size at 12s. to 25s. each.
CHARLES NOBLE, Bagshot.

FOR SALE, 3000 or 4000 extra strong
Cuttings of broad-leaf Green **EUCONYMUS**
FLORIST, 35, Seiden Road, Worthing, Sussex.

Novelty—Novelty—Novelty.

SPIRÆA PALMAEA ALBA (awarded a
First-class Certificate in London on June 17, 1883; 5s.
each, 3s. 6d. per cut. Carriage paid and packing free.
M. C. JONGKIND-CONINK, Dedemsvaart, Zwolle,
Netherlands.

GRAPE VINES.—Our stock of Vines is
in unusually fine condition this year. A LIST of kinds
and Prices will be forwarded on application to
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper
Holloway, London, N.

Grape Vines and Strawberries (in pots).

FRANCIS R. KINGHORN offers very fine
stocks of the above in all leading varieties true to name.
LIST and Prices on application.
Sheen Nurseries, Richmond, Surrey.

RASPBERRY CANES TO SELL.—The
famous Carters' Profligate are the best croppers. Read *Mark*
Lane & Co.—Apply to **ALBERT BATH, Sevenoaks, Kent.**

LOVELS' STRAWBERRY RUNNERS.
Price 3s. per 100, 12s. 6d. per 500, 20s. per 1000.
From leading varieties. LIST on application.
Sample of Plants, post-free, 3d.
W. LOVEL AND SON, Strawberry Growers, Driffield.

SEAKALE for Forcing, superior selected
Crowners, 2s. per 1000; under 500, 10s. per 100. Orders
to be accompanied by cheque or Post Office Order.—**ALFRED**
ATWOOD, Grower, 51, Shillington Street, Battersea, S.W.

IMPORTANT to ORCHID GROWERS.
Special offer of Light Brown ORCHID PEAT,
full of Pure Broken fibre:
also a good GENERAL PEAT.
Quoted in with sample on application to
THE PEAT ASSOCIATION,
10, Cullum Street, London, E.C.

Important to Senders.

EUCHARIS, STEPHANOTIS, TUBE-
ROSES, ROSES, and other CHOICE CUT FLOWERS,
are now in demand.
WISE AND RIDES, Fruit and Flower Salesman, Covent
Garden, London, W.C.

WILLIAM DENMAN, SALESMAN and
Horticultural Agent, Covent Garden, W.C., has com-
menced the Autumn Season for the SALE of CHOICE
CUT FLOWERS, &c.
CAMELLIAS, EUCHARIS, CHRYSANTHEMUMS,
CALLAS, &c., can be taken in large quantities.

Floral Commission Agency.

A. HILL AND CO., 52, Hart Street, Covent
Garden, W.C., are now to RECEIVE CONSIG-
MENTS of CHOICE CUT FLOWERS in any quantity. A. H. &
CO., giving personal attention to all consignments, are thus
enabled to obtain the highest market prices. All Cheques
forwarded weekly. Bankers and good Trade references. Boxes
and Labels supplied.

WANTED, 500 good well-grown Plants of
IVIES, in pots, between 3 and 4 feet. Write,
stating price (delivered to Egham Railway Station) to
J. S., 27, Royal Exchange, E.C.

Notice.

King's Acre Nurseries, Hereford (Established 1785).
JOHN CRANSTON begs to announce that,
having **PURCHASED THE BUSINESS,** together
with the most valuable portion of the stock, from **Cranston's**
Nursery & Seed Company (Limited), these Old-established
Nurseries will, on and after **NOVEMBER 2, 1886,** be carried
on by him under the name of
"JOHN CRANSTON AND CO."
King's Acre, Hereford.—October 1, 1886.

Just Published.

OUR SPECIAL IRIS LIST, No. 85; con-
taining all that is best and most beautiful; offering great
advantages to the purchaser.
NEW PLANT AND BULB COMPANY, Lion Walk,
Colchester.

Now is the time to Plant

E V E R G R E E N S.
New Descriptive LIST free.
RICHARD SMITH AND CO., Nurserymen, Worcester.

L I L Y OF THE VALLEY.—Genuine Berlin
forcing kind. Write for lowest Trade price to
H. DAMMANN, J.n., Bielefeld, Germany.

PRIMULA (Double White), strong stuff, in
5 and 8-inch pots, 10s. 6d. per dozen. **EUCHARIS**
AMAZONICA, established in 7 and 8-inch pots, 3s. 6d. each.
Terms, cash with order.
E. J. JARMAN, The People's Seedman, Chard, Somersetshire.

GARDENIAS, Winter-flowering HEATHS,
CAMELLIAS, AZALEAS, BOUVDIAS, CAR-
NATIONS, PALMS, FERNS, FICUS, DRACENAS, and
others. Thousands of fine healthy plants to select from.
Price LIST on application. Early orders are solicited.
JOHN STANDISH AND CO., Nurserymen, Ascot.

EUCHARIS AMAZONICA.—
1000 fine strong Bulbs, planted-out in a bed, clean and
healthy. If taken in one lot will be sold for 6d. each.
Apply, **H. HARVEY, Woolley Park, Wantage, Berks.**

MESSRS. FRED. HORSMAN AND CO.,
Orchid Importers, Colchester, beg to announce that
their new interleafed CATALOGUE of Orchid Specialities is
now ready, and will be forwarded post free on application to
FRED. HORSMAN AND CO., Colchester.

DESCRIPTIVE CATALOGUE.—Roses,
Fruit Trees, Rhododendrons, Conifers, Deciduous and
Evergreen Trees and Shrubs, Climbing Plants for walls, &c.;
Forest Trees, Azaleas, Camellias, &c. Free on application to
H. LANE AND SON, The Nurseries, Berkhamstead, Herts.

FOR SALE, through want of room, a large
LATANIA BORBONICA, good plants, in excellent
health, 7 to 9 feet through. Price the four, 45s.
R. GREENFIELD, Priory Gardens, Warwick.

EIGHTY THOUSAND CLEMATIS, in
Pots, of all the finest Double and Single Varieties (some of
the flowers of which become so lucid across, and are of
every shade, from pure white to the darkest purple), for climb-
ing and bedding, from 12s. to 24s. per dozen, strong plants.
Descriptive LIST on application.—**RICHARD SMITH AND**
CO., Nurserymen and Seed Merchants, Worcester.

TREE CARNATIONS, fine plants, twelve
best sorts, 25s. per 100; best named SHOW CARNA-
TIONS and PICOTEES, 30s. per 100; fine BORDER CARNA-
TIONS, 25s. per 100; **INDIARUBBER PLANTS, strong,**
50s. per 100.—**W. JACKSON, Blakedown, Kidderminster.**

L I L Y OF THE VALLEY.—First quality
of true Berlin variety for early forcing, at 31s. per 1000.
By larger quantities special prices. A liberal discount for cash
allowed. Samples sent free of charge.
H. GUMTAU AND CO., 14, Victoria Road, Putney, S.W.

THE LIVERPOOL HORTICULTURAL
CO. (John Cowan), Limited, has a splendid
stock of **GRAPE VINES, clean, robust, and healthy.**
Intending purchasers are requested to come and see them during
the growing season. Planting Canes, 5s. and 7s. 6d. each; Fruiting
Canes, 10s. 6d. and 12s. 6d. each.
The Vineyard, Garston, Liverpool.

JERSEY PEARS.—Chaumontels, Doyenné
du Commerce, Beurré Diel, and other sorts of the finest
description for Show or Dessert. Price, &c.,
H. ELLIOTT, Springfield Nursery, Jersey.

DOUBLE TUBEROSES.—Extra fine.
MORLE AND CO. offer the above cheaper than any House
in the Trade. The principal Covent Garden Market growers
purchase regularly of us, which is the best proof of quality.
For price per 100, 1000, or 5000, write for Special LIST.
1 and 2, and 15s. Fenchurch Street, E.C.

ONE THOUSAND ONE HUNDRED and
FIFTY CHOICE FLOWER ROOTS for Ivy, Goleas,
carriage paid to any address. For contents see Bulb CATA-
LOGUE from
MORLE AND CO., Wholesale and Retail Seedmen and
Bulb Importers, 1 and 2, 15s, Fenchurch Street, E.C.

DUTCH and other FLOWER ROOTS.—
MORLE AND CO.'S Choice BULBS gained 1st and 2d
prizes last season in competition with others costing double the
money. Every thing best quality, at lowest prices. See CATA-
LOGUE, free—1 and 2, and 15s, Fenchurch Street, E.C.

SALES BY AUCTION.

Bulbs—Bulbs—Bulbs.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., every **MONDAY, WEDNESDAY, and SATURDAY**, first-class **BULBS** from Holland, lotted to suit all Buyers.

On view morning of Sale, and Catalogues had.

Tuesday Next—(Sale No. 7251.)

DUTCH BULBS and PLANTS—EXTRA SALE.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **TUESDAY** next, at half past 12 o'clock precisely, several hundred lots of first-class **DUTCH BULBS** in lots to suit large and small buyers. A large number of **GRACIOSA**, **CHRYSEODORA**, **CUPRESSUS**, **THUIAS**, **HOLLIES**, **ROSES**, **SPIRÆAS**, and other **PLANTS** from Holland. Also 1000 fine roots of **HELLEBORUS NIGER**, **CHIONODOXA**, **LUGILIA**, and **C. SARDENSI**, **GALANTHUS**, &c., from Germany.

On view morning of Sale and Catalogues had.

Wednesday Next—(Sale No. 7252.)

A COLLECTION of **STOVE** and **GREENHOUSE PLANTS**, the property of a Gentleman, including Palms of sorts, **DRACÆNAS**, **ADIANTHUM**, and other Ferns, **Begonias**, **Gloxinias**, **Cyclamen**, &c.

MR. J. C. STEVENS will include the above in his **SALE** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY** NEXT, October 27.

On view morning of Sale, and Catalogues had.

Thursday Next—(Sale No. 7253.)

CATTLEYA ELORADO ALBA, in flower; **C. SCHILLERIANA**, 3 buds of **ORCHIDS**, received direct from the United States of Colombia, &c.

MR. J. C. STEVENS will include the above in his **SALE** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY** NEXT, October 28.

On view morning of Sale, and Catalogues had.

Thursday Next—(Sale No. 7253.)

SPATHOGLOTTIS ANGUSTIFOLIA, splendid plant, in flower; **CYPRIPEDIUM**, **SPHAGNUM**, and other plants with over twenty growths, in flower, with very broad leaves, and an extra variety; **ONCIDIUM PHALANOPSIS**, strong and healthy, and other valuable **ORCHIDS**.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY** NEXT, October 28, at half-past 12 o'clock precisely, the property of Mr. F. Sander, of fine healthy lot of Imported Established **ORCHIDS**, consisting of the above and following, all in extra condition:—**Phalaenopsis**, **antennifera**, in flower; **Cattleya** superba splendens, **Lælia**, **Pertum**, and other varieties; the new and rare **Oncidium** **Hubschi**, large masses of **Epidendrum** **raffinerum**, fine established plants of the pretty **Coleogyne** **Ruckeri**, **Trichopilia marginata** (rare), and other valuable **ORCHIDS**.

On view morning of Sale, and Catalogues had.

Milford Nurseries, near Godalming, Surrey.
IMPORTANT FOUR DAYS' SALE OF FIRST-CLASS NURSERY STOCK.

MR. J. C. STEVENS has received instructions from Mr. Maurice Vaux to **SELL** by **AUCTION**, on the Premises, as above, on **TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY**, November 9, 10, 11, and 12, at 11 o'clock precisely, the contents of the above Nursery Stock, in capital condition for removal, including about 300 mixed **EVERGREENS** and **CONIFERS** in Borders; 300 **Yews**, 4 to 6 feet; 300 **Aucubas**, 3 to 5 feet; 300 **Thuja** **Lobbi**, 2 to 4 feet; 300 **Alives**, 2 to 4 feet; 300 **Golden** **Yew**, 2 to 3 feet.

3000 **CUPRESSUS LAWSONIANA**, 3 to 5 feet; 300 **Cupressus Lawsoniana** **lanceolata**, 1 to 1½ feet; 300 **Abies Douglasii**, 3 to 5 feet; and 300 **Golden** **Yew**, 2 to 3 feet.

600 **RETINOSA PLUMOSA AUREA**, and **FLAVESCENS**, 1½ to 2½ feet, suitable for pots.

200 **VARIEGATED** and **GREEN** **Bux**, 2 to 3 feet; 4000 **St. John's Wort**, 3000 **Berberis aquifolium**, 1½ to 2 feet; 2000 **LIGUSTRUM ALBUM**, bushy, 4 to 5 feet; and 3000 **Evergreen** **Privet**, 2 to 4 feet; 300 **Purple** **Lilac**, 2 to 4 feet; and 1000 other Flowering Shrubs.

10,000 **LAURELS** of sorts, 1½ to 2½ feet.

6000 choice named Hybrid and other **RHODODENDRONS**, **Clematis**, and other Climbers, **Standard** and **Dwarf** **Roses**.

50 specimen **Yew**, **Golden** **Chinese** **JUNIPER**, 4 to 7 feet.

500 **SPRUCE** **FIR**, 2 to 4 feet, suitable for Christmas Trees.

75,000 transplanted **QUILTS**.

10,000 **ORNAMENTAL** and **FOREST TREES** consisting of **Sycamore**, **Norway** **Maple**, **Black** **Italian**, **Oatania** and **Able** **Poplars**, **Larburns**, &c., 5 to 10 feet, &c.

May be viewed a week prior to the Sale, and the Auctioneers will be on the Premises, and Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.

N.B.—The Nurseries are situated ¾ of a mile from Milford Station, and one mile from the new Godalming Station, on the direct Portsmouth line.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his **NEXT SALE** of **ORCHIDS** in Flower and Bud, will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY**, November 18, and will be glad if Gentlemen desirous of Entering Parties for this Sale, will please send particulars as soon as possible.

Seaford, Sussex.

To the Nobility, Gentry, and Others engaged in Planting.

IMPORTANT SALE OF NURSERY STOCK, comprising

about 60,000 **Evergreens**, large numbers of **Anemones**, **Privet**, **Virginian** **Creeper**, **Honeysuckles**, **Lilium candidum**, **Caragana**, **Thuias**, **Ivy**, **Fyrrethorn**, **Yew**, **Cupressus**, **Syringa**, **Jasmin**, **Lamarna**, **Campanula**, **Lawsonia** **erica** **viridis**, **Lilacs**, **Ribes**, **Lavender** **Cotton**, **Hellebore**, &c.; also a few **Rhubarb** and **Artichokes**, **Violas**, **Passion** **Flower**, &c.

MESSRS. SOUTHERDEN, MORRIS

and BURTENSHAW have been favoured with instructions from Robert Lambie, Esq., to **SELL** by **AUCTION** to the Ground near Seaford, Sussex, on **FRIDAY**, November 5, at 11 o'clock precisely, the whole of the well-grown Nurseryman's Stock above.

The whole may be viewed on application on the day previous to Sale. Catalogues are being prepared, and may be obtained of the Auctioneers, at Hailsham and Lewes.

Important to Gentlemen and the Trade

Largely engaged in Planting.

MESSRS. PROTHEROE and MORRIS beg to call the attention of Gentlemen and the Trade who intend planting largely during the season to their numerous **SALES** of **NURSERY STOCK**, which are continually being held. Announcements appear in this Paper every week, and the Auctioneers will be pleased to forward CATALOGUES on application to their Offices.

Central Auction Rooms and Estate Offices, 67 and 68, Cheapside, London, E.C.

Dutch Bulbs.

Every MONDAY, THURSDAY, and SATURDAY, GREAT UNRESERVED SALES.

MESSRS. PROTHEROE and MORRIS will **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every **MONDAY, THURSDAY, and SATURDAY**, at half-past 12 o'clock precisely, a large and extensive consignment of **HYACINTHS**, **TULIPS**, **CROCUS**, **NARCISSUS**, and other **BULBS** from Holland, in excellent quality, and lotted to suit the taste of all Buyers.

On view morning of Sale, and Catalogues had.

Tuesday Next.

SPECIAL SALE OF ORCHIDS IN FLOWER.

MESSRS. PROTHEROE and MORRIS will **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY** NEXT, October 26, at half-past 12 o'clock precisely, a choice assortment of **ORCHIDS** in Flower or Bud, from various collections, including the following:—
Cyclopogon oculata maxima
Dalia cœrulea
Cypripedium *Spicerianum*
Idem *Magnificum*
Idem *Seni* *superum*
Idem *calurum*
Idem *elligerum* *m-jus*
ONCIDIUMS, **ODONTOGLOSSUMS**, **CATTLEYS**, **LÆLIAS**, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next—Important to the Trade.

CAMELIAS of sorts, 300 **AZALEA** **INDICA**, **FICUS**, **PALMS**, **DRACÆNAS**, and other **PLANTS** from Belgium, &c., in assortment, at 12 o'clock precisely, 1000 **BULBS**, **LILUM** **AURATUM**, **DUTCH BULBS** in variety, 10,000 **Double** **African** **TUBEROSES**, **DAFFODILS**, and splendid **Bulbs** of **English-grown** **LILIES** in variety.

MESSRS. PROTHEROE and MORRIS will **SELL** the above at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY** NEXT, October 27, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Friday Next.

CYPRIPEDIUM CALLOSUM, **CYRTOPTEA REGNIERI**, **ABERDEEN**, **DEPROXNUM**, and other rare **ORCHIDS** from the Continent.

100 Lots of **ESTABLISHED** and **SEMI-ESTABLISHED** **ORCHIDS** from the New Plant and Bulb Company, all growing freely, many well-pressed and sheathed, and for sale without reserve. Also a grand importation of their new **Cattleya**, very distinct and floriferous, comprising about 700 plants, mostly with unstained eyes. The whole importation is offered.

Imported **ODONTOGLOSSUM CRISPUM**, **ONCIDIUM** **PAPILLO MAJUS**, &c., also good healthy established plants of **ODONTOGLOSSUM**, **MADEVALIA**, **MAIE** **LÆLIA** **ANCEPS**, &c.—**MESSRS.** Shuttleworth, Carder & Co.

Also a quantity of **ESTABLISHED** **ORCHIDS** from another party.

MESSRS. PROTHEROE and MORRIS will **SELL** the above by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **FRIDAY** NEXT, October 29, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Woking, Surrey—Without Reserve.

THREE DAYS' SALE of unusually well-grown **NURSERY STOCK** IMPORTANT to Gentlemen and the Trade largely engaged in Planting.

MESSRS. PROTHEROE and MORRIS are instructed by Messrs. H. & C. Cobbett to **SELL** by **AUCTION**, on the Premises, the Home Nurseries, Woking (fifteen minutes' walk from the Woking Station), on **TUESDAY**, October 26, and two following days, at 12 o'clock precisely, a large and valuable consignment of **NURSERY STOCK**, which has been carefully prepared for removal, consisting of 800 **Rhododendrons**, 1600 **Spruce** **Firs**, 2000 **Roses**, 4000 **Green** and **Variegated** **Maples**, 2000 **Yews**, 2000 **Abies**, 2000 **Thuja** **Lobbi**, 2000 **Golden** **Yew**, 2000 **Privet**, 2000 **Juniper**, 2000 **Box**, 2000 **Osage**, 2000 **Asparagus**, 2000 **Fruit** **Trees**, including **Standard**, **Pyramidal**, and **Other** **Trees**, 2000 **Apple** **Trees**, 2000 **Plum** **Trees**, 2000 **Cherry** **Trees**, 2000 **Walnut** **Trees**, 2000 **Oak** **Trees**, 2000 **Box** **Trees**, 2000 **Yew** **Trees**, 2000 **Juniper** **Trees**, 2000 **Asparagus** **Trees**, 2000 **Standard** **Plum** **Trees**, 2000 **Standard** **Cherry** 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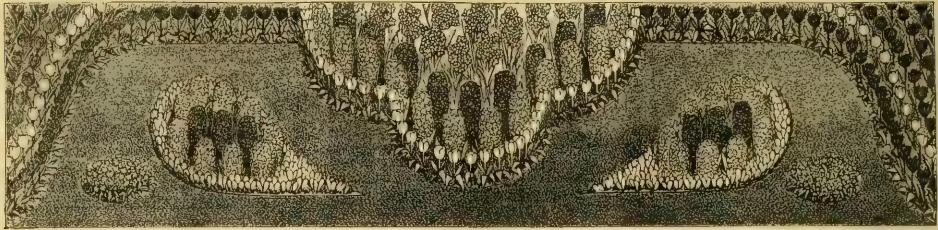
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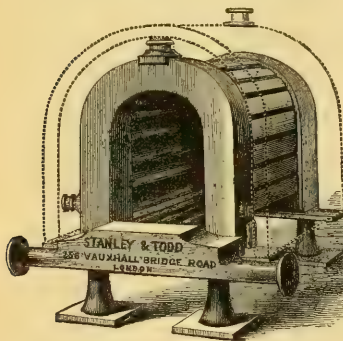
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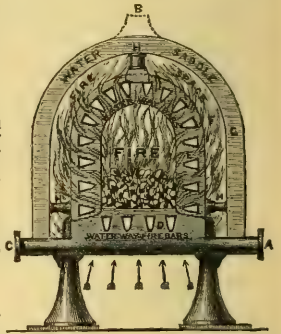
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THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 23, 1886.

AFTER THE FIGHT.

ONCE more we have fought a campaign in
the wars of the Roses—once more have the
combatants laid aside their weapons and are
counting up their gains and losses; yet such
is their eagerness for the fray that, like the old
Italian mercenaries (not that they are such),
this is but a short breathing space for prepara-
tion for future battles; already are they putting
aside weapons that have proved worthless in
past encounters—already are they looking out for
fresh ones, and seeking information on all sides
from those who have used them or seen them
used. It is time, then, for one who has not
mixed in these battles, but who, like the looker-
on at a game of chess, may, perhaps, see more
clearly than the actual combatants what has
been the real character of the campaign, to
reveal his impressions, stating, as a preliminary
qualification for so doing, that there are few of
the engagements of which he has not been a
spectator; that in the Home Counties and the
West Countries, in the North and in the Mid-
lands, he has watched the strife, and that, as
in duty bound as a Rose lover, he has not
missed the two grand fights of the year, those
at South Kensington and Birmingham; and now,
to drop all smiles, and, substituting the first for
the third person, I desire to impartially (if I can)
review the past Rose season and its results.

I anticipated that we should have a good
season, but in writing upon it beforehand I stated
that so much depended on the three weeks
immediately preceding the show time—that is,
the latter part of the month of June and the
first week of July—that it was always impossi-
ble to state what it would be likely to be. When I
saw the perfectly clean state of the plants in
various parts of the country, and heard the
reports of many growers, all seemed favour-
able; but (ah! those "buts") there came in June
a cheerless time, succeeded (as it was in 1885)
by some very hot days in the earlier part of
July, and as a consequence blooms were gener-
ally small, but the colours were good, and the
flowers quite in character. Roses could be
easily identified, and there was not much like-
lihood of making mistakes in naming.

It was again a season in which light Roses
fared better than dark ones. This was evident
in the grand stands of Merveille de Lyon
exhibited at the National show on July 6;
while such Roses as M. Noman, Captain Christy,
Marie Finger, Madame Lacharme, and Violette
Bowyer were mostly seen in good form; and
it may be safely said that light Roses which
have not done well this season are not likely to
be of much value. There were no very remark-
able blooms that I can recollect, nor was it a
year in which any one Rose stood out promi-
nently as the Rose of the season. As showing
how necessary it is not to discard varieties

because they do not always come up to the mark, the instance of Boildieu (a Rose raised by Jules Margotin fils, and which many rosarians have thought lightly of) taking the premier prize for the best H.P. at South Kensington in the nurseryman's class may be noticed; when one recollects against what it had to contend—A. K. Williams, Marie Baumann, &c.—it evidences that the season was favourable for the lighter coloured Roses, and that flowers may come out exceptionally good now and then, although not always to be depended upon.

As usual, a good deal of interest was excited about NEW ROSES, and many were very anxious to see Her Majesty, but it was not once exhibited. I suppose that exhibitors who had it were too busy in propagating it to leave it to flower; a rude shock has been given to those who were looking to it as a grand acquisition, when they heard that after all it was a summer Rose only; should this be the case a great deal of its value will be gone. It may, however, prove like Madame Gabriel Luizet, of which I have already written, which lay under the same stigma, but has proved with me and others to be one of the best autumn blooming Roses we have. From various places, since my note on it appeared, I have had the confirmation of my statement; it did not flower from the long shoots which are thrown up from the roots and which form the "spes gregis" for the following year, but from those shoots which come from the centre of the plant after the first bloom is cut in July. With regard to new Roses generally it may be said that there has been a dearth; in fact, of those of 1885-86, there has hardly been one of which we can speak with any confidence as far as the exhibitions go.

But from other sources one has heard of one or two, although probably the verdict "they are a bad lot" may be only too true. Of those of 1884 we can say something more definite, thus Dr. Dor (Liabaud) is a fine cherry-red flower, large petalled and full, very sweet-scented, and likely to be a useful Rose. Edouard Herve (E. Verdier) is a bright light carmine Rose, full, well shaped, and apparently a first-class Rose. Madame Massicault (Schwartz), bright rosy-flesh, is, I fear, not large enough, but still it has been shown well. Mrs. George Dickson (Bennett) is pleasing in colour, but too thin to be popular. General Appert (Schwartz), velvety reddish-purple shaded black, full, and likely to be a good Rose. Madame Raoul Chandon, a good Rose of the Marie Finger type, but distinct from that variety. Victor Hugo promises to be the best of that season's flowers; it is a vigorous growing Xavier Olibo, brilliant in colour and likely to be a great favourite. Gloire Lyonnaise (Guillot) is very pretty, especially in the bud, but one has not yet discovered the yellow in it, and as to calling it a yellow hybrid perpetual it is all nonsense, it ought to be classed amongst the so-called hybrid Teas, if we are to retain that class; but it would seem to me to be much better to do away with it and class all the Roses that are now included in it under hybrid perpetuals, and leave Teas and Noisettes to themselves.

Amongst Teas, Souvenir de Gabrielle Drevet, which has been described as something between Madame de Watteville and Souvenir d'Elise, seems good, and is one of those delightfully variable Roses which give us flowers of such different characters, like Madame Lambard, from a branch of which you may cut sometimes a yellow and sometimes a red Rose. I have received from two different sources blooms of the American Rose, The Bride: this is not a seedling but a sport from that fine old Tea Rose, Catherine Mermet. One bloom was sent to me by Mr. B. R. Cant, Colchester: it is certainly white, but I suppose, owing to the cold nights we have lately experienced, the edges were tinged with pink like Marie Van Houtte; the other was a

bud from Mr. James Boyson, of Caen, and was perfectly white and very pretty, but I rather doubt if the white will be as pure as that of Niphetos; but still I think it will be a very welcome addition to our Tea Roses. The other Rose was American Beauty, also sent to me by Mr. Boyson—evidently a hybrid Tea of the Reine Marie Henriette type, but lighter in colour. I do not confess to much partiality for these flowers, and as exhibition flowers they are, I think, useless. Who ever saw a stand that was the better of any of them, and which would not have been improved by the substitution of some other variety? Of those of 1885, as I have said, little has been seen. Clara Cochet, a seedling of Lacharme's, is said to be a promising flower; and Comtesse de Frigneure, Tea, some speak highly of.

So much for the flowers, and now for a word about the exhibitors. We have seen some changes, as is always the case. We have missed from the tented field one of our very best exhibitors, Mr. Whitwell, of Darlington; and no one seems to me to have occupied so prominent a position during the past season, amongst amateurs at any rate, as in years past. The Rev. J. H. Pemberton carried off the challenge trophy a second time, but he did not continue so long in the running as last year, while amongst nurserymen the success of Mr. B. R. Cant at the earlier shows, and Messrs. Harkness & Son at the later ones, has been exceptional. One of the most interesting cases of exhibiting I know is that of a gentleman in Wales, Colonel Standish Hore, who out of a small collection of 168 plants managed to win a 1st prize for twelve hybrid perpetuals, and a 3d for six Teas, at the National Rose Society's provincial exhibition; although he had only grown Roses for two years, he managed to beat growers who had ten times the number of plants, and had been exhibitors for twenty years. This only shows what can be done, and effectually disposes of the objection that small growers have no chance. Doubtless, as a rule, the big battalions are likely to gain the day, but if small growers will be content with small things and not be over-ambitious, they can succeed; but if a grower with a small amount of plants attempts to go in for large prizes he will find that this is a case in which

"Vaulting ambition doth o'erleap itself,
And falls on t'other side."

It is well said that "little boats should keep near shore;" and I am sure that much of the disappointment experienced by many exhibitors arises from their attempting too much.

With regard to exhibitions themselves, there has been no diminution in the interest they have excited, and managers of shows have been singularly fortunate in the weather in which they have been held; it has been unusually fine, sometimes a little too hot, but never wet. The exhibitions of the National Rose Society have both been successful, the space at South Kensington being much too small for the number of blooms staged; while at Birmingham, once famous for its Rose shows, but where it was new ground to the National, there was a grand exhibition, and everything went off to the satisfaction of all.

I have already written about a few things I think might be altered for the better, and in referring to it in connection with this part of my subject, must refer to the very strange letter of "D. T. F.," which appeared in the *Gardeners' Chronicle* of October 2, p. 429. I always thought the writer was a practical man, but anything more hopelessly impractical I have not read; moreover I think he is altogether unfair to the National with regard to garden Roses, for it has for some years offered prizes for the very flowers he accuses us of neglecting, and which have been well contested; in truth, there is a great deal of

illusion on this subject. I fearlessly state that the very best Roses for garden decoration are those which are contained in our exhibition lists. And what an astounding idea is that which he puts forward—that in order to remedy the difficulty of allowing the stands of different numbers to compete for the prize for the best box in the show, it would obviate it all if 72's were to compete with 72's, &c. Why, there never is but one class of 72's at a show; and it would be simply, to follow out his rule, to give an additional prize to each 1st prize stand—certainly a curious way of solving a difficulty. I should like to enter more fully into this letter, for it bristles with inconsistencies, but for the present I must pass on.

And now with regard to the last point—the Rose in the garden. I do not think I remember for years seeing such a grand autumn for blooming. At any time during the month of September it was possible to gather a quantity of good blooms, not equal to those of July, but still very handsome and sweet, while the wealth of Teas has been something wonderful; the bushes were as full of bloom as in the earlier part of the season. I have been enabled to gather such Roses as Catherine Mermet, Marie Van Houtte, Rubens, Madame Lambard, and Anna Olivier in great abundance, and while in size not so large as those in the earlier part of the season, they were in form and substance all that could be desired. One remarkable fact has been the almost total absence of aphids. I have been into many gardens, but in no part of the country have I seen it, and we know very well how much trouble this saves, and how much better plants look which have not to be syringed or treated for this pest. In many places, however, orange fungus—a most destructive pest—has made its appearance, while mildew has also been very bad; but upon the whole, a finer season for garden Roses I do not well remember; and all who love the Rose (and, who does not?) have enjoyed a pleasure they will not soon forget. *Wild Rose.*

New Garden Plants.

HABENARIA MILITARIS, n. sp.*

WHEN my late friend, J. von Warscewicz, paid me his first visit (it was at Berlin, at four in the morning (!), he brought his sketches of Chiriqui Orchids in colours; and when I saw what I then called Epidendrum Pseudopendulum I felt quite amazed. Such a thing had not been seen before in Orchids. When Messrs. J. Veitch & Sons first flowered the plant (June, 1871) it excited the greatest curiosity.

And now there stands before me a second plant with the same contrast of colour—a *Habenaria*, kindly sent me by M. Regnier, horticulteur, 44, Avenue Marigny, Fontenay sous Bois, Seine. I have it in a pot, in splendid health, with five expanded flowers. M. Regnier tells me the plant is rather small, he having seen much taller specimens. The colour is nearly bluish-grey. There are six leaves, two of which are longer than the others, all linear, the longest ones reaching a span in length by half an inch in width, equally broad in the middle. The raceme has seven flowers and buds, which, when open, measure two good inches from the top of the helmet to the apex of the spur. They are just like (excepting the spur) the flowers of a well developed *Orchis purpurea*, Huds. (fusca, Jacq.). The oblong acuminate bracts

* *Habenaria militaris*, n. sp.—Spithamea et alior: foliis linearibus acutis dimidium pollicem latis; racemo plurifloro; bracteis inferioribus ovata pedicellata aquantibus oblongo-ligulatis acuminatis; sepalis dorsali naviculari cum tepalis linearibus ligulatis galeatis; sepalis lateribus oblongis acutis reflexis; labello trifido, laciniis lateralibus oblongo trapezoides divaricatis, lacina media breviter unguiculata porrecta oblonga bifida, laciniis triangulari, calcaris filiformi compresso acuto ovario pedicellato longiori; rastellis lacina media triangulari coriformi, stigmatibus curvatis porrectis (b. puerilis); minuta, tripliciter, paucifolia libelli unguis pro lacina mediana angusta bene longiori. *Habenaria pusilla*, Rchb. f., Or. Bot. Hamb. 1878, p. 35. Cochinchina. H. G. Rehb. f.

are equal in length to the inferior stalked ovaries, but smaller under the uppermost ones. The dorsal sepal is cucullate navicular, the two nearly linear apiculate petals being strongly adherent to it. The lateral oblong acute sepals are reflexed and revolute. All these parts are green. The lip is trifid, the stalk is short, the lateral laciniae are oblongo-dolabriform, spreading, the anterior lacinia is transverse with two shanks of nearly similar circumference, spreading or antorse, smaller. The lip is quite scarlet inside, outside it looks as if the scarlet colour had been varnished with white. No English soldier can boast a jacket of a deeper scarlet than the lip of our plant. The spur is filiform, greenish-white, compressed acute, longer than the stalked ovary. The anther has two long channels for the caudicle, and the naked glandule are red. The rostellum is triangular, complicate, looking, when seen from the side, like the upper horn of an African rhinoceros. The two stigmatic processes are even more scarlet than the inner side of the lip, spread out like the bloody tongues of bloodthirsty beasts. A small apiculus stands between them.

So much for the beloved plant. The history is, that M. Godefroy Lebeuf discovered it in Cochinchina. I saw his dried plant, and have careful pictures of it. It is very dwarf, has smaller leaves, a longer stalk to the narrower anterior lacinia of the lip, and shorter bracts; but there is no doubt that it is the same plant found afterwards in full development by M. Regnier. What could I do? I do not like those often naughty talks about names by people who have never given one, but who think the giving of names is the acme of science. I detest changes of names, yet it is not very agreeable to me to have called a plant "pusilla" that would appear to reach 2 feet in length. After a long consideration (I am afraid M. Regnier found it too long) I made up my mind, I venture to give a fresh name to this, a small form of which was originally discovered by M. Godefroy Lebeuf, and which has some differences from the fully developed plant. Amateurs will always consider the size, and a variety "maxima" or "pusilla" will be well weighed by those who purchase plants, whatever theoretical views may be professed in festival speeches by those who think they can educate the amateur just as they please to do. The amateur, however, is what he is.

As a species the plant may be compared best with *Habenaria crinita*, Lindl., a fine Cingalese species. Our plant has all parts of the lip shorter, and with no tails to the divisions of the lip. I have a certain hope that this military plant will be kept in gardens. *Habenaria leptoceras*, Hook., lasts a very long time, propagates freely, till the genuine man comes, who understands how to kill it by improper treatment. *H. G. Rehb. f.*

ORCHIDANTHA BORNEENSIS, N. E. Brown.

[A NEW GENUS OF SCITAMINEÆ.]

Considered from a botanical point of view this is one of the most interesting plants that has been introduced for some time, for although there can be no doubt whatever that it is a member of the natural order Scitamineæ, yet it is so unlike anything hitherto known in the character of its flowers, that it will probably form a distinct tribe of that order; but for the present I place it in the tribe Muscæ, in which it may find place as an anomalous genus. Gardeners probably will find less to admire in it, as unfortunately it is not so showy as it is interesting; however, it may be expected to find much favour with Orchid growers, since the flowers very much resemble those of certain Orchids, and are quite equal to many of them in beauty. Popularly speaking, it is a dwarf foliage plant, having something of the aspect of a very small *Heliconia*, with ovate-lanceolate or ovate bright green leaves, and small contracted two to three-flowered spikes of Orchid-like flowers about an inch long, arising from the base of the stems. This remarkable plant has been introduced from Borneo by the Compagnie Continentale d'Horticulture, Ghent, and the following is a full description of it:—

Plant about a foot high. Petioles erect, 4—10 inches long, embracing each other below by their sheaths, terete in the upper part, with a narrow channel down the face. The blade of the leaf is broadly ovate, or ovate-lanceolate, acuminate, 6—10 inches long, and 24—3½ inches broad, spreading, light cheerful green, penninerved, with four to seven ascending, curved primary nerves on each side the midrib, and three finer secondary nerves between each pair, with a fine and dense transverse venation between them, scarcely

visible in the living state unless held up to the light; the midrib is impressed above, prominent and rounded beneath, and the primary nerves are slightly prominent beneath. The inflorescence, which seems to be freely produced, is sessile at the base of the plant, and is about an inch long, with one to two branches clothed with ovate or oblong purplish scales enclosing one sessile flower. The three sepals are free and equal, linear-lanceolate acuminate, 1—1½ inch long, ½ inch broad, slightly spreading, pale yellowish in the basal part, dull purple in the upper part, on both sides. The lateral petals are 4 lines long and ¾ inch broad, linear, truncate with a fine bristle at the apex, and of a blackish-violet colour. The labellum is like the sepals but a little shorter, 10 lines long, linear-lanceolate acuminate, blackish-violet in colour, like the petals. The stamens are five in number, and are shorter than the petals; filaments free, 1 line long, pale yellowish-white; anthers 1½ line long, linear, two-celled, slightly coherent, introrse, dusky on the back; pollen white. Ovary sessile, inferior, ¾ inch long, enclosed within a convolute, obtuse, reddish-brown bract, the basal part is three-celled, with numerous ovules in each cell, the upper part is solid. The style is as long as the stamens, slender, terete, and whitish in colour, terminating in a blackish-violet, three-parted, fimbriate crest, with a V-shaped stigma just below it, facing the labellum. A native of Borneo. *N. E. Brown, Herbarium, Kew.*



ORCHIDS AT ST. ALBANS.

THE interest in Messrs. F. Sander & Co.'s great establishment will soon rest in a great measure in the several large Odontoglossum-houses filled with many thousands of the best types of *O. Alexandræ* and its hybrids—most of which have not yet flowered in this country, but which are already sending up from the sturdy well-grown plants many thousands of spikes, sufficient being already in bloom to prove the unsurpassable excellence of the strain. At present, however, the chief display of flowers and prominent buds is given by the Mexican and Brazilian plants, each of the showiest and rarest kinds of which are represented by large numbers of healthy plants. How Orchid growing, in all its branches, is carried out here, on such a large scale and to such perfection, is only to be explained by the fact that each batch, or the set of plants of each locality, is treated by itself, and in all cases the information of the collectors as to the natural conditions in which they found them is brought to bear on the plants as nearly as their culture under glass will admit. Thus in the long Mexican corridor which connects all the houses in the one end in a like manner to that in which a similar corridor and the offices enclose the other, provision is made over the whole of the roof for suspending thousands of Mexican and Guatemalan plants requiring the greatest amount of light and air. Here large numbers of *Lælia anceps* and its now numerous new white varieties are freely sending up flowers; many scores of spikes of the large golden lipped *Oncidium tigrinum* are showily in bloom, and delightfully fragrant, their graceful sprays also being made to decorate the ends of several of the other houses. That best form of *O. Insleyi*, *O. I. leopardinum*, and its fine sport, *O. I. splendens*, are also represented, as well as *O. grande*, which, if it be an old and well known Orchid, is yet the showiest of its section. *Lælia autumnalis* atrotubens, too, is beginning to make a great show in the cool Mexican-house, and *Oncidium unguiculatum*, *O. ornithorhynchum*, and the large batches of *Odontoglossum Cervantesi* and *O. Rossi majus* promise a fine display. Against the shady wall of the Mexican-house a pretty effect is made by planting a single row of *Tradescantia* at its foot, which, closely clinging to the wall, has clothed it with a pretty covering of green and silver leaves, pleasant to look upon and healthful to the Orchids suspended overhead. Among the Brazilian and other *Oncidiums*, all of which are here grown cool, *O. varicosum*, which covers the whole of a roof, rivals the show of *O. tigrinum* with its numerous fine spikes of golden flowers; *O. micropogon* and its unspotted yellow variety, *O. chrysotermum*, are both curious and

pretty; *O. Phalaenopsis*, which is always one of the neatest of white and violet-flowered cold-house Orchids, is in flower in many varieties; and *O. Marshallianum*, *O. dasylepis*, *O. Jonesianum*, and *O. incurvum*, in flower or in bud in great profusion. The curious little *O. Limmingsheii* also, like a miniature *O. Papilio*, is in flower; and a great quantity of the neat yellow *O. cheiroporum*, which was one of the admired novelties in Senator Jenisch's garden at Hamburg thirty years ago, but which is still not common.

The large Cattleya-house is fitted at each end with a very massive and artistic rockery with cascades, fountain and basin, and a new feature is introduced by planting it with large masses of white *Lælia anceps*, *L. purpurata*, *L. elegans*, *Vandas*, *Cattleyas*, *Cypripediums*, and other Orchids, mingled with *Ferns*, *Begonias*, &c. All are thriving well, one of the *L. purpurata* having over a dozen flower-sheaths, and *L. elegans*, *L. autumnalis* atrotubens, *Cattleya Gaskelliana*, *Cypripedium Schlimii*, *Zygopetalum maxillare* (on living stems of *Alsophila ferox*), *Oncidium varicosum*, *O. tigrinum*, and others are in flower—the whole having a fine effect, and all the more attractive as it is the first attempt of the kind with Orchids on such a scale. The Cattleya-houses are filled with good things, among which the thousands of well sheathed plants of *C. Trianae* will be the next to make a show. In bloom are a new form of *C. bicolor*, with Indian-yellow sepals and petals and violet-crimson lip; the fine *L. elegans* prasiata of the *Turneri* section, but with a fragrance equal to that of the sweetest Rose; *Cattleya granulosa*, *Lælia xanthina*, *Zygopetalum intermedium* and the rare *Z. obtusatum*; *Acineta Barkeri*, *Grobysa galcata*, and some *Miltonias* and *Burlingtonias*.

In the 300 feet long Dendrobium-house the new *Spaethoglottis Augustorum*, *Cymbidium affine*, *C. giganteum*, and many *Lycastes* and varieties of *Lælia pusilla* are in flower; and the new *Dendrobium hercoglossum*, the little plants of which are covered with sprays of waxy pink flowers of good size, proves itself to be a very desirable and distinct species. Among the *Cypripediums* a fine lot of *C. Spicerianum*, and an equally large batch of *C. Lawrenceanum*, together with several specimens of *C. cananthum superbum*, *C. Haynaldianum*, *C. Godefroyæ*, *C. concolor*, and others, are in bloom, and with them *Acriodes Lawrenceæ*, and many *Dendrobium bigibulum* and *D. Dearei*. In the other houses we noticed flowering specimens of *Epidendrum raniferum*, *Phalaenopsis Sanderiana*, *Dendrobium densiflorum*, *Dendrochilum Cobbanium*, *Compactetia macropterum*, *Galeandra Baueri*, *Odontoglossum Oerstedii majus*, *O. odoratum* (true), *O. constrictum*, and *O. Sanderianum*, *Vanda undulata*, and many reputedly new or rare things promising for bloom—the charming blue *Saccolabium coeleste*, the curious terete-leaved *S. mitratum*, and the ruby-flowered *Acriodes Godefroyanum*, from their known excellence, being of special interest among them.

The glass department at the old nursery in the town has been entirely transformed, the old houses having been removed, and a dozen neat spans, all opening into a lean-to corridor, built in their places. These houses have been arranged for the purpose of crossing and raising hybrid Orchids, considerable success having already attended the efforts in this direction in *Masdevallias*, *Cypripediums*, and other things. Two of the houses are filled with *Phalaenopsis*, three with *Masdevallias*, one with *Oncidium macranthum*, and *Odontoglossum Edwardsii*, one with Mexican *Lælias*, and so on, all being in the best condition possible.

INGA PULCHERRIMA.—A small plant of this novel South American plant—a recently struck cutting—is now in flower at the Royal Exotic Nurseries, Chelsea. It is quite a tiny plant, but it has thrown one cluster of erect long crimson-coloured stamens. Mr. Court states that he has had the plant under his care at the above nurseries for the space of twenty-three years, but has never previously succeeded in flowering it, though he had seen fine specimens of it in Mexico, 6 to 8 feet in height, and covered with clusters of flowers. It is there cultivated as an ordinary greenhouse plant, placed out-of-doors during the summer, but housed during the winter. The cutting—now a blooming plant—was taken only in August last, and it was bloomed in the pot in which it was rooted.

MARKET PLANTS.

TREE CARNATIONS.—It is hardly necessary to say that these are among the most popular flowers of the day. As pot plants, however, they hardly come within the range of market plants, but they are very extensively grown for cutting purposes, and many of the varieties are well adapted for decorative purposes when the plants are well grown; and they should become more popular with the decorator, now that we have many varieties of very distinct colours, which will form dwarf compact plants, and flower freely. For cut bloom it is the self-colours that are the most valuable, especially the yellows, crimson, and the flesh-pink variety Miss Joliffe—this is perhaps the most useful of all the class, as it has a peculiarly delicate shade of colour, which is not to be found in many other flowers, and it is moreover a colour that is very fashionable at the present time.

Although for some time past Carnations have found a ready sale, and have realised a fair price, there is a danger of the supply being overdone, as is the case with most classes of plants that come into favour. When the supply of any particular plant or flower is in excess of the demand, the great evil is that the surplus is sold at considerably less than the sum the regular florist has to pay, and the plants are hawked about the streets, and perhaps sold in front of his shop, for less money than he has had to give for his supply. As soon as this is the case the florist is obliged to use something different, even though he cannot find anything more suitable for his higher class trade. The prices that Carnation blooms will realise vary considerably; a fair average price for good blooms is from 1s. to 1s. 6d. per dozen, but sometimes the price will go considerably higher, especially for yellows, or extra fine blooms of crimson—these will sometimes fetch from 4s. to 6s. per dozen, and I have known the prices to go even higher than that; while, on the other hand, it is often difficult to find purchasers at any price. Plants are sometimes in demand for country trade—the price of these vary from 9s. to 18s. per dozen, for plants in 48-size pots.

CULTURE.

In the culture of Tree Carnations various methods are followed by different growers. In some cases where they are grown exclusively for cutting purposes the same plants are grown on from year to year, and these, when kept clean and healthy, produce an immense quantity of bloom; but in most cases young plants are preferable, as they are more easily kept in order, and can be grown in positions where the accommodation would not suit the larger plants. In some cases the plants are flowered planted out under glass. The only objection to this system is that they are not so much under control, and often occupy space that might be more profitably utilised if the plants could be more easily removed as they go out of flower. Another system is to grow young plants on planted out in the open borders during the summer, and take them up and pot them in the autumn. Where soil, situation, &c., are suitable, fine plants may be obtained in one season, but there is always a risk of the plants suffering somewhat from being disturbed just at a time when the pots should be well-filled with roots. The most commendable system is to grow young plants on in pots, and these, if propagated early in the year, will make good plants for flowering the following winter.

PROPAGATING.

The first point of importance is to secure good healthy cuttings, or pipings as they are usually called. Some sorts do not produce side-shoots very freely, and in such cases a few plants should be stopped back, and placed in heat; if this is done, they will soon break out and give some clean, healthy pipings. It is of more importance that good pipings should be obtained than that they should be put in at any particular time, therefore the stock should be looked to, and the pipings taken as they are ready, commencing, say, early in January, though it will be quite early enough to obtain good plants the same season, if the pipings are put in by the first week in March.

In taking the pipings it is not necessary, as is sometimes recommended, to pull them off close to the old stem, but they may be pulled out, or cut off a few joints away from the stems, and this does not damage the plants so much. If the pipings are pulled out it is necessary to be careful to avoid bruising them in any way, and care should also be taken that they are

not allowed to get withered before they are put in. Another point of importance is, that that they should only be put in the soil just deep enough to keep them firm, and the compost used should consist of nothing that is likely to favour the growth of fungus. Loam, leaf-mould, and sand in equal parts, form a good compost, and the pots should be well drained. The best position for striking Tree Carnations is in a close frame where is a good brisk bottom-heat. The frame should be opened every morning and left for an hour or so, but not long enough for the cuttings to get withered, and they should not be allowed to get quite dry in the pots. The greatest enemy to the propagator of Carnations is damping, which is generally attributed to excess of moisture, but I believe it is more frequently brought about by first allowing the pots to get too dry, or, by creating a stagnant atmosphere through not regularly attending to the ventilation. However, with the greatest care, this evil cannot always be avoided, therefore it is necessary to keep a careful watch, and take steps to eradicate it on its first appearance, otherwise a whole batch may soon be destroyed. They should be removed from the propagating frame as soon as they are rooted, and gradually exposed to more light and air. After being properly hardened off they should be potted off singly in 60-size pots with as little delay as possible, and potted on as they require it. Most of the early struck plants will require stopping once, but those struck later may be grown on without being stopped. As soon as the plants are well established they should have all the air possible, and by the end of June they may be placed out-of-doors; a sheltered position should be selected, and to prevent worms from penetrating the pots, the ground should be well covered with ashes.

COMPOST.

In preparing the compost for potting, it is essential that everything used should be as free from worms as possible. The soil should be fairly rich, and should contain sufficient grit or sand to ensure a free passage for water. The plants should be potted moderately firm; of course a good deal depends upon the soil and the condition it is used in; if the soil is light they cannot be potted too firmly.

WATERING.

It is very important that the watering should be carefully attended to, as either excess of drought or moisture is very damaging. I may add, however, that it is better to err on the side of keeping them too dry than to use too much water. After the pots are well filled with roots a little stimulant may be used frequently, but this should be of a mild nature. And an occasional syringing with clear soft water will go a great way towards keeping the plants free from fly.

VARIETIES.

The varieties included in this section of Carnations are numerous, and among the newer introductions are some valuable improvements; yet many of the older sorts still hold a high position, and it would be difficult to get anything to supersede some of them. Among the scarlets, for instance, although there are very fine new varieties, yet Lucifer and André Alegatière are, perhaps, more extensively grown than any other scarlet sorts; this is on account of their not being so liable to spoil, and of their being so remarkably free and dwarf in habit. All the varieties are liable to considerable variations, and it is on this account that opinions are so much at variance as to which are the most desirable sorts to possess. The following selection may include more varieties than are usually grown for market work, but where a collection is grown all will be found useful.

Whites.—Mdile. Carle, pure white; dwarf and compact in habit; very free. It is comparatively a new variety, and certainly a great improvement on any other white variety that I am acquainted with. There are several other good white varieties, among which may be included L'Hermione, Lady Rose Molyneux, Purity, La Belle, and White Swan. The last-named, though rather of straggling habit, is still a favourite with many growers.

Scarlets.—Lucifer: this is one of the most useful scarlets for general purposes, though some give the preference to André Alegatière; but we find this more liable to sport than the first-named. Rufus: deep crimson-scarlet; very useful. Raspail: a new variety of great merit; the flowers are large, bright in colour, and the plant is of good habit. Field Marshal, Duke of Albany, Worthington G. Smith, and

Huntsman, are all of about equal merit. Another scarlet that must not be omitted is Sir Charles Wilson; this has very large fringed flowers, and is of vigorous habit.

Yellows.—Eride of Penshurst: this is undoubtedly the best yellow Carnation, although it is usually included with the border varieties; it may be grown with the section under notice, as it will flower freely throughout the winter, or rather, I should say, may be had in flower throughout the winter by growing on plants for succession. Mrs. G. Hawtrej: this is an older variety, somewhat similar to the above. Tissot's Yellow: pale sulphur-yellow; very good. Chevalier: pale yellow, slightly striped with pink; a good variety, with fine, well-formed flowers. Prince of Orange: yellow, edged with pink; a good useful sort. Andalusia: pale yellow, large fringed flowers; one of the best winter bloomers. Boissy: pale primrose; very free.

Crimsons.—Dr. Raymond, deep crimson, flowers well formed; plant dwarf and compact in habit; very fine. Negro, dark crimson; very good. Mrs. Keene, Indian Chief, Burgundy, and Valencia are also good varieties; the latter has fringed flowers.

Pinks.—Miss Joliffe: I have already alluded to this variety, and can only add that too much cannot be said in its favour. Another good variety of a similar shade of colour is Lady Macbeth. Helena, deep rosy-pink, flowers large and well formed; plant of good habit. Magnifica, and Seraph are both of a similar shade of colour. Laura, a fine variety with fringed flowers, soft flesh-pink.

Various.—Jean Sisley, flowers large, colour buff striped and flaked with crimson; habit dwarf and compact. Empress of Germany, flowers very large, pure white, slightly tipped with scarlet; very fine. Galety, buff flaked with crimson; well formed flowers. Whipper-in, scarlet and crimson striped; fine large flowers. Atme, scarlet and blush striped; very effective. La Zouave, pink and scarlet striped; very free. A. Hensley.

THE CEDARS AT BAYFORD-BURY.

We are now able to lay before our readers an illustration (fig. 102) of some of the noble Cedars which were mentioned in our columns recently by Mr. Baker, who naturally takes great pride in his noble trees (see p. 427). The Cedars in question were planted about 1765, some of them being seedlings from a tree still in existence at Enfield, and their dimensions are given in Mr. Baker's note at p. 427. It is interesting to note also that seedlings from these trees come up freely all over the garden, so that if they were allowed to remain undisturbed the Cedars at Bayfordbury would form as thick a grove as on the slopes of Lebanon. An account of this very charming and specially interesting garden and pinetum will be found in our columns, August 22, 1885, p. 229.

THE ALPINE GARDEN.

SOIL FOR ALPINE PLANTS.—A note of Mr. G. Maw, on p. 500, calls attention to this subject, so interesting to all growers of rock plants. It may be doubted which of the two is the more important factor in their successful cultivation—atmosphere or soil. Mr. Corveon, who has had long experience, says on the last page of his *Plantes des Alpes*, that "the chemical and physical composition of the soil is all-important." Anyhow, the influence of atmosphere and climate are beyond our control, but soil may be made up in any mixture.

The greatest mistake generally made in attempting the cultivation of alpine is giving them too rich and too easily found food. The roots of these hardy mountain plants should be obliged to wander far to search for and gather a maintenance, and this constant exercise keeps the plants in health. Hence, I have always found that what may be called the mechanical conditions of the soil in which they grow is of even more importance than the chemical. A mixture of three-fourths finely broken stone or brick or well selected sand, with one-fourth good soil, will keep most alpine in health better than a richer compound.

After many experiments I have found that some fastidious and difficult plants, which have seemed unmanageable, have done well when planted in sand or fine gravel riddled from the waste of granite quarries. The dark red granite of Mount Sorrel, in Leicestershire, to which Mr. Ingram, of Belvoir, first directed

me, is the best I have tried. This is delivered, carriage paid, at my station in Cheshire, for about 10s. a ton. Mixed with a small proportion of humus and loam this suits many *Androsaces* and such-like alpine admirably. One cannot give general directions for the cultivation of all alpine, each of which should be tried under varied conditions. In Kerner's *Cultur der Alpenpflanzen*—a treatise I should much like to see translated into English—we have an alphabetical catalogue of choice alpine, with three columns in front of the names. In the first is given the degree of decomposition of the rock in which the plant is generally found, which suggests the proportion of humus it requires. In the second column is stated the lime-loving or lime-hating or indifferent character

be difficult to say, for botanists do not seem to have found a station for it in that country yet. It occurs, however, on many of the islands and on the south coasts of the Mediterranean, and according to accounts forms rather a procumbent straggling under-shrub when it attains any size. Whoever has seen it under cultivation in British gardens could hardly imagine it possessed such a habit, for, whether grown in pots or planted out, in both cases it maintains a close, bushy, branching, upright deportment. The flowering season has been variously recorded from June to October, but in fact it keeps on flowering for a great length of time, fresh flowers being produced on the young shoots. At the present time flowers are freely produced—a redeeming feature that

from June to October. The plant is perennial and procumbent at the base, with a somewhat woody rootstock, from whence arise the flowering shoots, that do not exceed 4 or 6 inches. Many of these ascending or erect branches are flowerless and perennial, giving the plant an evergreen and tufted appearance all the year round. Truly alpine in character and perfectly hardy, this rock plant may be depended on to take care of itself when once perfectly established, and if allowed to develop to a broad spreading patch will hang over a hedge in a graceful way, just fringing the place around which its roots maintain a foothold, for although the lower and older part of the plant is procumbent or even prostrate it never becomes coarse nor travels far. The flowers are



FIG. 102.—CEDARS AT BAYFORDSBURY, HERTFORDSHIRE. (SEE P. 520.)

of each plant; in the third its preference for sandy or loamy soil.

To this table I always refer when any new or rare alpine first comes to me. But if I can obtain several plants of the same species I much prefer to determine the best treatment by experiment. How a plant grows in its natural habitat is one thing, how it will thrive under entirely changed circumstances of atmosphere and climate is another, and the conditions required in the latter case are often shown by experience to be quite different from those of its native home. *C. Wolley Dod*.

HYPERICUM ÆGYPTICUM.

Nearly one hundred years have elapsed since this plant was originally introduced to Britain, as its specific name would imply and as record hath it from Egypt. How this latter statement originated it would

compensates for their small size. In general appearance the plant resembles some of the shrubby New Zealand *Veronicas* such as *V. epacridea*, but is of a pale glaucous colour, whereas the latter is of a deep shining green. A reserve stock of plants should be kept in the cold frame in case of loss from a severe winter, but unless in exceptional cases, plants will survive out-of-doors in warm, sunny, sheltered places on the rockwork. The species is figured in the *Botanical Register*, t. 196, and more recently in the *Gardeners' Chronicle*, n.s., vol. xiv., p. 503, f. 95.

SILENE SCHAFTA.

In particularly dry exposed places the flowering season of this dwarf alpine is short. It is able to exist, however, on account of its deep rooting habit, but where the soil is somewhat moist it will continue to make fresh growth and put forth fresh flowers

solitary or twin, and of a pleasing rosy-purple, of medium size, terminating the shoots. This species is a native of Transcaucasia and Persia, inhabiting elevations ranging from 2500 to 4000 feet. There is a figure in the *Botanical Register*, 3220, and an uncoloured figure in Regel's *Gartenflora*, 7241. Except when many plants are required there is little need to propagate, but when necessary the younger and green shoots are the best, for although (especially in dry places) the plant produces many flowerless shoots, they do not succeed well when once they have become wiry.

PLUMBAGO LARPENTÆ.

Annually as the seasons roll round and the shortening days of September give way to the unsettled and often blustering October weather, the rockwork or border in which this striking Leadwort is grown is

enlivened in no ordinary manner. This is partly due to the intensity of colour, an unusual shade of blue, and its advent at a season when there are few things out-of-doors approaching that hue except the *Asters* in their endless diversity of shades, and partly to the suddenness with which they seem to burst into flower when the conditions and surroundings are favourable. This latter character is owing to a habit possessed by other members of the same family of opening a number of flowers at a time when conditions are favourable, while the rest lie concealed within the bracts and calices. The petals of this *Plumbago* are very delicate in texture and easily destroyed, but continue to expand and create a display in mild weather till late in autumn. For some time after its introduction this plant was cultivated in pots with good effect. It naturally likes a dry soil, which accounts for its easy cultivation in pots. Fortune discovered it on the ramparts of Shanghai, and afterwards Smith in the same place, and on the stonework of the city wall. This proves it naturally a rockwork plant, but being somewhat tender it should be planted in a sheltered nook, to retain the foliage as long as possible. The rootstock is perfectly hardy in a well drained soil, comes up readily in spring, and increases rapidly where there is accommodation. There is a figure of the species in *Paxton's Magazine of Botany*, xiv., 267, and it is synonymous with *Valeraria plumbaginoides*.

ERODIUM REICHARDI.

Excepting *E. maritimum*, which, however, is only a casual in herbaceous borders, and altogether insignificant, the species above-named is one of the dwarfest and most compact habited *Erodiums* we have. Unfortunately, it is not so hardy as is desirable, but being easily propagated by division of the rootstock, a reserve supply may be kept in small pots in an unheated frame or other structure. Accommodation can easily be obtained for it on the rockery in a small crevice between the stones, with plenty of exposure to sunlight. Not being a succulent, however, it must not be planted where the roots have insufficient depth of soil, or a supply of moisture necessary to preserve it from being parched up. As a precaution against this, it should be so situated that the falling rain would have access to the soil in which it is planted. There is an uncoloured figure of the plant given in Lamarck's *Encyclopædia*, plate 573, fig. 2, under the name of *Ceranium Reichardi*. About a hundred years ago, when this plant was first introduced, both *Erodiums* and *Pelargoniums* were included under *Geranium*, although all are sufficiently distinct, and now clearly defined. The leaves are small and neatly heart-shaped, forming a close dwarf tuft, from which the peduncles arise, bearing a solitary, comparatively large white flower, sometimes more or less veined with pink. The whole does not exceed a height of 2 or 3 inches, and flowers are produced throughout the summer season, and often well into autumn. *J. F.*

GRAPES FROM HUNGARY.

At the last meeting of the Fruit Committee at South Kensington a very interesting exhibit of Grapes, grown in Hungary, was sent by Herr Horvath, of Fünfkirchen, which are well worthy of something more than the brief notice that was bestowed on them in our report of that meeting. They were chiefly of the smaller varieties, with pleasant flavours, which it is to be regretted are greatly neglected now in this country for mere appearance sake. The clear translucency of the white varieties was particularly noticeable, and the flavour of all particularly rich and piquant, giving evidence of the fine climate and hot sun enjoyed in that part of the world.

1. *Muscat of Hungary*.—This is the variety most generally grown in Hungary. The bunch is small, berries small, roundish-ovate, greenish-white, with a firm flesh and a pleasant Muscat flavour.

2. *Royal Muscadine*.—Very clear skin, almost translucent, sweet, well ripened.

3. *Muscat of Alexandria*.—Bunches badly set on account of cold, wet weather at time of flowering. Berries rather small, well ripened, and of good quality.

4. *White Frontignan*.—Very good, well ripened; colour light orange.

5. *Muscat Quadrat*.—Stated by Herr Horvath to be "the same as white Frontignan, only that the berries are larger and oblate in shape, just like a flat Tomato." This is a very interesting variety, quite

distinct—well worthy of trial. The quality is excellent.

6. *Grizzly Frontignan*.—Much darker in colour than it is usually seen here. Excellent in quality.

7. *Chasselas Musqué le Vrai*.—This seems to be intermediate between Royal Muscadine and the Chasselas Musqué as generally grown in England. The berries are larger, and not so firm or so high flavoured, and "do not crack," Mr. Horvath states, which is a notorious character of it with us.

8. *Muscat Fleur d'Orange*.—This possesses the rich flavour and firm crackling flesh of our Chasselas Musqué, and is given as a synonym in *Vinci and Vine Culture*. Can it be that our Chasselas Musqué is not the true one?

9. *Chasselas Rose*.—This resembles the Royal Muscadine in quality; the colour of the berries is dark rose, and if over-ripe assume a purplish shade.

10. *Chasselas Rose de Falloux*.—Distinct from Chasselas Rose, the berries being always of a light rose colour.

11. *Chasselas Violet*.—Herr Horvath states:—"The berries of this variety turn red directly after flowering. When ripe they are light red, and when over-ripe still lighter in colour. This sort is not called Violet on account of the colour of the berries, but the young shoots and leaves and the entire plant has a violet tinge." It is sweet and pleasant to eat.

12. *Blicane*.—This is also known under the name of Bulliat—a very fine Grape, having large roundish-ovate berries of a pure white colour, almost sweet and pleasant.

13. *Chavoush*.—This is always highly spoken of where grown in the East, and the examples sent by Herr Horvath were really excellent, the berries large, roundish-ovate, clear-skinned, highly perfumed; nearly equal to the Muscat. Why is it, when cultivated in this country, so inferior?

14. *Muscat d'Andalousie*.—This variety is highly recommended, its only fault being a tendency to grow too strong. The bunch is large, well set; the berries of medium size, roundish-ovate, of a dark reddish-purple. Extremely rich and high flavoured, well worthy of cultivation.

15. *Muscat Hamburg*.—This seems to succeed well in Hungary. The berries were almost jet-black in colour, and of excellent quality.

ROOTS.

(Concluded from p. 458.)

MANY plants flourish in an open soil with plenty of sand in it, but will not grow in a stiff wet soil. This is not necessarily because the heavier soil does not contain the right food materials, but because its particles are so small, so closely packed, and so retentive of moisture, that the root-hairs do not obtain sufficient oxygen: moreover, the very damp state of the soil does not favour the development of the numerous root-hairs necessary, as we have seen. Nor is this all—though I cannot here enter at length into this point—root-hairs and roots cannot grow or act unless the temperature is favourable, and we have plenty of evidence to show that a close wet soil may be too cold for the roots at a time when an open drier soil (exposed to similar conditions as regards sunshine, &c.), would be of a temperature favourable to their growth. Many a pot-plant receives an overdose of water because it is drooping from the roots, being too cold to act properly. The opening up of stiffer soils by means of the spade or plough, or by the addition of other kinds of soil, such as sand, burnt lime, &c., or by means of drainage of various kinds, is thus to be regarded as a means of letting in air, and therefore oxygen, to the roots. "Sweetening the soil" is an expression one hears used by planters and others; this is often no doubt their way of expressing the fact that the air thus let in does so much to turn the noxious substances which have accumulated into other substances which the root-hairs of certain soils to sharp winter frosts in part benefits the plants subsequently grown in it, because air can make its way into the cracks produced as the particles crumble: there are other advantages also due to the "weathering" of soils, of course, as also to the addition of lime, &c., but I am purposely abstaining from referring to points concerning the nutrition of plants as generally understood.

Let me shortly call your attention to a few other practical applications of the knowledge briefly summed

up above. It is well known that a good deal of experience has been brought to bear on the question of what trees are the best to plant in or near large towns: there are very many facts to be considered. It is not sufficient to find a tree which will accommodate itself to the possibilities of the annual rainfall, or a diminished supply of sunlight throughout the year, and so on; nor is the problem solved when a tree is found that will put up with traces of acid gases in the atmosphere, and, as may follow, the accumulation of acids in the soil, and consequent alterations in its chemical composition. In many cases trees have been found to die as they grew older because the pavement or asphalt over their spreading root-system prevented proper aeration and a proper supply of aerated water to their root-hairs; imagine the effect of a few days' hot summer sunshine on roots just beneath the pavement of an exposed street! It is true the cover may prevent rapid evaporation, but it also shelters the soil from the well aerated raindrops; moreover, such sheltered roots will at certain seasons grow up to the surface of the soil and in contact with the lower surface of the pavement. Then there is the question of drainage. If the water which does find its way in slowly accumulates and becomes stagnant, the results are as disastrous or even more so; yet it is obviously a difficult matter so to arrange things that the accumulated surplus water of certain seasons shall pass away below, acting like a suction-pump and drawing in air after it, and still fulfil the other requirements hinted at above. I leave out the question of exhaustion of the soil—the dead leaves, &c., being carefully removed. Can we wonder that there are so few trees to choose from that will stand such treatment? The fact that there are some only accords with what has been already stated—that plants vary in their requirements and powers; and no one doubts that the variations have been influenced by variations in the environment.

We have now seen to a certain extent how variations of a particular kind may affect a plant. The plant responds to a certain extent—it is, as some people say, "plastic"—but if the limits are reached and slightly overstepped, the variations on the part of the plant become dangerous to its existence, and the plant becomes diseased and may die.

Not to dwell upon hypothetical matters, I will content myself with saying, in conclusion, suppose a variety of a given plant grows in damp places and has roots which form few or no root-hairs, and suppose an individual of that plant to become transferred to a more open soil; I have shown you reasons for regarding it as probable that the latter individual might produce more root-hairs and thus adapt itself to the altered conditions. If such a case happened, it is by no means improbable, but the contrary, that other circumstances co-operating or adverse would decide certain problems of importance to the existence of that particular individual.

But the main object of this lecture has been to show you how very complex the conditions may be which bring about a "diseased" condition of the roots. It is no uncommon event to see a tree flourish for years and then die slowly off from "something at the roots"; examination shows that the soil still contains the necessary foods, the water-supply is constant and good, the tree is exposed to no obvious adverse influences, and yet with steps so slow that they are scarcely noticeable, the tree begins to die off before its time. In some cases this is probably because the root-hairs are not receiving their proper supply of atmospheric oxygen, and this may be due to very slight changes in the structure (not the chemical composition) of the soil: a very slight diminution in the activity of the root-hairs may cause a diminution in the supply of water to the leaves at seasons when they require much, and this means lessening their supply of food-materials. If the leaves are placed on short commons they cannot form wood, and so the next season's supply of nutritive solutions may be cut short; moreover, fewer root-hairs will be formed. No doubt differences will appear in different years or seasons; but if the tendency on the whole is in the above direction, the life of the tree is already limited—it may drag on for years as an object, which can scarcely be termed a tree, however, but its doom is sealed.

The difficulty of placing one's hand on an exactly illustrative case is due to the fact that other causes are usually at work after a short time. I have purposely avoided any reference to the changes brought about in the chemical nature of a soil by the addition or

cutting off of air, &c.; and for the same reason—to keep your attention directed to the root-hairs as living cells exposed to the influence of a definite environment—I have left out of account some questions of food supply. These matters do not invalidate anything said above, but they do profoundly affect the problems of the diseases of plants, and especially those diseases which start from the roots. *H. Marshall Ward, M.A., F.L.S.*

MANURES.

(Continued from p. 139, vol. xxxv.)

THE character of the soil is, as is well known, an important element to be taken into account in the choice and application of manures. The general difference between strong and light soils may be taken to be that the former contains a larger store of the natural elements of fertility, though for the most part in an undeveloped state, while from an excess of clay the physical property of retentiveness and its consequent drawbacks are too prominent; while light soils, on the other hand, are comparatively deficient in natural resources, and by reason of a deficiency of clay possess the property of porosity in a too great degree, and hence afford a too ready passage for water, and other bodies necessary to vegetable growth.

CLAY SOILS.

On stiff clay soils we have all the defects arising from the tenacious and plastic properties of this substance, and its consequent imperviousness to water, hence the first necessity towards the improvement of such soils must be drainage, in order to remove the excess of water, and without which the best manures will have but a meagre effect. All means of adding to the porosity of stiff clay soils are to be recommended—one of the best of which is burning in heaps with vegetable refuse, or small coal, in the manner "ballast" is burnt, and which spread over the surface before digging, has an excellent effect in lightening the soil.

It is on these descriptions of soil that a thorough breaking up and stirring at favourable times is so beneficial, particularly before frost, which does more for strong clays than almost anything else. In fact, cultivation on these classes of soil must always be the primary resource for advancing their fertility—but supplemented of course by a judicious selection and application of manures.

As an illustration of the beneficial effects of a thorough breaking up of moderately stiff soil on vegetable growth, we may quote an experiment conducted at Rothamsted many years ago with white Turnips, on three plots of ground, each plot being manured in exactly the same way, namely, with 11 cwt. of superphosphate per acre.

Experiment with White Turnips.

No.	Treatment of Land.	Average Weight of Bulbs.	Produce of Bulbs per Acre.
		Lb.	Tons cwt. qr.
1	Dug 9 inches deep ..	1.20	13 8 2
2	Dug 13 inches deep ..	1.30	14 4 0
3	Ploughed 9 inches deep ..	1.17	12 13 3

These results indicate the character of the soil-conditions required in root culture, and show a more rapid bulb-formation, with a corresponding increase of crop in proportion as the land was broken up and pulverised.

SANDY SOILS.

In sandy soils we find all the defects arising from an extreme porosity, or, in other words, an absence of retentiveness consequent on the paucity or absence of clay, which is the chief storehouse, so to speak, not only of the moisture of the soil, but also of plant-food, either artificially added or derived from natural sources, and from which the root-fibrils of plants draw their supplies as required.

The retentiveness of such soils may be enhanced by the addition of clayey composts, and by green manuring.

GREEN MANURING

is often an excellent source of plant-food in the lighter description of soil, and deserves to be more extensively adopted, as we thereby obtain a clear gain of nitrogen from natural sources, and at the same time gather up and preserve any nitrates present in the soil in a staple and efficient form; while the

humus compounds arising from the decay of the vegetable matter afford an absorbent for moisture, &c., in the same manner as clay. That vegetable matter in a readily decomposable state is a valuable form of manure is shown by the character of the Wheat crop following a Clover lea. Where the Clover has been successful, the Wheat plant, as well known to the agriculturist generally, corresponds, and *vice versa*. Dead leaves and garden refuse of all crops not consumed as food should therefore be carefully returned to the land, as they are rich in manurial elements in the best possible state for future plant-life when prepared by decay in soil.

The following table shows the amount of selected chemical constituents in some of the waste products of the garden:—

Number of Pounds in One Ton of Each, Fresh.

Description.	Nitrogen.	Phosphoric acid.	Potash.	
			Lb.	Lb.
Potato haulms	12.2	2.2	11.2	6.8
Carrot tops	14.6	1.6	6.5	3.9
Parsnip tops	14.0	2.4	8.2	24.6
Turnip leaves	9.6	2.1	7.9	5.7
Fava haulms	43.0	7.3	27.4	69.4
Artichoke, stem and leaf ..	7.7	1.6	10.6	71.9
Onions, stalks and leaves ..	8.0	0.9	2.7	4.7
Broccoli leaves	4.0	6.3	8.3	10.1
Radish tops	4.5	3.8	3.4	17.9
Beet tops	14.3	1.6	9.5	2.7
Rhubarb leaves	7.7	8.3	4.0	1.1

We can readily understand from the foregoing statistics that every portion of a plant, whether useful as human food or not, removes from the soil a given quantity of its fertility, and therefore impoverishes the soil so much plant-food.

But lest these remarks respecting green manuring may be thought to be at variance with the maxim that we should never use as manure what can first be used as food, it may be added that under exceptional circumstances, as in the case of light sandy soils, waste vegetable produce may be more valuable as green manure than as food for animals, by conducing to a physical improvement of the soil, and consequently to a higher degree of fertility.

We may take it as a general rule not to burn any refuse that will rot in the soil, except in the case of foul turf infested with insects or seeding weeds, &c., since by so doing we lose the nitrogen and organic matter, besides rendering the ash constituents less available by mineralising them. Sir J. B. Lawes and Professor Gilbert have subjected this theory to a most rigid investigation at Rothamsted.

The ashes of 14 tons of farmyard manure were applied to an experimental crop of Wheat, and gave no increase of produce whatever over an adjoining plot that was left entirely unmanured, and in succeeding years the ash constituents were found to be but very slowly available as plant food.

Besides all this, able chemists have demonstrated by growing plants in distilled water, that to produce a good crop there must be nitrogen in the soil or in the water. They have dissolved the ashes of plants in pure water, and then, by adding a few grains of nitrogen in the form of a nitrate, have produced a luxuriant vegetation; but without nitrogen only a very feeble growth could be obtained.

WEEDS.

The field experiments at Rothamsted and also at Woburn conclusively prove that crops of every description grown upon ordinary cultivated land are greatly reduced by weeds. It is true that weeds, if again returned to the land, do not exhaust a soil, as, in their decay, the fertility which they have taken up becomes again available; but weeds take up nitric acid, which during their growth reverts to the form of organic nitrogen. When this occurs in regard to soluble plant food it is merely so much nitric acid employed in growing weeds instead of useful garden produce, and this nitric acid does not again become available as food of plants until the weeds have undergone decay in the soil and become nitrified. *J. T. H.*

TRADE MEMORANDUM.

J. P. WILLIAM & BROTHERS, Seedsmen, Hentagoda, Ceylon.

THE STRAWBERRY.

WHO can say anything new about the cultivation of Strawberries? I for one am not about to undertake to detail any novel system; but it will readily be admitted that between a well cultivated quarter of Strawberries and one where they are allowed to take care of themselves the difference is very marked. How often do you see in gardens a bed of Strawberry plants where the runners have been allowed to increase and multiply until no traces of the original rows are discernible amid the mass of foliage? Such a bed as this is treated differently according to the predominating taste of the owner, or rather his ideas of culture. On one occasion I observed the autumn treatment of such a bed in preparation for the winter. The procedure was this:—A line being stretched on each side of the row, a spade or edging iron was used to cut through runners and roots, the next process being to dig between the rows, leaving the soil laid up rough for the winter. This operation makes a sad havoc of the roots, and cannot be but permanently injurious to the plants. Even if this were not so the mass of runners prevents the permanent plants from fully developing themselves up to October, and after that time, when the beds are dug, the atmospheric conditions are not sufficiently favourable for the plants to recover. In some cases of this kind the owner of the bed will not have it disturbed at all. On one occasion, when visiting a gardening friend who had entered a new situation, he told me his employer drew his attention to a Strawberry bed that had been planted about twenty years, and the instructions were that on no account was it to be disturbed. Any one with the least knowledge of the principles of gardening ought to know that good Strawberries cannot be produced from a bed that had been left undisturbed for twenty years, and it is not an easy matter to instil radical principles into one holding such conservative views. The right thing for a gardener to do in a case of this kind is to avoid argument, and at once make the necessary preparations for planting a new bed in another part of the garden. It would be best to ask permission to purchase a sufficient number of plants of the best varieties at present in cultivation, or if this might not be prudent any gardening friend would help a brother under such conditions, or as a last resource runners could be taken from the old bed, but they would be weak, and most likely would take a year to recover.

Strawberry plants may be put out in the open ground whenever they can be obtained; they may be planted with a reasonable prospect of success at any season of the year, but a very long experience tells us that by far the best time is the end of July or early in August—that is, as soon as the runners can be obtained by layering them in pots. If they are obtained at that time out of the pots I would suggest that each plant be carefully potted in rich light soil, using large or small 60-sized pots. If strong runners were prepared and planted as I have described on ground that has been first prepared by trenching and manuring, the plants, if well looked after subsequently, would sustain no check to their growth, and would bear well the following season, when a comparison could be made between the old bed and the one not a year old. The bed containing the young plants would produce abundance of large fruit, and good in quality; the other would produce a small crop, poor in appearance and quality. In case the plants have to be propagated, and a full crop of fruit obtained within the limited space of eleven months, the smallest cultural details are of importance, and it is by omitting these that failure results, and not by the neglect of any fundamental principles of the art.

I have been tempted to write on this subject by the numerous complaints that have reached me of the failure to grow a seedling Strawberry raised by me some fifteen or more years ago, named Loxford Hall Seedling. I have grown good crops of this variety every year since it was raised, and last season it carried a much larger crop of fruit in our garden than any other, and we grow all the most approved sorts. Briefly stated, the best method to adopt to obtain a good crop the first season after planting is to layer the runners into small pots as soon as they can be obtained, using to two parts of good loam one of decayed stable manure. We use large 60-pots, without any crocks; over the hole in the bottom of each pot is placed a layer of fibrous turf, and a pinch of soot to keep out worms—this is more especially useful for those plants that are

intended to be cultivated in pots, but it has fertilising properties as is shown by the vigorous healthy condition of the roots which run into and through it. In two weeks after layering the young plants may be cut away from the old stool, and in a week more they may be planted out. It is a wise precaution to examine the under-sides of the leaves before planting them out, and if there should be the least suspicion of red-spider it may be destroyed by dipping the whole plant, above ground, in a pail of water to which has been added a pint of nicotine soap. The process of dipping is this:—Invert the plant, holding the fingers over the surface-mould, to prevent it falling into the pail; then with the other hand move the leaves about for two or three seconds; lay the pot on its side, to allow the water to drain off the leaves. The preparation of the plants being completed, the bed should also be ready in good time; this is prepared by trenching it at least 2 feet deep. In the bottom of the trench place a good layer of manure, and another layer about 9 inches below the surface. I like to have the ground trenched at least two months before planting out the young runners; they take more readily to a surface that has been exposed to the influence of sun and rain for that period. In our light sandy soil over dry gravel at Loxford Hall I grew first-rate Strawberries by treating them as annuals. The plants were put out, the crop of fruit was gathered, and they were cleared off the ground to make room for white Broccoli, or some other crop, within twelve months; but we found it necessary to dig out a hole for each plant large enough to contain one spadeful of good clayey loam, which had been enriched by the addition of a third part decayed manure. The distance between each plant was 2 feet, but for such dwarf-growing sorts as Loxford Hall Seedling 20 inches is enough. At the time of planting the weather is usually very dry and hot. The sun in this country is never too tropical for Strawberry plants; they require, if the weather is dry, water two or three times a week, until they are fairly established. Under these conditions they grow rapidly, and once every week all the runners, which form very rapidly, must be pinched off; the strength of the plants must not be allowed to become exhausted by the production of runners.

We may also find some profit in considering the question of new varieties, and the best varieties to cultivate. In reference to the first, I have had a somewhat similar experience with new Strawberries as with new Grapes; of the latter I have fairly tried during the last quarter of a century twenty new and highly recommended sorts, and have at last fallen back on the Black Hamburg and Muscat of Alexandria: what a saving it would have been if we had grown no others from the first. Conservative principles would have been worth something here, but experience if dearly purchased must be worth something on the credit side. So with Strawberries: we now force nothing but Black Prince and Keen's Seedling. When Pioneer (Laxton) was sent out after it had been certificated by the Royal Horticultural Society, it was purchased, grown, and fruited the next season in pots and planted out, but owing to its inveterate tendency to mildew it was a failure both ways from the first. Pauline is a most promising variety if planted out on an early border, but it cannot be recommended for pot culture. We shall fruit King of the Earlies (Laxton) and Waterloo (Veitch) next year; until that time I will not comment further upon them. Between these early kinds and Loxford Hall Seedling there is a wide space to be filled in with three or four distinct and good varieties.

I find on referring to my notes that Loxford Hall Seedling was raised in 1873, by crossing Frogmore Late Pine with a variety named La Constante; we had about 150 seedling plants that year: many of them were tried and found wanting, but Loxford Hall Seedling was most prolific both out-of-doors and in pots. It requires rich deep soil to grow in, and will produce a larger weight of fruit from a given space of ground than any other variety known to me. Black Prince is an excellent variety for preserving; every plant is laden with fruits of a rich dark crimson, and fairly good flavour. Keen's Seedling is still one of the best sorts for flavour, size, and productiveness. President succeeds well in light and heavy soils, and is a grand variety. Sir Charles Napier is still one of the very best culinary sorts; a most abundant bearer; its peculiar sub-acid flavour is esteemed by some; and the handsome bright scarlet fruits, of good form, make up a good dish. British Queen, or Mr. Rad-

cliffe, as we have always grown them, are grand; they do not differ much, and should be grown in every garden. Sir Joseph Paxton does not succeed on light soils, but it is a grand variety where it can be grown: it is liable to mildew. Frogmore Late Pine is a handsome variety; the fruit is large in size, and of a rich Pine flavour. *J. Douglas.*

BROCCOLI.

THE accompanying illustration (fig. 103) was engraved from a photograph furnished by the grower, Mr. H. Little, gardener at Bustard Hall, who cut the head on June 5, the weight being 4½ lb. The variety is Leadsham Late White, one of the latest of all Broccolis, and one that quite fills up the gap that used to exist after the last of them was cut, and before early supplies of Cauliflowers came into use.

The Leadsham is a very hardy kind, standing frost and wet with impunity—no mean merit, when we see the destruction a sharp winter causes amongst Broccolis generally—and that, notwithstanding the plants may have been heeled-in in the most approved fashion.

As a precaution against injury from frost, we think if the plants be laid-in in rows it would be of great advantage to put down a row of hurdles at every third space, so that the plants would be sheltered from the

probably for their exact length upon the aspects of the prevailing seasons. A prolonged drought in India is often accompanied by the flowering of the common Bamboo, and on this account the natives associate the two phenomena in a manner which is emphasized by the fact that the Bamboo grain during seasons of drought has provided them with the only available means of support. In the winter of 1884-85 all the Chusquea throughout the mountains of Jamaica was noticed in flower. It began to shed its leaves, to assume a dull rusty colour, and break out into abundant flower-spikes. The flowering glumes were of purple colour, and the stamens, rather large, were bright yellow. When the seed was set the stem began to die down, and apparently every plant in the island died, root and all. It is remarkable that this simultaneous act of flowering of the wild plants—which, it must be remembered, is not of annual or biennial occurrence—extended also to the plants at Kew; in fact, both the wild plants at Jamaica and the cultivated plants at Kew (although the latter were under such very different conditions), were in flower at the same time.

Sir Joseph Hooker, referring to the Kew plants, remarks:—"In December last they burst into flower, causing me to fear that, after the manner of so many species of this most remarkable tribe of grasses to which they belong, they may not survive the flowering period." The Kew plants died exactly as the wild plants.

On the wild plants an abundant crop of seed was

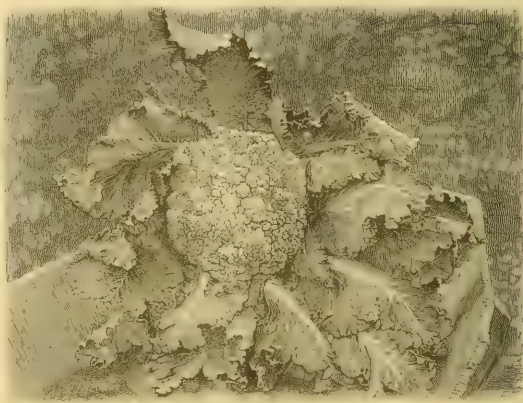


FIG. 103.—LEADSHAM BROCCOLI.

sun during those sudden bursts experienced in winter time, and which cause thawing of the tissues, and hence the destruction of the plants.

CHUSQUEA ABIETIFOLIA.

THIS attractive member of the tribe Bambuseæ is little known out of Jamaica, where, as a tall, graceful climber, it is confined to the mountainous interior of the island. From a plant sent to Kew in 1882, which flowered in December, 1884, there is given a plate and description in the *Botanical Magazine*, t. 6811, which entirely supersedes the formerly inaccurate description by Grisebach (*Flor. Brit. West Indies*, p. 529).

In its natural state this Chusquea grows with long slender stems, smooth, round, and wiry, seldom more than a quarter of an inch in diameter. The leafy branches are arranged in whorls at the nodes of the main stem, and have leaves, arranged alternately, from six to nine in number. The leaves are about 1½ inch long, and about one eighth of an inch in breadth. The whole habit of the plant is light and graceful, and when, as is often the case, it hangs in long festoons, or in large curtain-like masses from the branches of tall trees, it gives the mountain woods of Jamaica a soft feathery appearance, which is in marked contrast to the usual character of alpine growths.

The flowering of this plant appears to take place, as in most Bambuseæ, at long intervals, depending

produced, and at the present time the ground in the forest where the Chusquea grew is covered with millions of seedlings, and in due time these will take the place of the former generation.

It is hoped that a fresh lot of plants will be introduced at Kew, and that this very interesting, no less than attractive, species will become as well known in European gardens as it deserves. *D. Morris, Assistant Director, Royal Gardens, Kew, October 12.*

CATTLEYA CALUMMATA ×.

THIS pretty Cattleya, raised by M. Bleu, of Paris, between C. Acklandiae and C. intermedia amethystina, is a worthy addition to the compact-growing, large-flowered section to which it belongs; indeed, with it, as with most other garden hybrid Orchids, it seems to be even freer flowering than the imported species. Our illustration (fig. 104), taken from a photograph by Mr. Herbert Measures, of a plant in the collection of R. H. Measures, Esq., and which is one-half natural size, gives a good idea of the plant, and also of the habit of growth. The flowers, which are of good substance, have sepals and petals of that delicate bluish-pink seen in C. amethystoglossa, blotched with violet or purple, and the lip is reddish-violet in the centre, fading off to rose towards the edge. Some misapprehension seems to exist about the name, for even by good authorities we have seen it spelt "calummiata" and "calumnata," but that given above is the correct name, given to the plant because

of the resemblance of the middle portion of the labellum to a lady's ruff, collar, or chemisette. The plant was distributed by Messrs. F. Sander & Co., of St. Alban's, in 1884, they having purchased the stock of M. Bleu. [The name seems to have been derived from the Greek *kalumma*=hood; but we much fear that a head-master would "swish" a boy who made such an adjective out of a Greek noun, and we are sure that the name offends against botanical canons, by mixing up Latin and Greek, and specially by giving a pseudo-classical name to a plant of artificial origin. ED.]

ship of the olden times, which consisted largely of titles and statements set up for the mere pleasure of knocking them down again. But then, possibly, I belong to a very numerous class of people, rather severely described by Charles Lamb as never understanding a joke until explained to them. Of course very much depends on the character of the joke. But after carefully reading "T. W. G.'s" facetious column I turned for explanation to pp. 429, 430, and was more puzzled than ever. Can it be that there is some distant or close correlation between your correspondent and the man distraught, with "wild

it might not be better for the Teas and more just to other classes of Roses, if the Teas were shown by themselves, and you are dubbed as men distraught, and as advocating the expulsion of Teas. I venture to suggest that the mixing of Teas with other Roses introduces a distracting and disturbing element into the judging of larger collections, and this one reference to distinction in an article of two columns furnishes your correspondent with a hobby-horse on which to canter through openly each of his paragraphs. The idea of any distractions through any conflicting clamour of distinct classes of Roses is



FIG. 104.—CATTLEYA CALUMMATA. (SEE P. 524.)

The Rosery.

EXEUNT TEAS.

"T. W. G." is to be congratulated on his success as a humorist, as it is seldom that your readers are favoured with such a column of banter as may be found on p. 457. Well, well, banter breaks no bones and very few hearts, and a little risibility at one's expense may prove a capital offset to the darkness that like a nightmare over rural life in so many parts of England at the present moment. Besides, it is well at times to have a sample of the intellectual gladiator-

and wandering eye" espied among the phalanx of judges at South Kensington last July? If so, the less said about it the better just now when so many distinguished personages, political and other, are missing. Talk about too many cooks spoiling the broth!—but that is hardly worth mentioning contrasted with the awful number of show Roses—Teas or others—that are stood over or sat upon by a phalanx of judges. Phalanxes and societies are rather prone to slide into the easy philosophy tersely defined in the phrase that "Whatever is—is right." Let any one suggest change—hint at improvement—no weapons of banter, ridicule, misrepresentation—can be too sharp to silence, hunt down, or crush him. Express a doubt whether Rose showing ought to be the be-all and the end-all of Rose culture, and

evidently quite new to him, as indeed might have been expected. For every one of the phalanx—of course the mass as against one would carry all such matters with a rush—have little or no room for individual differences of opinion.

And as to "exeunt Teas," the whole tenor of my articles went to show that Tea Roses are too good to compete with any other class but their own, and it would be as logical to write "exeunt hunters" over an agricultural exhibition because these were not allowed to compete with earthenware, as "exeunt Teas" anent an article advocating that Teas should only compete with their peers. For just as it would be scant honour and little proof of special merit for racers or hunters to win 1st honours in an open class for horses, so it would be a lower degree of honour to perpetuals

to be carried to the front on the backs of Teas. By separating the classes a useful stimulus is given to the development of the special merits of each. Neither with the rapid increase and improvement of Teas would there be much difficulty in filling the larger classes were this desirable, which many might be disposed to doubt. Few practical rosarians, however, can have any doubt that the class competition of Roses would prove the likeliest method of making the best Roses yet better—that is, improving the quality of each class, and also increasing their numbers.

As to Rose shows out of season, and other matters galloped over on your correspondent's hobby-horse, it seems needful to remind such writers that there are other and more natural and enjoyable modes and places for looking at Roses than through the mere show spectacles of exhibitors, jurors, and societies—all more or less bent on making Roses pay their way. This is all very well so long as Rose showing is not valued merely for its profits or honours, or spectacular effect, but for the stimulus it affords to the higher culture, fuller fragrance, and more durable beauty of the Rose in the garden.

It may suit "T. W. G." and others to crowd the beauty of the Rose into the three or, at the most, six weeks in the latter end of June and the beginning of July. Thus seizing the Rose season at the flood, they may reap such fortunes as Rose showing at fever heat may afford; and it is small marvel that, jaded and wearied with the excitement, they welcome this new love of Dahlias and Gladioli; or, when showing ceases, they rush out of their gardens to the sea or the North. But far different is the feeling and the practice of the true lover of the Rose; he is so enamoured of her charms that he wishes to sit at Queen Rose's feet all the year round; hence his advocacy of Rose shows out of season, as likely to create and multiply ever-blooming varieties and of warm walls and greenhouses to shelter them, and of hot-houses to force them, so that in the future each month and each day of the month may be garlanded with the beauty, and sweetened and enriched by the fragrance of Roses.

Past experience justifies such glowing prospects in the near future. The possibilities and power of the Rose are by no means exhausted; and, notwithstanding the banter and rebuffs our suggestions towards improvement have been received by "T. W. G.," we venture to summon the National Rose Society to higher, better work, than the holding of a few great shows in the Rose season—because they pay. If the latter only is taken into account, what do subscribers pay their guineas and half-guineas for? This Society ought to be first in any good work among Roses; and one of those most needed at the present time is the multiplication and classification of ever-blooming Roses, Teas or others. And then great help would be given to Rose culture could remedies be discovered, tested, and published in the *Year Book*, or through other channels, for mildew, red-rust, the influence of different stocks on the constitution, hardiness, and longevity of Roses; also upon growth and floriferousness, earliness, lateness, or continuity of blooming; worked Roses *versus* own-root ones; in their relation to the size, colour, substance, and staying properties of their blooms; effects of different manures and other products, on Rose plants; the future of Tea Roses in relation to other classes, &c.

Surely these and such-like subjects are far more worthy the attention of the National Rose Society than the holding of a few monster shows in different centres, and the distribution of liberal money and cup prizes—in which matters they have now almost any number of successful competitors. These things the National Rose Society ought to have done, and not leave the weightier matters relating to the improved health, enhanced beauty, and ever-blooming possibilities of the Rose, undone. D. T. F.

Orchid Notes and Gleanings.

CATLEYA MEASURESI, n. *hyb. nat.*?

MR. J. O'BRIEN has kindly sent me a good flower, and a photograph of the plant, possessed by Mr. R. H. Measures, Woodlands, Streatham, imported by Mr. F. Sander. The plant forms a dense mass, well compared by Mr. J. O'Brien with *Catleya calummatum*. Unluckily I have no scale with which to judge the dimensions. At all events, the bulbs appear longer and much more swollen than those of *Catleya Aclandiae*. There are nearly always two leaves to each bulb, and the wonderfully developed roots confer full honour to their grower, Mr. J. Salter. The flower is equal to that of a good

Catleya Aclandiae. It has its texture and its sheen, and its general outline. Sepals and petals ligulate acute, petals a little undulate, reddish-brown, self-coloured. The side lacinia of the lip form a blunt angle, bearing a small point in the middle, involved at superior part; isthmus nearly none, anterior blade nearly heart-shaped, emarginate in front. There are indications of three almost obscure keels on the disc between the side lacinia. The whole colour is light whitish-rose. Column narrower than in *C. Aclandiae*, purple at top, rose at the base. And the parents? No doubt *C. Aclandiae* is in the play. Mr. J. O'Brien thinks of *C. Walteriana*. H. G. Rehb. f.

CYPRIPEDIUM PORPHYREUM, Rehb. f.

MR. DREWETT O. DREWETT, Riding Mill-on-Tyne, has raised a fresh stock of this, bearing narrower bracts and shorter petals, just as they were in the first flowers sent by Messrs. J. Veitch & Sons, though later other plants proved to have longer petals. It might, therefore, be better to keep the plants of Mr. D. O. Drewett as *Cypripedium porphyreum*, Mr. D. O. Drewett's variety. H. G. Rehb. f.

CYPRIPEDIUM CARDINALE x, Rehb. f.

MR. DREWETT O. DREWETT, Riding Mill-on-Tyne, has raised a fine stock of this, several flowers giving evidence of the great variety of individuals. This is very often the case in hybrids, so much that an accurate diagnosis is often impossible. Amateurs might keep this in memory and not get offended, if a published representation does not quite agree with the original description. The flowers of our plant look rather bold by their nearly spread petals. To my taste the finest are those, which have the involved parts of the lip on each side of the mouth with red stripes on white ground. The first flowers, sent in September, 1885, by Mr. Harry Veitch, had their spots, now and then in rows. It might perhaps be safer to keep those *Cardinialis* apart. H. G. Rehb. f.

MASDEVALLIA ACROCHORDONIA, Rehb. f.

At last this fine plant has flowered. I have at hand a flower, kindly sent me by Mr. James O'Brien, of a plant imported by Mr. F. Sander, and grown in the garden of Sydney Courtauld, Esq., Bocking Place, Braintree. It is very easily distinguished from *Masdevallia ephippium* (Trochilus) by its narrower lateral sepals, which have not so boldly inflated cheeks as in that one. The petals, which are retuse and lobed or bidentate in *Masdevallia ephippium*, are acuminate in this, and the spreading angle at base is very strong in our plant, scarcely indigited in *Masdevallia ephippium*. I feel surprised that the keels and warts inside lateral sepals are not well developed. Yet the flower would appear to be the *debut* of the plant, that, no doubt, will improve considerably. If I am entitled to judge from herbarium materials I might say *Masdevallias* were such Orchids which beat their wild sisters when well treated in our conservatories. H. G. Rehb. f.

The Flower Garden.

TENDER PLANTS.

It is not safe to risk out-of-doors any plants which it is desirable to preserve for another season, and any which it is intended to preserve should be lifted and potted forthwith. Where it is found desirable to lift silver, bronze, or tricolor Pelargoniums, lift them carefully with a fork or spade, and avoid straining their roots. Trim off some of the strongest roots, and remove some of the foliage, leaving the leaf-stalk until they drop off of their own accord. Pot singly in 4-inch pots, and give no water; they will winter in a dormant state, and, if necessary, can be pushed forward in heat to supply cuttings in spring. Where early bloom is desirable, a large proportion of the Pelargoniums should be lifted from the beds and similarly treated. They will flower more profusely than autumn-struck cuttings, and can be wintered with very little trouble or loss. Dryness at the root during winter will be found the best means to pursue of preserving them in good order, and they may be packed closely together in boxes. Remove a large proportion of their foliage. They can be potted in the spring into 4 or 5 inch pots, and placed in a

vinery or Peach-house at work. Where convenient, this will be found a good system to carry out. Carpet-bedders have lost none of their effectiveness, notwithstanding the boisterous weather we have experienced during the last ten days. Although the weather has been rough the temperature has ruled high for the season. All plants which have been rooted in boxes out-of-doors should now be placed under a glass shelter of some kind until such time as they can be placed in their winter quarters, which may not be convenient just yet. Dahlias may be kept gay for some time to come by picking off the decayed seed-pods and overblown flowers.

HARDY FLOWERS.

Chrysanthemums against walls or other shelters should be securely fastened to keep them from getting damaged by wind. They will materially assist the cut flower supply at this, the worst season of the year for flowers. Violets in pits should now have the sashes put over them every night, but they should be tilted slightly to prevent a stagnant atmosphere and the accumulation of moisture. Pick off all runners as they appear, and all decayed foliage. Remove the sashes off the pits during dry weather, but replace them immediately it commences to rain, but never replace them unless it freezes.

ALPINE PLANTS.

Those in pots should now be secured from excess of moisture, but they should receive all the air possible to maintain them in a robust state to meet the winter. See that none of the pots are standing under drip. These interesting subjects may be made to play a prominent feature, even in winter quarters, if a little rockwork can be introduced into the pit, as many of them are evergreen, and show well amongst lime or sandstone rocks.

Auriculas in pots must have careful attention in the application of water; they should never be watered until they really require it; then give sufficient to moisten the whole ball thoroughly. See that aphids do not obtain a lodgment in the young leaves; fumigate on the first appearance of the insects. Bloxham's new patent fumigator supplies a ready means of dealing with individual plants. A few puffs from this ingenious contrivance completely destroys the enemy, and saves much Tobacco. By using it the dry atmosphere produced by filling a whole house with Tobacco fumes is dispensed with. W. M. Baillie, Luton Hoag Gardens.

THE ORCHID HOUSES.

MISCELLANEOUS ORCHIDS.

If I had but one house in which to grow Orchids, and desired to collect the greatest number of species and varieties that would thrive under the same conditions, I should decide to have what is termed here the *Lycaste*-house, which has a temperature intermediate between that of the *Catleyas* and the cool *Odontoglossum* houses, but in which the atmosphere is quite as moist as in the latter. The fire-heat is kept going a little longer in spring than is requisite in cool houses. During summer the valves of the flow-pipe are turned off, leaving those in the return open; and being connected with warm houses the water circulates a little in the pipes. When it is necessary to drive the fires a little, the bottom ventilators are kept open more or less from early morning till late in the evening, while the temperature keeps at 58° to 60°, and are left open all night and during the day when the weather is warm. The top ventilators are used when the temperature rises over 62°. The same kind of shading is used as for *Catleyas*. From now until spring I like to see the night temperature about 55°, never below 50°. It may be of use to some if I mention several Orchids that grow in this house which are often treated to more or less heat—*Lycastes*, *Sobralias*, *Dendrobium Falconeri*, *D. F. giganteum*, *Cymbidium Hookerianum*, *C. Lowianum*, *C. giganteum*, *C. devonianum*, *C. Mastersii*, *C. sinensis*; *Epidendrum vitellinum majus*, *E. erectum*, *E. variegatum*, *E. Frederici Guillemii*, *E. prismatocarpum*, *E. sceptrum*, *E. criniferum*; *Oncidium incurvum*, *O. ornithorhynchum*, *O. cheiroporum*, *O. pumilum*, *O. aurosum*, *O. tigrinum*, *O. zebrinum*, *O. varicosum*, *O. Warnerianum*, *O. Wentworthianum*. *Trichoplias* and *Plummas* grow best with us in this temperature; also

Anguloa Clowesii, *A. eburneum*, *A. Ruckeri*, *A. R. sanguineum*, *A. reniflora*. These last do best in this house through the growing season, and a little warmer and drier when at rest. A plant of *Coclogyne cristata* was kept in this house for two years, but did not flower so freely as those grown in the Cattleya or Dendrobium-house. Among other plants are *Coclogyne barbata*, *Trichosma suavis*, *Odontoglossum grande*, *O. Inseleyi* and vars., *O. Oerstedii*, *O. Kramerii*, *O. bicondense*, *O. Uro-Skinneri*, *O. coronarium*, *Cypripedium Schlimi*, *C. purpuratum*, *C. venustum*, *C. insigne*; *Phaius Blumei*, *P. Wallichii*, *P. grandiflora*; *Bletia byacinthina*, *Maxillaria Sanderiana*, *M. grandiflora*; *Zygopetalum crinitum*, *Z. Mackayi*, *Z. Clayii*; *Cattleya citrina*, &c. There are many other Orchids which I believe would grow in this house if placed in different positions, such as *Cattleya Trianae*, *C. Percivaliana*, *Odontoglossum vexillarium*, *O. crispum*, &c.

GENERAL DIRECTIONS.

All shading can now be removed, and advantage taken of dry days to stow away blinds. Mr. B. S. Williams' "Eureka" is a very convenient shading for many Orchids, as it can be made thinner as the season advances by drawing a hair-broom over the glass when rain is falling. I do not think that leaving blinds on to let down at night through the winter pays for the trouble. My experience is that in very severe weather it often reverses the day and night temperatures, or at any rate causes the latter to rise too much. What little sun-heat we get now will do good in all the houses; and any recently potted or tender plants that cannot be placed in a shady corner, may require a little temporary shading, such as a piece of light paper laid over them. The position in which cool houses are placed will make some weeks difference in the time when shading can be dispensed with. I think the safest way to prepare warm Orchids to withstand the winter is to induce them to finish their growth instead of lowering the temperature too early in the autumn with the idea of getting them used to cold weather; this often injures plants before winter arrives.

Where *Masdevallias* of the *Chimæra* section have been grown during summer in the cool house they should be returned to the warm house now, placing the plants where they will get the least amount of sun. *M. tovarense* we keep in the cool-house at all seasons, where the temperature is seldom below 50°. At one time I thought by leaving the old spikes on the plant these would be the means of my getting more flower, but there appears to be nothing gained by doing so. The plants have a better appearance when these are cut off, and I think it might be a strain on them if they had to support the old flower-spikes from one season to another. If there is much condensed moisture on the plants in the cool-house in the morning do no damping down until this has dried off, but begin giving air as soon as the temperature in the house can be kept over 50°. *C. Woolford*, *Downside*, *Leatherhead*.

PLANTS AND THEIR CULTURE.

THE GREENHOUSE.

If due regard has been paid to the working up of a good stock of soft-wooded subjects, viz., *Tern. Carnation* and others, winter-flowering *Pinkies*, *Mignonette*, *Cinerarias*, *Heliotropes*, *Salvias*, *Godetias*, *Petunias*, *Euphorbias*, *Solanums*, &c., there will be no lack of free-blooming plants in the cool-house, as well as for furnishing purposes, for some months to come.

To have plants in flower in succession, a portion should be placed in a light, warm pit; others should be plunged in airy, heated pits, but kept cold; but heat must be applied if sharp frost should occur. *Calla æthiopica* is always acceptable, but more especially about Christmas-tide; if a good stock has been potted up the largest crowns should be selected as the first batch to be started. Few plants will stand more heat than these, and even in the plant-stove they are quite at home; and if the room near the glass is limited in the forcing-house they will come on nearly as well placed on the floor if plenty of heat and moisture are afforded, especially at the roots. The double varieties of Ivy-leaf *Pelargoniums* will be very useful from this time forward for all purposes, and always when grown in baskets. *Begonias* of all winter-flowering species, such as *Digswelliana*, *Dregii*, *fuchsoides*, *hydrocotylifolia*, *wel-*

toniensis, *nitida alba*, and *multiflora*, are among the best to give a continuous supply of bloom. Push on with the training of *Trachelospermum jasminoides*, *Azaleas*, early varieties of *Ericas*, *Aphelexis*, and *Genetys*; with a soft sponge clean *Camellias* before the bloom gets far advanced, and even if no insects should be infesting them they will be benefited by being cleaned of the dirt that accumulates on the foliage. *Agaves*, *Beaucarneas*, *Yuccas*, and *Dasylirops* should now be arranged together on a side stage, to be well seen; these will require but little water during the winter months. Any plants infested with scale should be well cleaned, and when once all the older insects are dislodged a few syringings with lime water kills the young ones. Plants which have done service outside, and have got injured by wind or other agency, should have the damaged parts cut off, and be placed in a house possessing a little warmth, when they will form growth that will make up to a certain extent for that which was cut away. Care must be exercised not to cause damp in greenhouses during dull weather, else the bloom will damp off very quickly. Keep a look-out for mildew on all plants, especially those of a hard woody nature, and dust at once with sulphur if it be seen. *A. Evans*, *Lythe Hill*.

FRUITS UNDER GLASS.

PINES.

FRUITING plants when moderately dry should receive liberal supplies of warm liquid manure at the roots, and should have a night temperature of 70°, and 75° to 80° by day with fire-heat; running it up 10° higher with sun-heat. Damp the paths and walls and the plunging material with tepid water mornings and afternoons on bright days at shutting-up time.

FRUITERS OF 1887.

These should be examined every ten days or a fortnight to ascertain the condition of the soil, and if any are dry, sufficient weak liquid manure, at a temperature as high as that of the bed, must be given to moisten the soil. Although the soil in the pots should be kept on the side of dryness during the winter months, it should, however, be borne in mind that it should not be allowed to remain dry long enough to cause the leaves to become flabby, as that would cause injury to them. Let the night temperature range from 60° to 55° according as the weather is mild or cold during the next eight weeks, and 65° by fire-heat during the day, and 10° higher with sun-heat, giving plenty of air during sunny parts of the day: the object being to prevent the plants from making growth between this and the time of their "showing" fruit next February, as well as to secure a sturdy growth in the plants. Sucker plants may be kept a few degrees warmer both day and night for a few more weeks. *H. W. Ward*, *Longford Castle*.

HARDY FRUIT GARDEN.

PLANTING.

WHERE the planting of fruit trees is contemplated next month the ground to receive them, if not finished, should be in a forward state of preparation. It is important that the trees be planted as quickly as possible after arriving from the nursery, or from whatever source they are obtained, and it is seldom that the soil is not in a fit state to receive them, providing the planting is carried out in good time next month. In planting, the small fibres should be well spread out on an even surface, and the main strong roots shortened with a sharp knife, any injured part being cut away. Burying coarse, bruised roots is oftentimes the cause of suckers springing up, diverting the energies of the trees. It is a good plan when planting in a heavy loamy soil to place a few shovelfuls of light fine soil immediately over the roots when the tree is placed in position, as such can be more easily worked amongst the fibrous roots, to the great advantage of the trees. After trees are planted at the base of walls, care must be taken that they do not become "hung up" by being nailed to the wall too early. Young trees are best tied to stakes fixed at the base of the walls until the spring, when they can be nailed to the wall in the ordinary way. Pyramid and standard trees should be securely staked before any rocking takes

place, placing some soft material around the stems of the trees to prevent injury to the bark by rubbing. When planting a new garden with fruit trees, or new trees into fresh positions in old gardens, judgment is requisite in the way of arrangement. Undoubtedly pyramids and cordons indifferently planted and maintained at a proper size and height, add much to the good appearance of a kitchen garden; when planting in single rows on each side of the walks, a narrow border should be properly prepared for the trees to grow in. These should be planted sufficiently close, so that ultimately, when the trees have reached their allotted size, the border be fully occupied; and at no time during their growth any other subjects be planted in the border, that is, if first-class produce is desired. Vegetable cropping at the base of fruit trees planted in such positions cannot be too strongly condemned. The ground at the base of the trees should be either mulched or kept clean by the frequent use of the hoe. Proceed with lifting and root-pruning as fast as time and the labour at command will admit of; also plant fresh bush fruit and renovate old trees by working in some fresh soil and manure, which the roots will quickly make use of. As soon as the leaves on Peach and Nectarine trees part freely from the wood when touched, they should be gone over with a light brush; afterwards the leaves raked up off the border and removed. *G. H. Richards*, *Somerley, Ringswood*.

The Kitchen Garden.

HEATED FRAMES AND PITS.

AFTER this date the supply of Cucumbers will be derived from the plants grown in pits and houses heated by hot water, and will require additional fire-heat, therefore maintain a night temperature of 60°, with a rise of 10° by day. A little air should be allowed at all times, except on very cold weather, and a moderately moist atmosphere must be kept up by damping the paths and side walls several times throughout the day. Whenever the plants become dry syringe freely with tepid water early in the afternoon, and also give plenty at the roots diluted with manure and soft water; an occasional sprinkling of Peruvian guano applied to the surface of the bed and afterwards watered in, will also be found an excellent fertiliser. Keep the shoots stopped and tied down to the trellis, removing all old decayed foliage, and also the fruit where too thickly placed. The structure should be kept thoroughly sweet and clean by having the glass washed and the walls lime-washed occasionally. Should the bottom-heat be derived from hot-water pipes placed underneath the beds, this should be examined daily, and the heat turned on in sufficient amount to maintain a steady bottom-heat of 90°.

FRENCH BEANS.

Those coming into bloom will require a higher temperature than they have hitherto enjoyed, and all successive batches should be removed into heated pits or houses, placed in positions near the glass, and a temperature of 65° at night can be obtained. Air should be given whenever the state of the weather will permit, avoiding cold draughts. Occasional applications with the syringe before and after blooming will be necessary, and will tend to keep the plants free from red-spider. Assistance to those in bearing should be given by watering with tepid liquid manure.

TOMATOS.

A warm dry temperature should be aimed at to ripen up and mature the crop of fruit now set; future growths can be stopped, and all surplus leaves and shoots removed that the plants may receive the full benefit of the sun and light. Water with weak liquid manure, and occasionally sprinkle the surface of the soil with some approved artificial manure.

THE MUSHROOM-HOUSE.

A little fire-heat during dull, wet weather, with the ventilators open, will be very beneficial, but little moisture need be used at this season of the year, and when water has to be given to the beds it should be applied sparingly, especially so where newly made beds are showing; those recently spawned must not be allowed to cool too quickly, and where this is feared the beds should have a covering of hay, litter, or mats placed on them, with the object of retaining and prolonging an equable temperature of about 90° of heat. For successive beds more dry horse-droppings should be collected in an open, airy shed, spread out thinly, and turned over daily for a fortnight, when it will be in a fit state to be spawned. Beds that are made up in the open will require to be well protected, and covered with at least a foot of straw litter, and some provision made to throw off and exclude wet. *John Austen*, *Witley Court Gardens*.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Oct. 25	Sale of Dutch Bulbs, at Protheroe & Morris's Rooms. Sale of Dutch Bulbs, at Stevens's Rooms. Royal Horticultural Society: Meetings of the Fruit and Floral Committees, at 11 A.M. and Show of Chrysanthemums and Vegetables (two days).
TUESDAY,	Oct. 26	Sale of Orchids in Flower, at Protheroe & Morris's Rooms. Sale of Nursery stock, at Cobbett's Nursery, Woking (three days). Sale of Dutch Bulbs, Plants, &c., at Stevens's Rooms. Show of the National Chrysanthemum Society, at the Royal Aquarium, Westminster.
WEDNESDAY,	Oct. 27	Sale of Tree and Greenhouse Plants and Dutch Bulbs, at Stevens's Rooms. Sale of Plants, at Protheroe & Morris's Rooms.
THURSDAY,	Oct. 28	Sale of Imported and Established Orchids, at Stevens's Rooms. Sale of Dutch Bulbs, at Protheroe & Morris's Rooms.
FRIDAY,	Oct. 29	Sale of Imported and Established Orchids, at Protheroe & Morris's Rooms. Sale of Dutch Bulbs, at Protheroe & Morris's Rooms.
SATURDAY,	Oct. 30	Sale of Dutch Bulbs, at Stevens's Rooms.

THE discussion on SEEDLING FIGS, which has excited so much interest on the part of some of our readers, originated from the publication in these columns of an abstract by Mr. HEMSLEY of the researches of Count SOLMS LAUBACH (see *Gardeners' Chronicle*, April 28, 1883). We need not now enter upon details which have been already frequently repeated, and need only make passing allusion to the interesting statements to be found in PLINY'S *Natural History*, lib. xv., cap. xix., and to the account given by TOURNEFORT, in his *Relation du Voyage du Levant*, ii., 23 (1717). The more modern investigations of GASPARRINI, SOLMS LAUBACH, and HERMANN MÜLLER have already been summarised, so that it may suffice now to say that there is a wild Fig or "Caprifig," the fruits of which are not eatable, and a cultivated Fig assuming many forms and varieties, but all producing edible fruit. The so-called fruit of the Fig is the succulent and hollow end of a branch or shoot, the cavity of which is lined with a vast multitude of minute flowers, each raised on a short stalk. Some of these flowers are male, producing stamens only, others are female, producing each a single pistil. Male flowers and female flowers occasionally occur in the same fruit, but it is more commonly the case that the fruit contains flowers of one sex only. If both sexes are exceptionally present one is in an imperfect or rudimentary condition. Moreover, as is evident from an examination of the dried Figs of commerce, the shoot may swell and develop into a luscious Fig, while the contents, the so-called seeds, are not perfected at all, probably from not having been fertilised.

The Caprifig produces three crops of Figs in the year—the first in spring, the next in summer, and the last in autumn. The spring Figs produce usually no male flowers, the autumn Figs only a few, while the summer Figs produce an abundance of male as well as of female flowers. Fertilisation is effected by means of Fig-wasps (*Blastophaga grossorum*), which penetrate and deposit each one egg in one flower. As there are three kinds of generations of Figs, so there are three separate generations of Fig-wasps developed in them, only one generation, however, being concerned in the fertilisation of the Fig.

The whole history of the relation and interdependence of the three sets of Figs and of the three sets of insects is somewhat complicated, and may be read in the summary given in HERMANN MÜLLER'S *Fertilisation of Flowers*, translated by D'ARCY THOMPSON. The principal result is, that the Caprifig or wild Fig rarely sets a seed capable of germinating, its "fruit" being only of importance as supplying pollen to be conveyed by one brood of wasps to the female flowers of the Figs. The wild Figs then either wither on the trees, or fall off without becoming sweet. Hence it happens that in this country, where the wild Fig is not known, seedling Figs, the produce of seed actually

formed in this country, are exceedingly scarce. Up to the present time only two such cases have been recorded that can be considered free from doubt. But, of course, just as happens with Cucumbers, Hops, and dioecious plants generally, it does sometimes happen, by exception, that flowers of both sexes are formed on one and the same branch; and supposing this to happen in a Fig, we might, in this way, get seedling Figs even in this country without the intervention of wild Figs or of fig-wasps. But, so far as we have observed, the Figs grown in this country do not produce male flowers at all, and seedling Figs are consequently in such cases impossible. In Southern Europe some authors describe the cultivated Fig as producing female flowers only, fertilisation being then dependent on the Caprifig and its tenant-wasps. In other cases there appear to be a few male flowers at the extreme upper part of the Fig. In such a case the flowers of the Fig might be fertilised by the pollen produced within the same Fig as themselves.

In referring to the literature of Fig culture in this country with reference to this question of home-grown seedlings, we accidentally lighted upon the following passage in the *Herbarius Duroverni* of the late Mr. MASTERS, of Canterbury, published in 1831:—"The Roman Fig must be considered as a curiosity merely, it having been planted by that people against the south-east side of the fortification Regulium, now Reculver, where it still grows in a wild state, and occasionally produces a fruit that attains perfection." The Reculver Fig is well known to men of Kent and to antiquaries, and accordingly we addressed ourselves to Mr. ROACH SMITH to know whether his *Retrospections* (of which he has lately given to the world a second and very interesting volume) extended to this famous Fig. In reply to our inquiries, Mr. ROACH SMITH kindly tells us "that he attaches no value to the assertion that it [the Reculver Fig] is of Roman origin. The place was a stronghold of ecclesiastics in the Middle Ages, who no doubt introduced Fig trees." We shall revert to the Reculver Fig later on, but meantime we may fittingly allude to the statement that the Fig was introduced to this country by Cardinal POLE in the time of HENRY VIII. These very Fig trees are still in existence in the garden of Lambeth Palace. The trees, five in number, stand on the south side of the library, each having been planted in the middle of the wall space between the buttresses. The stems, which are now at a little distance from the wall, but at one time they may have stood close enough to have been trained to it, are about 1 foot in diameter at 2 feet from the ground—about the size, therefore, that a Fig tree might be expected to attain in eighty years, or about the period which has elapsed since they were cut off by frost in 1813. It is probable that that was not the only occasion on which they suffered from the same cause, which will help to account for the distance at which they now stand from the wall: a strong sucker having been chosen the following year to take the place of the stem that had been killed in the previous winter, and which sucker might come up a short distance from it.

The trees at the present time measure about 24 feet in height, if measured from the apex to the foot of the stem, but do not appear so high owing to their inclination towards the south.

After hot summers a small crop of fruit, which is similar to the White Marseilles variety, is occasionally ripened. These Fig trees appear to be almost smoke-proof, and, next to the Ailantus, carry their foliage till late in the autumn, notwithstanding the unsalubrious surroundings of the Palace garden. There is evidence, however, that the Fig was cultivated in this country at a much earlier period, for MATTHEW PARIS, as quoted in FLÜCKIGER and HAMBURY'S *Pharmacographia*, relates that the

year 1257 was so inclement that Apples and Pears were scarce in England, and that Figs, Cherries, and Plums totally failed to ripen.

Whether the Figs were introduced by the Romans, or whether they were introduced or re-introduced in later times by ecclesiastics, mindful of the Scriptural adage, "Whoso keepeth the Fig tree shall eat the fruit thereof," the time that has elapsed in either case is long enough to have allowed of some degeneration of the Fig as a consequence of our relatively ungenial climate, and possibly of some approach to the condition of the wild Fig.

Under this impression we recently sought and obtained, through the kindness of Mr. C. R. HAIG, a specimen of the Reculver Fig. This gentleman informs us that "the Fig tree is there [Reculver], on the old wall on the side farthest from the sea. From information I received, from the 'oldest inhabitant,' I found that the tree itself was cut down to the roots twelve or fourteen years ago, by the farmer tilling the adjacent land, the trees which are there now have all the appearance of being, and probably are, shoots from the old root. I send you leaves from the trees and two Figs, which might do for pickles, but which are the largest obtainable. I found also another Fig tree, or rather bush, against an old cottage which is the summer residence of Mr. KEMP. This tree, I am informed, is a cutting from the old tree. It has an ancient stump, and a profusion of shoots. . . . The 'oldest inhabitant' says the old tree is thousands of years old."

Our correspondent's surmise is, no doubt, correct—that all the trees he mentions had a common origin, as the leaves he sends correspond as nearly as Fig leaves (which are notoriously multiform) can be expected to do. But now for the crucial test. On cutting open the small Figs, only big enough, in our correspondent's opinion for the pickle-jar, we found not a single male flower. The Figs, indeed, were in so far precisely like the Lambeth Figs, and indeed all the other cultivated Figs we have examined. We conclude, therefore, that the Reculver Fig is no wild Fig, and that—at present, at any rate—it shows no signs of discarding the attributes of civilisation. Such a change would be more likely to show itself in seedling Figs; but, as we have shown, the Reculver Fig has in all probability not been propagated by seed, but by suckers or layers, and the existing trees are therefore the direct lineal continuations, without break of a single generation, of the Figs of the Middle Ages, and possibly of those of Roman times. How different this fixity of character from the state of things in ancient Italy, where, thanks to the Fig-wasps, the *culices* of PLINY, the varieties and names of Fig trees were so numerous that, in the true spirit of an evolutionist, he thinks the species (as we should now call it) is undergoing a change. "*Postea tot subiere nomina atque genera, ut vel hoc solum æstimantibus, appareat mutatum esse vitam*" (lib. xv., § xviii.).

CAMPANULA PERSICIFOLIA.—Among border perennials there are few more striking than this old-fashioned species with its erect stems, lanceolate leaves, and erect spikes of numerous white or very pale blue flowers. There are numerous varieties of it, including a double-flowered variety, and a form in which the calyx becomes white like the corolla. All these are good, not only as garden decorations but also for cut flowers. The variety we now figure (fig. 105) was sent to us in the course of the summer, by Messrs. BACKHOUSE, of York, and it is sufficiently distinct to be called BACKHOUSE'S variety. The variety, as will be seen from our illustration, has much larger flowers than the ordinary forms (a flower of the real size is shown separately), and from its beauty and free-flowering property forms one of the most desirable of its class. Messrs. BACKHOUSE sent it to us under the manuscript name of *Campanula persicifolia alba grandiflora*, but we venture to think our appellation of BACKHOUSE'S variety will be sufficient to distinguish



FIG. 105.—*CAMPANULA PERSICIFOLIA*, BACKHOUSE'S VAR. : HARDY PERENNIAL : FLOWERS WHITE. (SEE P. 528.)

it. At any rate, if MESSRS. BACKHOUSE prefer to give it their own name in their catalogues, there is no one to gainsay the privilege. By whatever name it be henceforth known, the plant is sure to become a favourite when generally known.

— **DOUBLE FLOWERS.**—Professor GOEBEL, of Rostock, has published some important observations on double flowers, in which he traces the formation of the several forms of double flowers from their earliest condition, and thus demonstrates their origin from branching or from multiplication of the petals.

— **BLACK SPOT ON CAMELLIA AND ORANGE LEAVES.**—This troublesome fungus, due sometimes to the presence of aphides and the honeydew that these insects secrete, but which will also grow without their intervention, can be got rid of by dusting with a mixture of sulphur and lime.

— **"THE ADVERTISERS' A.B.C."**—A serviceable book for those who advertise largely has been published under the above title by the London Central Agency for Advertisements, 402, Strand, W.C. It stands alone, so comprehensive is the book, containing as it does an almost complete list of all the London newspapers and journals, both daily and weekly, &c., and also of the provincial papers. More than this, the foreign and colonial newspapers are largely represented. There is also a classified index which is admirably complete, and in which the various papers may be found grouped under their towns of publication, their titles, or, again, according to their class of subject. Some idea of the extent of this section of the book may be grasped when it is made known that the index occupies about 300 pages quarto. But the most useful item as concerns advertisers is the information given concerning each paper or journal, &c.; this includes a full scale of charges for announcements, &c., price of the paper, and, in a side column, the publisher's own statement as to the class in which the journal circulates, the subject of the contents of the editorial columns, &c. Not the least interesting, if not useful, is an article on "Gigantic Advertising," in which the writer endeavours to show what the "Artist-Advertiser," and he alone, can do. This is embellished with such advertising pictures as every one who reads can scarcely avoid seeing in all our magazines, &c.

— **ORCHID FLOWERS.**—Professor PFITZER, of Heidelberg, has lately published, under the title *Morphologische Studien ueber die Orchidenbluete*, a companion volume to his previous work on the structure of the vegetative organs. In the present volume the Professor treats from a botanical point of view the peculiarities of conformation in Orchid flowers, such as the inferior ovary, the column, the spurs, and the lip. We shall have occasion to revert to this treatise on a future occasion.

— **GRASSLAND.**—Mr. BERNARD DYER has published in a separate form his paper on "The Maintenance and Renovation of Grassland," which we commend to the notice of our readers. The little pamphlet may be had of VINTON & CO., 9, New Bridge Street, Ludgate Circus, E.C.

— **ENTOMOLOGY.**—Dr. RILEY's annual report as Entomologist to the United States Department of Agriculture, 1885, has lately been published. It contains elaborate papers on silk culture, articles on locusts, Strawberry weevils, Pear midges, bees, and numerous other insects injurious to cultivated plants, together with reports from various parts of the States as to the means found most effectual in preventing the ravages of insects or palliating their injurious effects.

— **"MARY'S MEADOW,"** AND SOME OF THE "LETTERS FROM A LITTLE GARDEN," by Mrs. EWING, have recently been published in book form by the Society for Promoting Christian Knowledge. These tales were originally published in *Aunt Judy's Magazine*, where "Mary's Meadow" was so much appreciated that it was the cause of the foundation of the Parkinson Society. This Society took its name from JOHN PARKINSON'S *Paradisius terrestris*, a book much quoted in "Mary's Meadow." The members undertake to prevent rare British wild flowers from being ruthlessly exterminated, to exchange specimens, and to collect and comment upon the popular local and old-fashioned names borne by many flowers. Unfortunately, Mrs. EWING did not live long enough

to do more than start the Parkinson Society, this being almost the last of her writings for children. She was always a most popular writer, her tales and parables being appreciated by elder people quite as much as they were by the children for whom they were specially intended. Many therefore will be interested to know that this story ("Mary's Meadow") can now be bought separately, and in a convenient shape and size.

— **MILDEW ON VINES.**—In France this disease is now combated by sulphate of copper (blue vitriol); three kilos (say, 6½ lb.) of copper sulphate in a hectolitre (22 gallons) of water are used in the form of spray.

— **PEAR CONFERENCE COMMITTEE.**—A meeting of this body was held at South Kensington on Wednesday last, to receive the report of the late Pear Congress as compiled and arranged by Mr. BARRON, the Secretary. Mr. JOHN LEE presided. After examining the various sections of the report, and making some suggestions as to the information desired, and discussing the most desirable price at which it should be published, some favouring the idea that it should be the published price, it was unanimously resolved that the Council of the Royal Horticultural Society be invited to publish the report as presented and agreed to by the committee. The delicate matter of remuneration to the Secretary, for the great labour bestowed on the compilation of the report, was left in the hands of the Chairman for the present, but the committee were unanimous in expression of opinion that Mr. BARRON'S services merited cordial recognition.

— **COLONIAL AND INDIAN EXHIBITION.**—On Friday, the 8th inst., a paper was read in the Conference Hall of the Colonial and Indian Exhibition, by Mr. E. B. BIGGAR, on the question of the "Flax-growing and Linen-manufacturing capabilities of Canada." Lieut.-General LOWRY, C.B., occupied the chair. After tracing the history of this industry from the time of the ancient Egyptians, showing the permanence of the linen trade and the vitality of the Flax plant, Mr. BIGGAR showed the remarkable fitness of the soil of Canada, especially of the great undeveloped North-West, for the growth of Flax. Three species of wild Flax were indigenous in the North-West, and both these and the cultivated Flax and Hemp grew luxuriantly. Hemp grows to the height of 12 feet, and the Flax seed grown here yields a greater proportion of linseed oil than any in the world, being 16 lb. to the bushel. An English capitalist lately started a linseed-oil mill at Winnipeg, and a large trade in oil and the manufacture of oil-cakes for cattle-feeding is likely to follow the preliminary shipments that have been made. Over 16,000 acres have been sown in Flax this year by the Russian Mennonites settled in Manitoba, and a ready market is found for the seed, but no use whatever has been made of the fibre, which is burnt up in this province owing to lack of machinery for scutching, &c. The fibre of the North-West is pronounced much better than that of Ontario, which has been considered the best on the continent. This year 1000 tons have been brought to Belfast, this being the first shipment for manufacturing purposes, and the fibre is spoken of as much superior to Russian. The question of working the fibre up at a profit in the North-West is now likely to be settled by the new scutching, rippling, and steeping machinery so successfully worked in France, Ireland, and the United States. Flax and tow to the value of over £2,000,000 are annually imported for our factories from Russia, where 3,000,000 acres of land are devoted to its cultivation. Flax will grow where the summers are too short for Wheat, and there are in the Canadian North-West 100,000,000 acres available for this industry beyond the Wheat growing region. Within the great "Wheat belt" it is found that Flax is a much more profitable crop with which to break in the soil in the first year of cultivation than Wheat or any grain, as it matures well on the "breaking." Mr. BIGGAR estimates that even if a single crop of Flax were grown only on the new soil as it is broken up, enough fibre could be produced within the "Wheat belt" alone to equal the supply of Russia for eighty years to come. Purchasers of raw fibre would find it easier to control their business and obtain a speedy delivery of their goods from Canada than from Russia. If the Flax industry were, therefore, encouraged in Canada, a vast new industry would be built up within the Empire, and the British

Flax market would not be subject to such vicissitudes as it has been in the past, whenever Russia has been at war.

— **THE FUCHSIA TREE IN THE ISLE OF MAN.**—Considerable interest has been expressed with regard to the fine specimen figured recently in our columns (p. 397, fig. 79). The plant is that commonly known as *F. coccinea*, but is more correctly called *F. magellanica*. The name of the house in the garden of which it is growing is Ballure, not Balline, as stated inadvertently. Our illustration was taken from a photograph expressly taken for us by Mr. GEORGE PATTERSON, The Studio, Ramsey, Isle of Man, who experienced considerable difficulty in securing a good picture, owing to the position of the tree, but ultimately succeeded in securing a very characteristic picture of a very noteworthy plant. The tree is still (October 16) one mass of bloom, and the ground beneath is rich in colour from the fallen bloom.

— **LINEAN SOCIETY.**—The first meeting of the session 1886-87 will be held on Thursday, November 4, 1886, at 8 P.M. precisely, when the following papers will be read:—1. "The Natural History of the genus *Doro*," by EDWARD C. BOUSFIELD, L.R.C.P. Lond. 2. "Berberidaceae japonice," by TOKUTARO ITO. (Communicated by W. T. THISTON DYER, C.M.G., V.P.L.S.) 3. "On the genus *Lophopus*, with a Description and Remarks on a New Species from New South Wales." By STUART O. RIDLEY, F.L.S. Exhibitions by the President and others.

— **CANADIAN FRUIT AT SOUTH KENSINGTON.**—One of the most comprehensive displays of Canadian fruit ever made in Europe is now on view in the conservatory of the Colonial and Indian Exhibition. Contributions are made from every province of Canada, from Nova Scotia and New Brunswick to Quebec and Ontario, and even from Manitoba and British Columbia, the greater part of the exhibits having been collected, under the direction of the Canadian Government, by Professor WILLIAM SAUNDERS, of the Western University, London, Ontario, who has long taken a keen interest in Canadian fruit culture. From Ontario and Quebec excellent specimens are shown of the varieties of Apples mostly shipped to British markets, and the body, texture, and flavour of these must command general admiration. The Pears are noteworthy for size and colour; while an excellent display of vegetables, and even Canadian outdoor Grapes, is made. The Nova Scotia display comprises some fifty varieties. The British Columbia and Manitoba varieties are also interesting, as coming from parts of the Dominion but little known in England for their fruit-growing capabilities. It is, moreover, important to note that the shipment of many of the early soft varieties of fruits now shown was made from Canada in refrigerators, and the perfect condition in which they arrived is considered to fully establish the value of this means of transit.

— **CHRYSANTHEMUMS AT FINSBURY PARK.**—Mr. COCHRANE, the Superintendent of this park, informs us that the annual display of Chrysanthemums in this park is now open to the public.

— **ROYAL JUBILEE EXHIBITION.**—Manchester is to have a great exhibition next year at Old Trafford, adjoining the Botanical Gardens, which will be incorporated with the exhibition. The space allotted covers 32 acres, and a guarantee fund of £132,000 has already been raised. The exhibits will be classified under the following heads:—1, Industrial design; 2, Machinery; 3, Handicrafts; 4, Works, Old Manchester, Ship Canal; 6, Fine Arts; 7, Electric Lighting, Music, Horticulture; 8, Finance and Audit. The Secretary is A. GILLES, Esq.; the General Manager, S. LEE BAPTIST, Esq.; and the offices are at Albert Chambers, Albert Square, Manchester.

— **SINGAPORE.**—The report of the Superintendent of the Botanic Gardens for 1885 is devoted mainly to details of work done and progress made. The number of plants propagated for distribution is approximately 25,000. The most interesting information, however, for the general reader, is that contained in the appendix. This comprises a list of the economic plants, vegetables, &c., grown by the Malays, and of those introduced by Europeans. The Choco (*Secchium edule*) far surpasses all other Cucumbers grown in the Straits. Mr. CANTLEY

speaks highly of *Solanum nigrum* as a vegetable, though he utters a word of caution, as it is considered poisonous if eaten raw—"It has a bitter appetising taste, and is a vegetable one gets much attached to after a time." It is curious to read that Asparagus, Windsor Beans, Scarlet Runners, Cabbages, Broccoli, Seakale, Celery, Melons, Artichokes, and some other European vegetables cannot be cultivated with success, while others, such as Beet, Carrots, Cress, Leeks, Onions, Parsnips, Lettuce, Parsley, Radishes, Turnips, Tomatoes, and pot herbs, generally do well.

— GHENT "CHAMBER SYNDICALE."—At a meeting held on the 11th inst. awards were made as follows:—

First-class Certificates.—To MM. Vervae & Co., for *Odontoglossum crispum* var. *De Pachy*; and to MM. Desbois & Co., for *Calla aethiopica* fol. var.

Cultural Certificates.—To M. Al. Dalière, for *Nepenthes Mastersi* var. *superba*; to MM. Vervae & Co., for *Odontoglossum crispum*; and to M. Hye-Leyen, for *Cypripedium Ashburnianum*.

Commendations for the Flowers.—To MM. Vervae & Co., for *Odontoglossum* sp. and *O. grande*; to M. Desmet-Duvivier, for *Warszewiczia discolor*; and to MM. Boelens frères, for *Laila Dayana* var.

Commendations for Novelty.—To Louis Desmet, pere, for *Pear Mikado*, Japanese variety.

Commendations for Culture.—To M. B. Spaë, for *Adiantum cuneatum*.

— LIVERPOOL INTERNATIONAL EXHIBITION OF SHIPPING AND COMMERCE.—We have to announce that Messrs. SUTTON & SONS, seedsmen by Royal Warrants to Her Majesty the QUEEN and H.R.H. the Prince of WALES, Reading, have been awarded a Gold Medal for their extensive exhibits of seeds, grasses, &c., at this Exhibition. It will be remembered that they received a similar award at the recent provincial show of the Royal Horticultural Society.

— THE HAILSTORM NEAR PARIS.—We alluded in our last issue to the hailstorm which devastated the market gardens in the neighbourhood of Paris in August last, and which has caused a loss estimated at not less than 5,500,000 francs. The National Horticultural Society, 84, Rue de Grenelle, Paris, has opened a subscription for the benefit of the sufferers, and, moreover, proposes to form a Tombola, or lottery, on the 29th inst., at the Pavillon de la Ville, at the same time as the exhibition of the Society. The Society calls on its members to contribute donations for the Tombola in the form of flowers, fruit, tools, works of art, &c., to be drawn for, and the proceeds to be given to the fund. Money donations will be applied to the purchase of the articles exhibited. Donations of all kinds should be sent to the President of the National Society of Horticulture, Pavillon de la Ville, Champs Elysées, Paris, between October 20 and 25. M. ERNEST BERGMANN, well known to many of our English horticulturists, is one of the committee. Tickets for the lottery are priced at 50 centimes (45d.).

— FASCINATED LILUM AURATUM.—The Right Hon. J. CHAMBERLAIN sends from his garden at Birmingham a spike of this Lily with a flattened stem bearing no fewer than 119 flowers. It was grown in a 7-inch pot from a plant supplied by Mr. BULL. Mr. COOPER, the gardener, finds, as many others do, that the plants do well in *Rhododendron* beds, but that there is a great difference in the time of flowering, the earliest expanding in June, while others are not yet expanded.

— THE CARRIAGE BUILDING TRADE.—Recently, at a largely attended meeting of the members of the Institute of British Carriage Manufacturers, held in the Westminster Town Hall, Sir PHILIP CONLIFFE OWEN, who presided, distributed the awards made by the Council of the Institute to the successful competitors for the prize essays on the suspension of carriages, and the diplomas awarded at the Health Exhibition, 1885. Professor JOHN MACOUN, F.L.S., botanist to the Canadian Government, then read a paper on "Canadian Timbers Suitable for Carriage Building," during the course of which he said that New Brunswick, Quebec, and Ontario were the chief seats of the timber trade, and there was not a river in these three provinces where a saw log would float but what had its saw-mills or its lumbering firms. In Northern New Brunswick

there were still extensive forests of Maple, Beech, Ash, Bass-wood, Birch, Oak, Poplar, and Elm of very great size, besides large tracts covered with Hemlock, black and white Spruce, red and white Pine, as well as swamps of Larch and Cedar. Owing to their positions these forests remained untouched, and when a projected line of railway was built large supplies of timber for every branch of business would be laid open to commerce.

— CANADIAN APPLES AT EDINBURGH.—We learn that some 300 dishes of the Canadian Apples have, for lack of space at South Kensington, been sent on to Edinburgh, where, no doubt, they will be warmly received and carefully examined. So much colour as these Apples present may well arouse enthusiasm for fruit culture even in the bosoms of the cold, cautious Northerners.

— CORN EXCHANGE CHRYSANTHEMUM SHOW.—A show in aid of the Corn Exchange Benevolent Society is to be held on November 2 and 3, at the London Corn Exchange Hotel. The persons entitled to exhibit must be strictly amateur growers engaged in business in London, except in the 1st class, which is open to nurserymen. All the flowers placed in the room, whether for competition or otherwise, will be sold by auction at 4 P.M. on the second day of the show for the benefit of the aforesaid benevolent society, unless expressly reserved, and notice given to that effect before the show. The Society having been established for the laudable purpose of granting pensions and donations to distressed persons of either sex who have been connected with the London Corn trade generally, the committee anticipate a good show and a numerous attendance.

— NORTH OF SCOTLAND HORTICULTURAL ASSOCIATION.—The usual monthly meeting of this Association was held on Friday evening, the 15th inst., in the Christian Institute, Aberdeen. There was a large gathering of members, and the President, Mr. A. ROBSON, occupied the chair. Two papers were submitted to the meeting, the first being by Mr. D. M. SMITH, Argyle Place, Aberdeen, on "Chemical Manures." Mr. SMITH'S paper excited much interest, and considerable discussion followed the reading of it, at the close of which the writer was thanked. Mr. J. MORRISON, gardener, Waterton House, Buxburn, Aberdeenshire, read the next paper, the subject of which was "Bulbous and Tuberos-rooted Stove and Greenhouse Plants." Mr. MORRISON treated his subject in an interesting manner, and after a discussion had taken place, was thanked for his contribution. The usual vote of thanks to the President for his conduct in the chair terminated the proceedings.

— MALFORMED CORYLUS.—Through the kindness of the Director of the Royal Gardens, Kew, we have received specimens from M. VAN VOLXEM of Corylus Columna, in which the two usually small bracteoles of the male flowers have expanded into leaves greatly resembling the involucre surrounding the nut. The appearance of the catkins is thus much altered. On a superficial examination there is a close resemblance between the bract of the cone of a Fir and the fruit-scale which in monstrous specimens may often be found divided into two leaf-like segments—a condition which has excited much attention on the part of those interested in the morphology of Conifers. M. VAN VOLXEM thinks the malformation in the Corylus may have originated from insect-injury. We have, however, not detected any insect, though we suspect the deformity may have been occasioned by a mite (*Phytoptus*). Against this view, however, is the fact that the production is merely an exaggeration of the normal condition, and not a new formation.

— GARDENING APPOINTMENTS.—Mr. D. A. BREMNER, late Foreman to W. WEST, Esq., Burcote, Faringdon, Berks, has been appointed Head Gardener to E. SALT, Esq., Ferniehurst, Shipley.—GEORGE BASKETT, late Gardener to F. W. DOLMAN, Esq., Elm Croft, Dorset, has been appointed Head Gardener to the Right Hon. Lord PENZANCE, Eashing Park, Godalming.—Mr. A. BEECH, late Gardener at Wood Norton Hall, East Dereham, has been appointed Head Gardener to EDGAR HIBBERT, Esq., Ashby St. Leger's Lodge, near Rugby, Northamptonshire.

The Apiary.

PREPARING FOR WINTER.

As the winter is now coming on bees must be immediately put into winter quarters. If there appears to be any chance of the bees running short of food you cannot do better than get some good sound brandy-balls, as recommended some time back in the *Gardeners' Chronicle* by Mrs. Long, of Sherrington Manor. To begin with our friends of the "skep," if the "skep" has a hole at the top put a nice little heap—say 1 lb.—of these brandy-balls carefully on the top, and cover all up with a few pieces of flannel or carpet; then put the cover on, and fasten all down to keep the wind from blowing the cover off. A hackle is a very cosy one for the bees, and looks cosy as well. The only thing to be said against a hackle is that mice find them comfortable also, and if the entrance is too large, so that they (the mice) could enter and partake of the honey and wax, their delight would be unbounded, as it is usually supposed that they prefer these articles to a tallow candle. Therefore look well to these things, for tallow is quite good enough for the best of mice. If your bar-framed hives are short of stores, uncover the frames, and put some brandy-balls just over the cluster; then cover up with two or three pieces of flannel or carpet, and then do not open the hive again till spring. When you are quite satisfied that the season for robbing has expired, you can open the entrances to their full length. You need not fancy that the bees will catch cold; they would be much healthier with the entrances fully open than closed. Bees can stand cold far better than they can damp, therefore do all you can to admit the air into the hives. Should one or two warm days come, and the bees begin to rob, close up the entrances at once, so that only one bee can pass at a time. Directly the weather changes to cold again the entrances could be again opened to their full width. See that all the roofs are water-tight, and if they are not, then immediately make them so. See, too, that there is no chance of their being blown off. That would be disastrous if it happened in the night. If your hives stand on their own legs, a piece of thick tarred string tied all round would effectually secure the roofs. If you have hives which stand on the ground, or on some level surface, your own intelligence will suggest some method of fastening the roofs on, but do not leave them to chance. Having done all these things, you can safely let things alone out-of-doors, i.e., as far as the bees are concerned, and say adieu to them till the spring. Meanwhile, you can turn your attention to various things connected with your pets indoors, and I hope this winter to be able to say many things which your readers will find very useful and practical. *Walter Chitty, Pewsey.*

Notices of Books.

The Law of Allotments: being a Treatise on the Law relating to the Allotment of Land for the Labouring Poor, &c. By T. Hall Hall, M.A. (Longmans.)

The title of this book amply suffices to explain its contents and might preclude the necessity of doing more than announce its publication, were it not that in fairness to the author we are bound to commend the clear and intelligible manner in which he has "laid down the law." How far the author would be supported by the judges in actual practice is a matter on which we could not presume to give an opinion. We note that as far back as 1873 there were 246,398 allotments in Great Britain, the area amounting to 59,631 acres, or about one quarter of an acre to each allotment, so that it is no new thing. We note that the rules of the Rothamsted Allotment Club are given in full—rules which have been found to work satisfactorily for many years. From the preface we learn that the book was originally intended to be incorporated with the Earl of Onslow's *Landlords and Allotments*, but that idea was abandoned when it was seen that the present treatise would be so large as to prevent the circulation of that useful little book among the classes for whom it was specially intended. Mr. Hall deals with the legislation on the subject, the conditions of letting, the

determination of tenancy the rights of the tenants and of the landlords, and gives numerous illustrations of the forms of agreement and other documents relating to the subject.

The Construction of Silos and the Compression of Green Crops for Silage. By Thomas Potter. Batsford, 52, High Holborn, W.C.

We must content ourselves in these pages by indicating the nature of the contents of this volume. It treats of the construction of silos and the making of silage, in both of which points there seems to be much room for variation and differences of opinion. Mr. Potter gives numerous details which he hopes "may enable those who intend making silage to determine with respect to silos, silage-stacks, and means of compression what may best suit individual requirements."

School of Forest Engineers in Spain indicative of a Type for a British National School of Forestry. By J. C. Brown, LL.D. Edinburgh: Oliver & Boyd.

The unwearied exertions of Dr. Brown in the cause of forestry have now led to the publication of a volume—a companion to the many he has already issued—and devoted to making known the regulations of the Forest School of Spain as a model for similar institutions in the colonies. It seems strange and not very gratifying to our self-complacency, that we should have to go to Spain for such a model, but Spain has been wise enough to follow the lead of Germany, and to modify German practice according to Spanish needs. Dr. Brown gives a summary account of the training and tuition given in the Forest School of the Escorial. Special subjects, as resin production and cork-stripping, are treated of. In the latter part of his volume the author advocates the claims of Edinburgh as the site for a forest school, and sketches a scheme of instruction based on his researches and observations of forests and forest schools in many lands. Most of the schemes proposed are intended for the instruction and training of high-class officers, but in addition to that we think there is at least equal necessity for training foresters of lower grades, and this the great expense of ordinary forest schools necessarily precludes.

AJI-AJI, THE PEPPER OF PEPPERS.

OUR contemporary the *Saturday Review*, in its issue for September 18, had an article under the mysterious heading of "Aji-Aji," which the writer at once proceeded to explain was a "compound Quichuan word" for Pepper of Peppers, and further informed his readers that "both word and thing are largely distributed over South America," that "it is the finest of all Peppers. No other Pepper in either hemisphere competes with it, neither the Piper nigrum, nor the Capsicum baccatum, nor the C. fruticosum, the C. annuum, nor yet the Eugenia pimenta. All these are varied merely in pungency, some being sharp and fiery, others caustic and stimulating, and some pricking and penetrating. But the refined and delicate Aji is persuasive and enticing, of not one flavour but many flavours; it never conceals, but, on the contrary, increases whatever of fragrance and sweetness of taste or smell it comes in contact with." The writer then proceeds to give a long list of its extraordinary virtues, and an enumeration of the articles of food it may be used to improve, from a new-laid egg to a Strawberry or a jug of mulled claret. It is said to prevent evil effects in a malarial atmosphere, and on this account we are told that "the War Department of the United States has secured a monopoly of all the Aji which is exported from South America," and further that "no Aji in these days finds its way to London, and that which we once enjoyed in the belief that it would never fail us has become nothing but a sigh and a regret. It remains to be seen," the writer continues, "whether the people who have acclimatised the Cinchona trees in the Neillgherries, in Ceylon, in Jamaica, and in Fiji will allow themselves to be deprived of their delicious and inspiring Aji."

Perhaps the most interesting part of the *Saturday Review's* article is that which treats of the preparation of Aji, which is as follows:—"There are two kinds of Aji, but there is only one way of preparing it. The

best is that which is made from the greatest variety of Peppers. The pods of these are taken when fresh, stripped of their seeds, and ground into a paste of the consistence of fresh spring butter. The paste is put into a small, well dried Gourd, prepared on purpose, of the size and shape of a well grown Orange. The Gourd, when thus charged, is then coated with a layer of well tempered clay, and placed in the sun to dry, or to ripen, as the simple people who prepare it say in their own tongue. By the time the clay is well baked the pulp or paste within has been dried into a fine yellow powder, and it is then fit for use. Many people, ignorant of this fine art of the Incas, have supposed quite naturally that these Aji-laden Gourds, with their exquisite flavour and refined taste, were some uncommon and little known natural fruits. The other method of preparing Aji is to grind the seeds with the pods, which simply adds great pungency to the Pepper, and is always used in the preparation of Maize or Indian Corn, which is boiled in its own husk with so much Aji, and surpasses in flavour and pleasantness any vegetable curry of the East. The Gourds of Aji when thoroughly ripe are cleansed of their coating of clay, tied up in suitable leaves, well secured by the fibre of the Aloe, and which much resembles when ready for market reeves of large Onions, a dozen Gourds making up one reeve of Aji. The cost of these in the good old times was 15d. for a dozen Gourds; while the price may be now is only known on the Exchange."

From the references made in the preceding passage to the pods and seeds being ground to constitute the Pepper, it will be readily guessed that it is the produce of a species of Capsicum, notwithstanding that the writer of the article says it is "not the Capsicum baccatum, nor the C. fruticosum, nor the C. annuum."

In the Kew Museum are numerous varieties of the fruits of Capsicum annum, all bearing the name of Aji, and the museum also contains specimens of the small Gourds filled with Capsicum Pepper as described by our contemporary; so that the "Aji-Aji" of the *Saturday Review* is clearly the produce of Capsicum annum. John R. Jackson, Curator, Museum, Royal Gardens, Kew.

TEA, COFFEE, AND CINCHONA INSECT PESTS.

THE ravages of insects on Tea, Coffee, and Cinchona plants of late years have been so widespread as to threaten serious consequences to those who own large plantations. It is, however, a curious fact that few have deemed the subject of sufficient importance to devote their time and attention to an intelligent investigation of these insect pests, their ways, habits, methods of attack, propagation, &c.; and it is therefore with sincere pleasure we have perused an interesting paper on pests of the homopterous family of Coccidae, which attack Tea, Cinchona, and Coffee plants, read by Mr. E. T. Atkinson, C.S., at a recent meeting of the Bengal Asiatic Society. Mr. Atkinson is not unknown in this branch of science, and his paper will doubtless give rise to a proper discussion of this subject.

The author stated that he sought to give such an account of this important family of insects as will induce observers to take up its study seriously. He went on to say that it comprises those insects known as scale-insects, or gall-insects, which are so hurtful to the Coffee, Cinchona, Tea, and fruit trees generally. Nothing of value has yet been written regarding the species of this family that occur in India, with the exception of the *Curtaria laca* that furnishes the lac and lac-dye which form such valuable articles of export from Calcutta. The family is distributed amongst the sub-families Diaspidia, Brachyscelina, Lecanina, and Coccina, of which some hundreds of species have been described, but very few of which are recorded from India. The larval form of these insects, he said, has six legs, many jointed antennae, and a rostrum, or sucking apparatus; the adult female, as a rule, has neither wings, legs, nor antennae, but only a rostrum, while the adult male has two wings, legs, and antennae, but no rostrum, or mouth. Their forms vary from flat to spherical, many are covered with a white farinose filamentary substance, others with a felted, waxy, nacreous, and even calcareous substance. All are minute, and require much care in their manipulation and preservation. The author disclaimed all idea of purely

scientific aims in this popular introduction to the study of a much neglected group of great economical importance to residents in the East. His object was to collect facts on which hereafter to base a scientific examination of the species of these insects occurring in India.

After Mr. Atkinson's paper, the President of the Society brought to the notice of the meeting letters addressed to him by Mr. Green, of Puduloya, in Ceylon, regarding a new pest belonging to the Homopterous family Coccidae, which is now committing great ravages on the Coffee plantations there, and in some cases compelling the abandonment of its cultivation.

Mr. Green writes:—"I have been led to pay some attention to the Homoptera of Ceylon, chiefly by reason of the fearful destruction caused by many of their number to agricultural products. I am now sending you, under separate cover, a few specimens of these insects. The parcel contains:—

"(a). A glass tube with Coffee leaves, on the under surface of which you will find a species of Lecanium. This has only lately appeared in Ceylon, but has already spread in an astonishing manner, and has caused inconceivable destruction in the Coffee districts. It is entirely distinct from *L. coffea* and *L. nigrum*, noticed by Mr. Nelner in his pamphlet on *The Coffee Tree and its Enemies*. Both these species I am familiarly acquainted with, though their ravages are now very slight compared to the work of the green insect now forwarded. I have not been able to obtain the male form, though both sexes of the other two are fairly common.

"(b). Cinchona twigs with a species of Coccus lying apparently beneath the cuticle of the bark, which is raised in the form of small blisters. This is a most extraordinary insect, and with closely allied species, which are numerous on other plants, has considerably perplexed me, especially as to the nature of the integument which covers it. In the specimens from Cinchona this would seem to be actually the cuticle of the bark, many of the incipient cracks extending right across the integument of the insect. Those now sent are all females. The male form closely resembles those in the tube containing spirits of wine. The larvæ and pupa are very similar to the species found on Tea leaves. The adult female has neither legs, antennæ, nor eyes, the only external member being a fine sucking bristle (rostrum), which proceeds from a spot near the middle of the under surface. In the young all the members are complete.

"(c). *Loranthus* leaves with allied species of Coccus, also apparently lying beneath the cuticle of the leaf; but on examining the integument under the microscope with transmitted light, one finds no traces of cellular formation, nor any stomata, all of which, however, are complete in the tissues of the leaf immediately below the insect. Adhering to this integument, or forming part of it, are always one or more of the characteristic scales of the Coccidae, which would seem to be the cast skins of the insect. The young larva, after fixing itself to the leaf, soon exhibits the scaly covering on its posterior half, leaving the anterior part free. The scale is then shed, remaining in its place, and the insect lies freely beneath, and loses all its external members except the sucking bristle. The integument, under a high magnifying power, appears to be composed of an irregular network of sinuous intersecting filaments, with no trace of cellular formation.

"(d). A tube containing both sexes of another species, affecting the leaves of the *Loranthus*. The integument of the female is continuous with the woolly covering of the leaf. The males are minute red flies, with one pair of two-veined semi-hyaline wings, which at rest are folded straight down the back, completely overlapping each other. The antennæ are very long and setaceous; anal extremity without filaments, but with a long central point. Both the upper and the under surface of the head appear to be furnished with a pair of eyes, and I can find no ocelli. The lower pair of eyes correspond to what is described by Nelner in his *Pseudococcus* as 'two black knobs, resembling blunted mandibles, representing the external mouth.' These two spots are present in the males of all this family, and I cannot help thinking that they have been erroneously described as mandibles, the external mouth, in my opinion, being present only as a minute spot between the anterior pair of legs, in the same position in which it is situated in the female." [Mr. Green is right in regarding these knobs as other than mandibles; they

are eyes.] "If the head of the insect be macerated in water, and examined with transmitted light, all four spots appear as colourless globules with two concentric dark rings, an appearance which would be given by the cornea of the eye."

Unfortunately most of these specimens suffered so much from damp in transit that they were useless for examination. In a subsequent letter from Mr. Green it is stated that "The green Lecanium has spread at an extraordinary rate, and we have in consequence been compelled to abandon a large acreage of Coffee and replant the ground with Tea. This species is vastly more destructive than anything of the kind that has previously been experienced. The ravages of *L. coffee* were nothing in comparison. It is curious that though they have been increasing so rapidly, there has been apparently no generation of male insects."

The foregoing facts are of sufficient importance to owners of plantations to induce them to devote more attention to the subject than hitherto appears to have been done, and by investigation to hit upon remedies in view to protecting their plantations from the ravages of these insect pests. *Indian Agriculturist*, September 18.

FRUIT REGISTER.

APPLE NANCY JACKSON.

We send you fruits of a North Yorkshire Apple called Nancy Jackson, which we suppose to be little known beyond the district. The fruits we send are part of a very heavy crop growing on a standard tree on sandy light soil, not particularly well suited for fruit growing. It is an unfailing bearer. *James Backhouse & Son*. [A large cooking Apple of great excellence, keeping till May, and well worthy of cultivation anywhere. Ed.]

PEAR DOYENNÉ DE JUILLET.

An old Pear, small in size, pretty in form and colour, good in flavour, a good bearer, and one which ripens when Peaches are scarce, and when scarcely any other Pear is ripe. M. Burvenich, who describes and figures the Pear, says that it does not succeed on the Quince. *Bulletin d'Arboriculture*, September, 1886.

HONEY UNDER THE MICROSCOPE.

By an accident one day last month three sorts of honey were upon my table. The first may be called "shop honey," bought in London; the second was "Imported honey," sent as a present; the third pure country honey, brought from the village of Totternhoe, in Bedfordshire. In general appearance the three samples greatly differed from each other, and the difference in taste was equally marked. The taste of the pure village honey was quite distinct from the other two. My microscope being always at hand, I decided upon putting a fragment of each sample under a low power, so that any possible differences in appearance might be noted. London "shop honey" appeared as in fig. 106. The general syrup was full of crystals, probably of sugar, in each field of view about one pollen grain could be seen, as illustrated: there were traces and suggestions of somewhat unpleasant insect remains, and possibly pieces of defunct grubs. "Imported honey" (fig. 107) was similar with the last, but with about three times more pollen, and with crystals of larger size; in taste and suggestions about the same as in the last. I could see no flour in either. Pure village honey was quite different from the two last, being free from sugar crystals, quite free from insect remains, and the whole syrup full of pollen grains and plant raphides or crystals, as illustrated in fig. 108.

Persons who consume "shop honey" only, must be quite unacquainted with the taste of true village honey, for the taste of one is in no way comparable with the other. Pure honey tastes like a smooth sweet nectar, whilst "shop honey" tastes rough, like sugared beeswax. I do not know how "shop honey" is made, but from its taste and appearance it may quite possibly be smashed-up honeycomb sweetened with sugar—possibly after the true honey has been withdrawn, a few defunct bees and grubs being squashed into the general mass.

The number of beautifully preserved pollen grains to

be seen floating in pure honey is marvellous. So well are the numerous grains preserved that it would be a very easy matter to name them and by thence deduce what plants were frequented and what plants avoided by the bees. I have no opportunity at present for naming the grains, as the examination would require time. The great preponderance of grains belonging to the Leguminosæ, especially to field Beans and Clover, is remarkable; also the Ericaceæ, as Heather, and the Onagraceæ, as the evening Primrose, &c., are both well represented. The Compositæ appear to have but few bee visitors. For any one with

clear, viz., some London "shop" honey is suspicious and bad, whilst some pure village honey is uncommonly good. *Worthington G. Smith, Dunstable.*

HOME CORRESPONDENCE.

Artificially Ripened Pears.—About the middle of September I found that I was likely to have a break in the supply of dessert Pears in the early part of this month, and as I did not wish this to happen I took means to prevent its taking place. I picked a half-bushel basketful of large clean fruit of that excellent variety Marie Louise while quite dry, and placed them singly on a sheet of wadding in a box, then, having put another sheet of wadding over the first layer of Pears, another layer of the latter followed, and so on until the box was quite full, the wadding being used to exclude air. The box was then placed on the hot-water pipes in a late vinery. After it had been there for a week or ten days I examined the contents, and found, but not to my surprise, that the Pears had ripened beautifully, the fruit being full of flavour and more highly coloured—that is, of a clearer and deeper yellow than I have ever known them to be when ripened in a cool fruit-room. Since then I have treated several lots of Marie Louise, of which variety we have a large quantity, in the same manner, with the best results. Fruits of this variety which we have harvested this week are quite hard, as they will remain for some weeks longer. By this method the season of certain Pears or Apples fit for table may be prolonged; and when there happens to be a good supply of any variety of Pear, and they are allowed to ripen on the shelves in the ordinary way in the fruit-room, the fruit cannot all be used for dessert whilst good, consequently it must either be sold or otherwise disposed of, but which, by following the artificial process of ripening, could have been consumed weeks previously. *H. M. Ward, October 12.*

The Codin Moth.—The eggs of this moth are deposited singly on the apex of the ovary when the Apple is in flower or on the crown of the fruit later in the season; the caterpillar is hatched in a few days, and eats its way to the central portion of the ovary, and at first does not attack the covering which immediately protects the young seed. It prolongs its burrow until the rind of the fruit is pierced, forming a tortuous gallery by which air is admitted and excreta discharged. The caterpillar now returns to the core of the fruit, pierces the covering, and obtains access to the seed, upon which it feeds until the Apple falls, when it ascends the tree and enters the chrysalis state, which in the earlier part of the season is of short duration, the moth emerging to deposit its eggs as already described. The numbers of this destructive pest of the Apple tree may be lessened considerably by stripping or cutting off all loose bark on the stem and older limbs, and all moss or lichen should be scraped off, so as to afford the least possible shelter for the caterpillar after it leaves the fruit, and expose it for a longer time to the attacks of birds. The best period to destroy the insect is during the caterpillar stage, when advantage should be taken of its habit of climbing the stems of the trees. Bands of stout paper 5 inches wide are attached to the stem in such a way that the upper margin fits tightly all round, whilst the lower margin is sufficiently loose to allow the caterpillar to creep beneath it without difficulty. The insect readily takes possession of the shelter afforded by the band, and constructing a light web, passes into its dormant state. The bands should be examined once a week, and the caterpillars destroyed. All fallen fruit should be promptly collected and destroyed before the caterpillars have time to creep out. *M.*

Ivy-leaved Pelargoniums.—Pelargoniums of various sections have long been established favourites, and enthusiastic florists, gardeners, and nurserymen have bestowed much patience and skill in trying to produce flowers possessing qualities superior to those already in existence. How well they have succeeded in their endeavours may be best judged by comparing the splendid varieties now in existence with those of older types, and such perfection has been reached among the zonal and nosegay sections as to leave but little to be desired. But it is only within recent years that any great advance has been made in the Ivy-leaved kinds (*Pelargonium peltatum*), which are now richer in those soft and pleasing shades of pink and rose that find so many admirers. Their trailing habit renders them most suitable for many kinds of floral embellishment that other Pelargoniums are not adapted for. We find them very useful, when grown in small pots, for drooping over the sides of stages or arranged in vases in conjunction with other plants for table decoration. Grown in baskets they are also very effective; their deep green glossy leaves and pretty flowers only require to be seen to be admired. Another excellent way of growing them

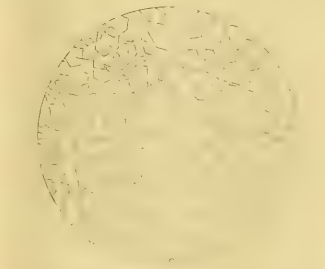


FIG. 106.—LONDON "SHOP" HONEY, ENLARGED 100 DIAM.

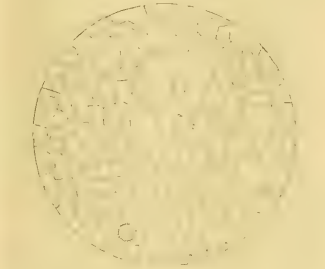


FIG. 107.—IMPORTED HONEY, ENLARGED 100 DIAM.

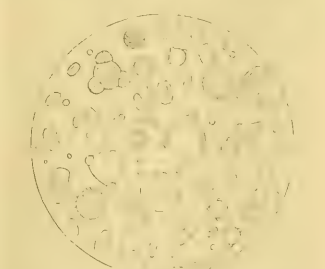


FIG. 108.—PURE ENGLISH VILLAGE HONEY, ENLARGED 100 DIAM., SHOWING POLLEN GRAINS OF VARIOUS KINDS AND RAPHAIDES.

the necessary time, the microscopic appearances belonging to different honeys would be a good subject for study, and one full of interest. The pollen grains are preserved in a marvellously perfect state.

I have before written in the *Gardeners' Chronicle* of ketchup under the microscope and Périgord pie under the microscope. Neither examination had a tendency to increase one's fondness for the above-mentioned delicacies. The microscope does not increase one's attachment for "shop" honey. Are "shop" honey-bees fed anywhere on sugar instead of the sweet nectar of flowers?—do they never visit flowers and bring away pollen grains?—or is "shop" honey old broken-up combs or sweetened beeswax?—or what is it? To whatever cause the great differences in appearance and taste may be due one fact is

is to put a few old plants into 8 or 10-inch pots, constructing a trellis of pyramidal form to train them to, and as soon as the plants have filled the allotted space allow them to flower. As they are rapid-growing subjects they can soon be grown into fine specimens, which will repay the labour that may have been bestowed upon them. In March and April we strike great numbers of them, which are grown on in cold pits till they are transferred to their blooming pots of from 4 to 6 inches. They are then given a good open position out-of-doors, and as soon as the roots are plentiful the plants receive weak farmyard manure-water two or three times a week, and occasionally two or three pieces of nitrate of soda, about the size of Peas, are given to each pot; this is an excellent stimulant for all kinds of plants, but it requires to be used in small quantities, and approaches and there is danger from frost the plants are placed in frames till the winter quarters (a light span-roofed house) are ready for their reception. After they are placed in this structure they receive a temperature ranging between 55° and 65°, and a fair amount of air whenever the weather is favourable; the plants flower much more satisfactorily during the dull days of autumn when kept at this temperature than in one that is cooler. Some of the plants are tied to a sick plant in the centre of each pot, while the shoots of others are allowed to droop over the sides of the pot, as it is always a good plan to have plants trained in various ways for decorative purposes. The soil used throughout consists of three parts turfy loam to one of decayed manure, with a little sharp sand added; moderately rich soil and firm potting being the important factors in producing well ripened flowering shoots. The following are all splendid varieties, and well placed in every garden: *De Brazza*, bright salmon; *Jeanne d'Arc*, white, tinted with lavender; *Isidore Fauré*, light rose; *Gloire d'Orléans*, crimson-magenta; *Comtesse Horace de Choiseul*, pale rose; and *Comte Horace de Choiseul*, *H. Dunkin*.

Heavy Apples.—Noticing an answer in the *Gardeners' Chronicle*, on page 440, respecting a large Emperor Alexander Apple, that weighed 1 lb. 3 oz., you stated that was the heaviest on record, does that apply to the Emperor Alexander alone, or to other varieties as well? As I have this day gathered a specimen of Warner's King, which weighed 20 oz. it is in circumference about 15 inches. *H. Kent*, *The Gardens, Tyttenhanger Park, St. Albans*. [The weight given was that of Emperor Alexander Apple. Ed.]

Bees and Colour.—Surely "W. H. R.," at pp. 471 and 472 of this volume must have been writing without reflection when he said of bees that "it is their exquisite sense of smell alone that serves them in collecting honey, as is proved by their never visiting unmeliferous flowers of any hue." The Poppies are well known for their brilliant hues, but they produce no honey, and are frequently visited by bees and other insects for the pollen. The same statements apply to *Anemone angulosa* and the numerous varieties of *A. Hepatica*, while bees are recorded to have visited the equally unmeliferous *A. nemorosa* to suck the sap by piercing the base of the flower. The British Roses afford another instance of showy, more or less highly coloured and fragrant flowers, with a numerous array of stamens, but no honey. What, then, do bees visit them for if not for pollen? The showy flowers of Onions are fertilised by bees, but contain no honey, and Mueller has frequently observed male bees searching for nectar. There can be little question that showy coloured flowers are frequently visited by bees in search of honey, as I have often observed the latter in large open flowers rubbing about in an uncertain manner evidently in quest of what was not there.

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unmeliferous flowers for the sake of their pollen. *J. F.*

—In reference to what "W. H. R." states respecting colour having no influence on bees collecting honey, some few years back in the spring, when Crocuses were in bloom, I was watching some bees collecting honey; the Crocuses were mixed in about equal proportion—blue, white, and yellow—and I found the bee that commenced with the white Crocus kept to the white till he had obtained his load, and then left; and so on with the other colours, each keeping to one colour. *Dromes*.

Plants in Flower at Swanciffe Hall.—It was my privilege a few days ago to visit Swanciffe Hall, Kipley, Yorkshire, the seat of Captain Greenwood, and there I met with one of the best flowered plants of *Lupageria rosea* that I have seen for a long time. The plant is planted in a narrow pit under the staging in a span-roofed greenhouse running north and south, and is trained close under the roof, of which it covers a good portion on one side of the house, and is literally one mass of bloom. I counted 750 fully expanded blooms, with scores of buds to follow on; one shoot had sixteen fine blooms, and another ten, and I saw numbers of others with from twelve to eighteen blooms, all of grand size and substance. On the opposite side of the house is a fine healthy young plant—three years planted—of *L. alba*, which has flowered quite as profusely as the var. *rosea*, but which had been shorn of most of its finest blooms for the sad purpose of making wreaths and crosses for the funeral, the previous week, of Mr. Greenwood. There are many other good things equally well done in this fine garden, including a grand plant of *Siepenotis floribunda*, which covers from one end to the other all the front portion of the roof of a lean-to stove about 30 feet long, and which, I was told, is rarely to be seen out of bloom. There is also a fine healthy stock of *Eucharis*, with no sign whatever of the dread disease. A nice batch of *Poinsettias* looked very promising, and another of *Gardenia florida*, with growths like young Willows, and a nice healthy young stock of *Crotons*, *Dracenas*, &c., for decorative purposes. Two or three cold pits are filled with Violets, for winter blooming, of *Marie Louise* and *Nespolitan*—the first-named was already pushing up quantities of strong buds. All the beds and borders, both in the pleasure-grounds and kitchen garden, are filled with a great variety of herbaceous plants and hardy annuals, which furnish immense quantities of cut flowers over the greater part of the year. The general keeping of the whole place reflects the highest credit on Mr. William Stanton, the courteous head-gardener. *B. Ashton, Glossop Hall Gardens, Derbyshire*.

Gardenias for Flowering during the Winter and Early Spring.—We have found it a good plan, in order to secure these results, to keep the plants cool during the summer months; and some one says, in fact, now (October 22) standing in the Peach hedges where the lights (both back and front) are open all night. We purpose, however, to transfer them to a warmer house or pit in a few days, and then hope to see some of the forwardest buds soon push up. The main crop of flowers will, however, turn in early in the new year sooner than is the case with plants that are kept continually in a warm atmosphere. It takes an increased temperature to induce such plants to flower readily early in the season, from two reasons; firstly, through the earliest buds having pushed up during the latter part of the summer and autumn, and secondly, by their not responding to slight forcing as those plants do that have been kept cool. Gardenias that are treated to a lower temperature may not look so healthy and thriving, especially at this season, but they will soon assume their wonted vigour and healthful appearance when placed in a genial atmosphere. Where it is desirable to increase stock with rapidity we would advise growers to take off large bushy growths for the purpose, as large, in fact, as plants are usually seen in 4-inch pots: this will be found to be easily accomplished with the aid of a propagating pit and a good command of bottom-heat. They will, in fact, strike almost as readily as Willows, and if wanted to progress rapidly it is only necessary to turn them out into the open soil in a pit with good command of heat, when, after a few months' treatment, they will give abundant bloom. The best method is to treat them in the cool method, where it is needed, by giving an abundant supply of air or by the removal of the lights during the summer months. *J. Hudson*.

Beautiful Annuals.—Among the best annuals of the gardens in this neighbourhood are the Scabious and Salpiglossis; they have both been exceedingly beautiful, and even now they put the variegated flowers to shame for freshness and duration of bloom, and rich colours. Scabious varies from white to black-crimson, and comprises many intermediate shades of light pink, lilac, red, and bright rosy-crimson. It is far more effective and manageable as a bouquet flower than the Aster, and requires less trouble and care in raising. Salpiglossis is less hardy and the foliage

more scanty and uninteresting, but its flowers more than compensate for the defect. It is one of the most elegant of annuals and probably contains the greatest variety of colours. Of what other flower can it be said that there are all the colours of the rainbow—white, pink, rose, lavender, the deepest crimson, yellow, orange, blue and purple? Then it is charming for vases when placed loosely and with plenty of room. *Linum grandiflorum* is a beautiful annual, and the colour—a brilliant magenta—is unique; but it has long been seeding, and so has the dwarf *Convolvulus* and the blue *Corn-crow*, *Cyanus*. The most brilliant of the two annuals, if the *Portulaca*. By the way, the *Antirrhinum*, sown in March, produces a fine display of bloom throughout the autumn. *T. W., Harrow*.

Pruning Evergreens.—I notice on p. 492 that we are told, "Laurel banks may be trimmed in as much as desired," and well remember some Laurel beds in a cold and damp situation that were severely pruned a few years since in the autumn previous to a severe winter. They had grown much out of bounds by previous neglect, and had got patchy, and were accordingly headed down, leaving about 18 inches of growth to start into growing about the following spring. However, the frosts which followed (about 27°) killed them to the ground, while others close by that were not pruned, escaped almost unhurt. Of course it is easy to see the cause of this afterwards, but I take it as a substantial proof that it is best to defer all severe pruning of tender evergreens until all danger of sharp frost is over. If the situation is a warm one, or if a good supply of foliage is to be left on the trees, there is not so much danger of unpleasant results. *W. H. Divers, Ketton Hall*. [We think by "trimmed in" our correspondent did not intend heading back, which should always be deferred to the spring, or even summer time, as the healing process is rapid then, and wood does not die back. Ed.]

Tobacco.—I have been much amused at the letters and statements published on the matter of the growth of Tobacco; from these letters and statements one is led to believe that something very wonderful has been achieved in growing in England a plant which, it is believed to require a warm climate, and that somebody deserves a statue for opening up a new source of industry and manufacture. This happy and wonderful discovery, which is to drive away all agricultural depression, and to be a flaming beacon to the starving farmer, who has only to purchase a packet of seed which he can carry in his waistcoat pocket, sow next spring, cure the leaves produced, and secure a fortune, deserves all praise and encouragement—all success, and exemption from all interference—keep the excise; but I warn the Government to keep a sharp lookout, or they may become bankrupt by loss of duty on foreign Tobacco, when the home article has crowded the market! To make up the anticipated deficit I hope they will not increase the Income-tax. Well now, how has this Tobacco craze been set afoot, and what is there in it? Young men may be excused on the score of youth, old men on the score of failing memory; but surely there must be many, many men who have seen and grown Tobacco—perhaps cured Tobacco, and cured Tobacco well used Tobacco, and used it to good purpose, some fifty years ago. I grew *Nicotiana glauca* and another kind, and after some few experiments succeeded in making a very decent cigar—certainly a much better article than the ordinary penny Cuba cheroot. My case was by no means a solitary instance, for I know at that time it was a usual crop, and to be seen in most gardeners' gardens, ordinarily on the front of a Vine border, or in some such place, well exposed to the sun, grown for the gardeners' use in fumigating, &c. Truly there is nothing new under the sun, but I have a notion there might be something new even in Tobacco culture in England if we could increase the power of that sun; but can we? There's the rub! If not, how can we hope to emulate those climes which now supply us with Tobacco, Maize, &c.? If scientists have discovered a means to increase indefinitely our sun-power [the electric light], then let us at once erect the statue to the introducer of Tobacco culture in 1886, forgetting that fifty years ago it was grown in many places in England; our lack of memory indeed will be quite excusable, for fifty years ago there was no *Gardeners' Chronicle* to tell us what was going on, so that it is perhaps not wonderful that success or failure in the culture of the fragrant weed received scant notice; nay, it is perhaps not wonderful that the experiments of 1886 are only repetitions of those of 1836; for, as far as I can discover, no new thing has been made known and the knowledge gained in the former year seems to have been lost or forgotten in the latter one. But there is a darker side even to the triumphant picture of a Tobacco-covered England. True, with very little attention the Tobacco seed developed into a majestic-looking plant, and produced magnificent leaves, but then came the time of tribulation. In my

own case, I was driven nearly distracted when people asked "What will he do with it?" And sorely pressed was I to answer the question. The leaves approaching maturity and assuming a delicate primrose colour, indicated that the harvest was nigh, but then came the difficult question to decide, How nigh? Whether at the very doors, or only within a measurable distance? To gather, however, was the least difficulty—but to dry? If allowed to dry too much they became brittle, if too little they grew mouldy, and the least speck of mould spoiled the whole mass. Then the ribs. What snares and delusions they were; how often my whole apparatus was wrecked by those dreadful ribs. Still, given a rich soil, a good warm summer, and, last but not least, a dry late autumn, very good Tobacco was grown fifty years ago; and now, given a cold wet summer, a dripping autumn, and early frosts, I would ask, in the language of the old farmer, who, when noting the difference between a coach accident and a railway smash, said, in the former it was, "Well, here we are," but in the latter, "Where are we?" And, "Where are we?" I would emphatically ask the tobacco enthusiasts in Tobacco culture after the cold, wet season described above? *Charles Noble.*

Double Tuberous-rooted Begonias.—Tuberous-rooted Begonias have come to the front during the past few years, and have been rapidly improved upon; perhaps no one has been more successful in raising good varieties than Mr. Geeson, the gardener at Haldon House, and many of which are to be found in most private collections. He has paid most attention to the double varieties, the consequence of his labours being a diversified and, among which, may be specially mentioned—*White Lady*, a very beautiful large and free-flowering variety, which makes a good specimen plant, the best of the double whites yet cultivated. Perfection, a bold crimson flower, of good substance and shape, a strong grower, would form a good parent, together with some good upright flowering variety. *Sulphur Queen*, a very beautiful light yellow, fine bud when opening, good grower. *Exonia*, a distinct variety, deep pink, long and narrow petals, very full and free-flowering. *Snowball*, pure white, medium size flower, very double, a most pleasing variety. *Canary*, creamy-yellow, distinct from *Laing's Canary*. *John Parr*, a seedling of 1856, deep red, of great substance, and bulky flower. *Lord Haldon*, his best seedling of the year, deep scarlet, very full and deep, like a series of double flowers packed regularly together; a grand flower. *Juarez*, a novelty, the colour of the Cactus *Dahlia* of that name, the petals partaking somewhat of the same; it will be a great acquisition if it remains constant. *Carnation*, also a novel flower, perhaps not an appropriate name, it being a fine pink with white centre and with imbricated petals. Beauty, a very compact pink, the petals overlapping each other so beautifully, very distinct. He has other named varieties well worthy of remark, but the above are the best, selected from some thousand seedlings. Singles have not made much headway under his manipulation, but the upright single is doing him some service, as he has produced some few promising upright forms of doubles, which under his skill may develop into some of very good upright form, which, through showing themselves naturally, and being of a stiffer habit and useful for cut flowers, cannot fail to become the Begonia of the future. Just a few remarks relative to the mode of culture may interest your readers. Double pollen has been very scarce this year, so that next year will not produce much, perhaps that is new, though the seed from one pod may produce a great variety. The seed is sown in boxes in light sandy soil in February, in gentle heat, and covered with glass; and as soon as fit to handle the seedlings are pricked off in boxes and pans thickly, and as they increase in size they are again pricked off in boxes, so that by the end of May they are fit to be transferred to the open ground in a warm situation, where they seem to thrive better than if grown in pots. The soil used in both instances being good potting soil with plenty of leaf-mould and sand. Treated so they seem to grow and thrive well, presenting during the summer and autumn months a gorgeous display of bloom. *Visitor.*

Tuberous Begonias at Messrs. Laing's, Forest Hill.—Accompanied by some gardening friends during a recent peregrination in and around your metropolis, I visited Stanstead Park and nurseries to see Messrs. Laing's tuberous begonias bedded out and growing in the open air as contradistinguished from the customary system of growing and blooming them under glass. Although this was the primary object of our visit, we saw and learned many other things. Though tuberous Begonias have for about half-a-dozen years been largely and successfully grown bedded out, in several gardens around here, and many other parts of Ireland, indeed, I am not sure if our moist climate and more equable temperature does not give us an advantage over England, yet no previous conception would enable a stranger to realise the enormous

numbers, the great range of colours, or the great size and abundance of the blooms to be seen in the open air. It must be recollected I am now speaking of seedlings raised from the firm's own home-saved seed—such as they supply to their customers—raised in heat in seed pans in January. At first the growth is slow, but when established great progress is rapidly made, and the young seedlings are fit to plant out in June. They can now raise seedlings true to name and colour and of uniform size for bedding purposes. The colours are so varied and the foliage in most cases so handsome that it is no stretch of the imagination to think them surpassed in carpet bedding, as a friend remarked to me at Hampton Court. There were distinct panels of colour in the beds at Stanstead Park far more brilliant and gorgeous than anything observed at Hampton Court or in any of the parks. For those commencing Begonia culture for bedding purposes, it will be safer and more satisfactory to begin with dry bulbs, which can be obtained wondrously cheap during any of the four months of winter, and of course true to name and colour. Beds or patches of the same variety of colour are always most effective. For this purpose Messrs. Laing cannot recommend any forcing by fire-heat—"Let them start naturally in spring" is the motto. They continue to bloom into November—probably some of the beds we saw are still brilliant—mine are still outside and unaffected by rain or storm. This papery flowers, weak growers with reclining blooms, or those with narrow side petals, are all ruthlessly rejected among the seedlings; bright round flowers, of great substance, and very floriferous are the catchwords, and by the thousands these are gradually obtained here. Indoors we saw several houses of the named famous doubles, so often observed at the metropolitan shows, but I must not intrude further on your space than to ask permission to thank Mr. Laing, Junr., for the courtesy we received. *W. J. Murphy, Clonmel.*

Colour of Primroses.—Can any of your correspondents give the facts as to the influence of the consistency of the soil on the colour of Primroses? I am desirous of learning whether any cases are known of in which the flowers of transplanted plants have been affected in colour by change of soil at the first time of flowering after transplantation; and also whether seedlings from plants thus affected inherit this change of colour in any degree when transferred to other soils, or when planted again in the original soil. *A. B.*

Fuchsia corymbiflora.—I have known this plant for a great many years, and meet it occasionally in this country, where old favourites are not lost sight of. The plant is easily grown, and may be planted out in May, and taken up in October and placed under the greenhouse stage till the following spring. I came across a plant so treated the other day on the highest hill in this county—viz., Crowborough, 800 feet above sea-level, and this treatment answered perfectly, and the trusses of blossom were magnificent. Another old kind of Fuchsia (*fulgens*) is still grown by the cottagers. This is really a tuberous-rooted kind, and very easily managed. I have very often wondered why these two have been more used by raisers of new kinds; they are so very distinct in habit. *F. microphylla* I also found in a cottage window; this is the smallest of all the Fuchsias, and very neat in growth. The old *globose* I grow in vases at my office-door; and many are the cuttings begged for "Auld Ling Syne." *J. Rust, Erldrie Castle, Sussex.*

Solanum capsicastrum.—Our stock of this most useful and ornamental berry-bearing plant, never looked better for the season of the year than they do at the present time. They are loaded with berries, only the forwardest of which are changing colour, as they are not "wanted" before the *Chrysanthemums* are over; there is yet plenty of time for them to finish up and make handsome subjects for the conservatory for the Christmas season. They are still growing in the open ground, but we hope to have them potted up by the time this is in print. After this position is reached, they will be stood in a cold frame raised sufficiently high to take them comfortably, the tallest standards being some 2 feet 6 inches in height. Attention with regard to shading during bright sunshine and exclusion of cold or sharp currents of air will be necessary, but a close humid atmosphere must not prevail, although frequent syringing for a time will be requisite to induce fresh root action. During quiet weather and at night, air will be given freely, the lights even left off when most favourable to the same. We never fear any material check in lifting although they have not been cut round with a spade at any previous time; our practice being to shake off all the old soil when the plants are turned out in June, and the roots trimmed in when needful at that time. When lifted therefore the balls are found to be one mass of fibrous roots to the centre of the plants, with of course no trace whatever of having been cut, or of their pots some months previous. After the plants have served their

course in the conservatory in the spring (during March generally), we remove them to the large vases, then on the move, keeping them dry for a week or two, they are then divested of their berries and pruned back the same as with *Fuchsias*. Having fairly broken into new growth they are gradually hardened off prior to being again planted out in their summer quarters. During August or early in September, when a good set of berries is secured, the plants are gone over and all shoots stopped back close to the berries; this concentrates the sap at once on the development of the latter, besides bringing them into more prominent notice as well as contributing to their well-being by more exposure to the light. Attention is needed at times during very dry weather in the way of watering, and a good soaking should be given before the plants are lifted; the green-fly may at times be troublesome, but a little tobacco-powder will soon set this matter right. We have adopted this method with but slight variation for several seasons, and have never found the system to fail us. *J. Hulton.*

Daffodil Seed and Cross-fertilisation.—A writer in one of your contemporaries says Daffodil raising is not likely to remain much longer a kind of lost or occult art; we may look forward to being able to purchase of the seedman for a modest coin a packet of Daffodil seed, as we can now *Amaryllis* seed, "carefully hybridised," and likely to produce many new and beautiful varieties. As to "cross-fertilisation" and its effect, I do not think I need wait for five or six years to ascertain results. My friends in the Colonies, America, and Canada will be very glad to get "mixed packets;" and the seed offered by me, I believe, for the first time in England, has up to this been all sold as such, and instructions given that it may be so. It is probable that what I have been trying to effect with the brush, aided by the bees, from early in February in our mild climate, to the end of April, will be lost to science; meantime, I have myself separately sown each cross in large quantity, and shall be only too glad to give results at a future time. What am I to do with all the seed that can be saved on my grounds for six years?—my first year's crop having resulted in a gross of 14 oz., all sorts which I considered it would be waste to pitch into the rubbish-heap. As regards what others may have done we have very little knowledge, but we are led to believe by what the late Mr. Nelson wrote a few days prior to his death, that cross-fertilisation was not resorted to by Mr. S. A. De Graaf, of Leyden, has a variety of seedlings in store for use, all wind-fertilised or chance hybrids; and the late Mr. Backhouse wrote in the *Gardeners' Chronicle*, June 10, 1865, that results were the same under artificial crosses and chance fertilisation. As to effects resulting between seed saved from a cross between a *Corbularia* and major variety, I have, some four years since, given bulbs of the common *Corbularia* to a friend to try his "prentice hand" between it and the *Penby Daffodil*. He has raised some 300 seeds, the bulbs of which flowered this spring, exhibiting the *Corbularia* in a "giant form" and now at present many are appearing above-ground in a cold greenhouse with the foliage of the *Penby*. He has sent me test bulbs, which are to be known as "Smythe." *W. B. Hartland, Cork.* [We have omitted some portions of our correspondent's letter, as they concern our contemporary rather than ourselves, or our readers. Ed.]

Strawberries Ripe Out-of-doors.—On the occasion of a visit to Strawberry Green, Hants, on the 18th inst., the Strawberry plants at Chill were looking as in spring rather than in October; and on looking over a large bed of Sir Joseph Paxton I saw upon about a hundred fruits, most of which were colouring, and some were quite ripe. These plants were growing in the garden of Mr. J. J. King, Myrtle Cottage, who has about one thousand pots of Sir J. Paxton, as fine plants as I have seen this season. *W. D.*

The Ivy in Guernsey.—The common Ivy here seems to be a distinct variety. Whilst roaming lately with several friends through the delightful lanes of this lovely island—so rich in greenery of all sorts—our attention was repeatedly arrested by the singularly neat growth and beautiful green colour of the Ivy growing in great luxuriance everywhere. It was not the Irish Ivy—that was evident, the leaves being much smaller and altogether a neater and prettier plant. It was not either like the common English Ivy, being of a sturdier growth and the leaves of a uniform bright emerald-green colour. Could it be the climatic that was rendering it so distinct and beautiful? It might be so. But no!—for here at our very feet was the common English Ivy, with its prominent veinings and the peculiar purplish shade so characteristic of this variety. Here also was the Irish Ivy—all three being quite distinct. The compact growth and beautiful emerald-green of the Guernsey variety being most conspicuous. How has it escaped notice so long? Perhaps it has not. The word "emerald" suggests our comparison of it with

Hibberd's emerald-green—one of the best Ivies grown—and we are forced to the conclusion that they are very similar if not identical. If so, would it not be better to call it at once the Guernsey Ivy (*Hedera Helix var. saraniensis*)? A. F. B.

Arenaria norvegica in Scotland.—I think it may interest you to know that I picked up a specimen of *Arenaria norvegica* on the bank of the river Loman, at Inchodanaph, near the head of Loch Assynt, on August 7. When I saw the plant (which I identified as above the day following) it struck me as being something I had never gathered before. I went back to near the spot where I had seen it a few days later, but could not find more just then, but on seventy or eighty plants, covering, I should say, about to square yards or thereabouts, perhaps more, of the river bank (a light sandy alluvium). This was at a distance of a few hundred yards from where I found it. I sent a specimen a short time ago to Dr. Stirton, of Glasgow, and I understand he was much pleased at the discovery. I have been collecting lichens for him, and shall forward them to him for description. A. Gray, *Tongue, Sutherland*. (We should be greatly obliged if our correspondent would kindly send a specimen to us. ED.)

Grafted Grapes.—I have often heard it said that black Grapes should not be grafted on white ones, because they would not then colour well. According to my experience this is not the case, it is quite different to that of "F. L." in your last issue. We have growing here three kinds of black Grapes, all grafted on stocks of white kinds. Gros Colmar and Alnwick Seedling are on Foster's Seedling; they are growing in the late vineyard, and at the present time are carrying a crop of perfectly coloured Grapes. The other is Barbarossa, grafted on Muscat of Alexandria, and growing in the Muscat-house; it was inarched about two years ago, this year it is carrying two bunches, which are quite black. We have also Duke of Buccleuch inarched on Black Hamburg, which always gives us bunches good in size and colour, but some of the berries crack at the footstalk; this, however, is not the fault of the stock, as the Duke does the same on its own roots. When the Alnwick Seedling was inarched two spurs were left on the stock below the union; on these we sometimes allow a bunch to remain, we have then white and black on the same roots, and both all that could be desired in colour, according to their respective kinds. I think that when a black Grape, grafted on the stock of a white one, will not colour well, the cause must be sought for elsewhere in the stock—most probably it will be in the border in which it is growing. A. Baker, *Hindlip*.

—In your last issue "F. L." says he has never been able to produce satisfactory black Grapes from a union with a white. I may state that at a fruit show held at Luton on September 29 Messrs. Lane & Soas, of Berkhamstead, showed a collection of Grapes and other fruits. Conspicuous among the Grapes shown were three bunches of Gros Colmar in marvellous perfection; the colour was equal to the finest Gros Maroc or Alnwick Castle Seedling. I asked Messrs. Lane's manager in charge which stock they preferred for Colmar; he informed me, nothing but Foster's Seedling (white). I confess that for finish I never saw anything that could surpass them, and any one who wishes to grow the Colmar in proper form may safely follow in Messrs. Lane's footsteps. W. M. B.

Gynierium jubatum.—Some time since I met with a description of what purported to be a new and very interesting plant, *Gynierium jubatum*. I purchased it at once, but alas! it is now in flower, and proves a very inferior variety of *Gynierium argenteum*. Query: Is there such a plant as *G. jubatum*, and what is it like? Charles Noble.

Pears and Apples in the North.—I notice in your report of the fruit show at South Kensington that the Marie Louise Pears from Lambton Castle, Durham, took third honours; with a remark that they were fine fruit for that northern county. It would be interesting to know if the Pears were grown under glass or in the open air. Lambton Castle is something like 50 miles north of this place, our soil is especially good for Pears, but on account of the lateness of the season we have nothing approaching to ripeness or size to compete with the Southern growers. I have on two occasions taken second honours for Marie Louise Pears at South Kensington, and once I took first for the heaviest Alfriston Apple. Mr. Snow of West Park, Surrey, taking second in the following year we chased places—he was first and I second. On those occasions the summers were summers; and we were able to compete with Southern growers of fruit on more equal terms. For the last seven or eight years I have had no fruit to equal those in size; the warm seasons have been so short and dull, it was almost impossible to grow fruit to its natural size; and, so far as we are concerned, this season has

been one of the worst. Although the month of May was so disastrous for the Apple and Pear bloom, I found the greater part of blossoms very small and imperfect, almost entirely without the pistil, consequently no fruit could be expected; this must have been caused by the cold, dull weather of 1885. The month of May in this year was especially bad for fruit; we had rain on twenty-one days, in all 4½ inches, and, what was worse, we had frost more or less on twenty-eight nights, in consequence many of the immature-formed buds did not open in the spring, but have flowered all through the summer, to the horror of the superstitious, who fancied something terrible must happen in consequence. The farmers, too, are suffering in the North from the late season. The lateness in a great measure was caused from the bad weather in the months of April and May, so that the corn crops could not be got into the land for quite six weeks after their proper time. This and a bad autumn is most disastrous to the Northern farmer—many of them as yet have never housed a sheaf. Up to the time I now write (October 18) we have had 3½ inches of rain in this month. From the cause I have stated the farmers are behind with their crops—I am behind with the Pears. If our friend in Durham will give us a hint how he has grown these fine Pears in this bad season he will do myself and others a kindness, and also prove himself a grower of big Pears as well as a grower of big Grapes. William Culverwell, North Yorkshire.

Pears.—In order to avoid confusion it is well to notice while this subject is being discussed that "Ketton Hall," as part of the signature on p. 502 is a mistake, it should be "Wierton, Maidstone," instead, which is very different in climate to this place. In addition to what I have already said on this subject, now that the season is almost over I would again testify to the good qualities of Sturdy as a late crop Pear; our latest sowing of this variety was made on June 18, together with Dr. Maclean, Yorkshire Hero, and Walker's Perpetual; Dr. Maclean was ready to gather on September 23, Sturdy, September 7; Yorkshire Hero, September 9; Walker's Perpetual, September 18. Yorkshire Hero and Dr. Maclean were soon over; the other two varieties are bearing now, and will continue for some time longer, if frost does not kill them. Walker's Perpetual has the heaviest crop at the present time, but for flavour and appearance, both before and after cooking, Sturdy is much the better of the two. I have this day (October 18) had a dish of it for dinner that was good enough for a king, or any one else. This variety was raised by Lawson, and distributed by Messrs. Veitch. W. H. Divers, *Ketton Hall, Stamford*.

Veitch's New Pear, Prodigy.—I think this Pear should not be blamed for shedding its bloom as described by Mr. Divers. I am of opinion that any Pear, whatever name it may go by, would stand a poor chance "on a dry soil, and with a scorching sun, and no means of watering." I am very pleased with it, grown on good ground, with plenty of manure underneath it, and one or two good dressings of water; it has been very much praised. It certainly has a grand appearance when well grown, and, as Mr. Divers says, it cooks of a nice green colour, and is good at table. What more can be desired? G. Merritt, *Kington Hoo, Herts*.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON.
FOR THE WEEK ENDING WEDNESDAY, OCTOBER 20, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.		HYGROMETRIC DEVIATIONS FROM GLAISHER'S TABLES 3d Edition.	WIND.	RAINFALL.
	Mean.	Reduced to 32° Fahr.	Highest.	Lowest.	Range.		
					Mean for Month.		
					Departure of Mean from Average of 30 years.		
					Dew Point.		
					Difference of Mean from Sat. = 100.		
					Average Direction.		
Oct.	In.	In.	In.	In.			In.
14	29.56	— 0.14	58.0	39.0	19.0	84	S.W. 0.00
15	28.88	— 0.83	59.0	45.5	13.5	91	S.W. 0.30
16	28.51	— 1.15	55.0	46.5	8.5	91	N.N.W. 0.01
17	28.90	— 0.83	53.0	47.0	6.0	79	Var. 0.00
18	29.24	— 0.47	55.0	53.0	2.0	95	S.E. 0.04
19	30.40	— 0.31	59.0	45.0	14.0	95	S.E. 0.00
20	29.51	— 0.10	59.0	47.0	12.0	96	S.E. 0.02
Mean	29.35	— 0.50	57.4	44.7	12.8	91	S.W. 0.37

- Oct. 14.—Fine and bright generally, but at times overcast and dull.
— 15.—Bad stormy day, readings of barometer decreasing all day, and at midnight was 28.69.
— 16.—The morning rough and stormy. At 11.30 A.M. the barometer reading was 28.44. A bad day throughout.
— 17.—Very dull and rough morning, the weather moderated towards the evening.
— 18.—Overcast all day, morning misty, showery in evening.
— 19.—Morning dull, afternoon bright. Lightning at night.
— 20.—Generally a dull damp day.

LONDON: Atmospheric Pressure.—During the week ending October 16th, the reading of the barometer at the level of the sea increased from 29.42 inches at the beginning of the week, to 29.98 inches by 1 P.M. on the 11th, decreased to 29.13 inches by 9 P.M. on the 12th, increased to 29.78 inches by the afternoon of the 14th, decreased to 28.62 inches by half-past 11 on the 16th, and was 28.81 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.43 inches, being 0.35 inch lower than last week, and 0.44 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 60° 5, on the 11th; the highest on the 13th was 54°. The mean of the seven high day temperatures was 58°.

The lowest in the week was 39° on the 14th; the lowest on the 12th, was 50° 5. The mean of the seven low night temperatures was 45° 3.

The greatest range of temperature in one day was 19° on the 14th, the smallest was 8° 5 on the 16th. The mean of the seven daily ranges was 12° 7.

The mean daily temperatures were, 51° 7 on the 10th, 52° 7 on the 11th, 55° 2 on the 12th, 49° 2 on the 13th, 48° 5 on the 14th, 51° 9 on the 15th, and 50° 2 on the 16th. These were all above their averages with the exception of the 13th and 14th, which were 1° 5 and 1° 9 below, by 0° 1, 1° 4, 4° 2, 1° 7, and 0° 2 respectively.

The mean temperature of the week was 51° 3, being 6° 8 lower than last week, and 0° 6 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 114° on the 10th. The mean of the seven high readings was 84° 9.

Rain.—Rain fell on six days to the amount of 0° 72-inch.

ENGLAND: Temperature.—During the week ending October 16th, the highest temperatures were 64° 6 at Cambridge, 63° at Truro, and 62° at Leeds; the highest at Newcastle was 56°, at Preston 58°, and at Wolverhampton 58° 4. The general mean was 60°.

The lowest temperatures were at Wolverhampton 34° 8, at Cambridge 38°, and at Blackheath 39°; the lowest at Truro was 47°, at Plymouth 46° 5, and at Liverpool 45° 6. The general mean was 41° 9.

The greatest ranges of temperature were at Cambridge 26° 6, at Wolverhampton 23° 6, and at Blackheath 21° 5; the least ranges were at Newcastle 12°, at Preston 13°, and at Liverpool 13° 2. The general mean was 18° 1.

The mean of the seven high day temperatures was highest at Cambridge 59° 6, at Truro 59° 1, and at Plymouth 58° 9; and lowest at Newcastle 54° 5, at Sheffield 55° 1, and at Bradford and Sunderland 55° 5. The general mean was 57°.

The mean of the seven low night temperatures was highest at Truro, 49° 4, at Plymouth 48° 6, and at Brighton 48° 4; and was lowest at Wolverhampton, 40°, and at Nottingham and Hull 43° 7. The general mean was 45° 9. The mean daily range was greatest at Wolverhampton 15° 8, at Cambridge 14° 5, and at Hull 14° 2; and least at Newcastle 8° 4, at Preston 8° 7, and at Liverpool 8° 8. The general mean was 11° 1.

The mean temperature was highest at Truro 53° 2, at Plymouth 52° 7, and at Brighton 51° 8; and was lowest at Wolverhampton 46° 9, at Sheffield 48° 5, and at Sunderland 49° 2. The general mean was 50° 4.

Rain.—The largest falls were 3.19 inches at Truro, 3.10 inches at Bristol, and 2.13 inches at Brighton; the smallest falls were 0.72 inch at Blackheath, 0.95 inch at Wolverhampton, and 1.03 inch at Sunderland. The general mean fall was 1.57 inch.

SCOTLAND: Temperature.—During the week end-

ing October 16th, the highest temperature was 62° at Glasgow; the highest at Leith was 57°·5. The general mean was 59°·2.

The lowest temperature in the week was 34°·1 at Aberdeen; the lowest at Greenock was 42°. The general mean was 39°.

The mean temperature was highest at Edinburgh and Greenock 50°·1; and lowest at Aberdeen 48°·3. The general mean was 49°·6.

Rain.—The largest fall was 3·43 inches at Greenock, the smallest fall was 0·36 inch at Aberdeen. The general mean fall was 1·41 inch.

JAMES GLAISHER, F.R.S.

Obituary.

ZADOK STEVENS.—The announcement of the death of "Stevens of Trentham," on Wednesday, the 20th inst., though it will not come as a surprise to those who knew the precarious state of his health, will occasion the sincerest regret. Mr. Stevens was so excellent a practitioner, and at the same time a man of such force of character and uprightness that his loss will be severely felt. Stevens occupied a high place in the foremost rank of practical gardeners. We believe that he was foreman at Trentham under Mr. A. Henderson, and afterwards filled a position in the nurseries of Messrs. Veitch at Chelsea, where he gained great credit for his successful cultivation of the Azalea. On the retirement of Mr. Henderson, Stevens was appointed by the Duke of Sutherland as head gardener at Trentham, an establishment which he conducted with marked ability, excelling in the culture of fruit and of cool Orchids for upwards of twenty years. He naturally took a prominent part in the leading horticultural events of his time, and was one of the trustees of the Veitch Memorial Fund. Last year he showed signs of pulmonary disease and passed the winter and spring in Egypt, where he recovered to such an extent that he was enabled to be present at the meeting at South Kensington on October 13. As a writer he was not a frequent correspondent of the journals, but his clear-sightedness and thoroughly practical character invested what he wrote with special value and significance. Mr. Stevens died at Trentham on the day mentioned, in his fifty-third year. In our columns, pp. 505 and 540, in 1872, we published an article describing the gardens of Trentham, and there demonstrated that under the energetic management of Mr. Stevens the old fame of Trentham was not only maintained, but enhanced; and so it continued to be, even under altered circumstances, to the last.

MRS. STENGER.—A very sad loss has befallen Mr. Hermann Stenger, who must be known to many of our readers as having been the representative of various houses, and latterly of MM. Vilmorin, Andreux & Co. Owing to total paralysis of the lower half of the body Mr. Stenger has been almost entirely dependent upon his wife for the last few years, and now, to his inexpressible grief, his devoted helpmate has been taken from him by an attack of apoplexy. This terrible calamity occurred, we are informed, on Thursday, October 14.

MR. BRADLEY.—With deep regret we have to announce the death of Mr. Bradley, who died on the 14th inst. Mr. Bradley was born in 1819, at Powis Castle Gardens, Montgomery. His father was for many years head gardener to Lord Powis, he commenced his career in the horticultural world in the gardens at Powis Castle, under his father, and from there went to Dropmore, under Mr. Frost. He was appointed head gardener to Sir Morton Peto, Bart., at Somerleyton Hall, Lowestoft, Suffolk, where he gave great satisfaction. From Somerleyton Hall he was engaged by the late E. L. Betts, Esq., as head gardener at Preston Hall, Aylesford, Kent, and on the estate changing hands he was still employed as head gardener by H. A. Brassey, Esq., the present proprietor. For the last seven years the gardening world has lost his services. Mr. Bradley having taken a farm on the Preston Hall estate. He was at one time a frequent contributor to the *Gardeners' Chronicle* and other gardening journals. As a friend he was genial and straightforward, and his death will be deeply felt by many of his friends. He has left a widow and family.

Enquiries.

"He that questioneth much shall learn much."—BACON.

AMERICAN BLIGHT AND TROPÆOLIUM MAJUS.—In New Zealand the American blight is very common in some districts on the Apple tree, and as a protection the common Nasturtium (*Tropæolum majus*) is planted at the root and allowed to ascend the stem. Has any one tried the remedy in this country? A. Y. Z.

LEATHER CLIPPINGS AS A MANURE.—I shall be glad if any of your correspondents will kindly give me the results of any experiments they may have made with such material as the above-named. As you are no doubt aware, it is recommended by the makers of good food for Vines, &c. W. H. [No doubt it would be a good ammonia-yielding manure, but slow in action.]

Answers to Correspondents.

BOOKS: P. T. J. Sell them to some second-hand bookseller, or send them to some firm of auctioneers of literary property. None of the books named, however, are likely to be of much commercial value now.

CANADIAN SEEDS: W. R. Apply to the Commissioners of the Canada at the Colonial Exhibition, South Kensington.

CELERY DISEASES: C. F. P. *Eglam.* The Celery is badly infested with the fungus named *Puccinia bulata*. It is very common and virulent this season, and in some instances spreads to Parsley. All infected plants should if possible be destroyed. W. G. S.

CHRYSANTHEMUM PETITE MARIE: *Hooden & Co.* This pretty small-flowered variety, if it has been in flower outside since August 1, is a welcome addition to our early varieties. The colour—sulphur-yellow—is clear, and the flower neat and full.

CORRECTIONS.—In our report of the meeting of the Royal Horticultural Society, in our last issue, Messrs. F. Sander & Co., St. Alban's, were credited with having shown a spike of flower of *Cattleya Gaskelliana* alba, which it should have been *C. J. Parsonson*, the House, Cheshunt, exhibited, &c. At end of article "Pea Prodigy," &c., commencing at end of last column of p. 501, for "W. Diver, Ketton," read W. Diver, Weirton, Maidstone.

DOUBLE AND SINGLE MARIGOLDS: W. Candwell. Nice varied blooms, with plenty of substance.

EUCHARIS: R. S. T. Probably there is something amiss with the bulbs. Send one up for us to examine.

GOLDEN FEATHER: G. Smith. The pure white Bachelor-button-like flowers and showy yellow foliage would make this a useful bedding plant.

LAPAGERIA ALBA: W. S. Such clusters are common on shoots that have been stopped or otherwise hindered in onward growth; and the more vigour there is in the plant the larger becomes the bunch of bloom.

NAMES OF FRUITS: H. F. 1. Souvenir du Congrès; 2. Marie Louise; 3. Louise Bonne de Jersey; 4. Beurré de Capiaumont; 5. Beurré Diel; 6. bruised and spoilt. — G. Dyke. 1. Antoine Bergamot; 2. Nouveau Poiteau; 3. Comte de Paris; 4. Pitmaston Duchess; 5. Beurré Sterckmans; 6. not known. — G. S. C. 1. Duchesse d'Angoulême; 2. Beurré Diel, very fine; 3. Hanwell Sourcing. — R. McK. 1. Cox's Pomona; 2. Mother; 3. Tower of Glamis; 4. Early Nonpareil; 5. Yorkshire Greening; 6. Wyken; 7. *Golden Wonder*; 8. Alexandre Lambert; 2. Gansel's Bergamot. *Apple:* 1. Scarlet Pearmain; 2. not known. — T. W. R. 1. Madame Treve; 2. White Doyenné; 3. Passe Colmar; 4. Fondante d'Automne; 5. Figure d'Alençon; 6. Doyenné Boussoch; 7. Passe Colmar; 8. Aston Town; 9. Duchesse d'Angoulême; 10. Vicar of Winkfield; 11. Franc Real d'Été; 12. Paradis d'Automne. Another time do not send more than six varieties. — L. A. 1. Beurré d'Amanlis; 2. Chamoisette; 4. Colmar d'Aremberg; 5. Duchesse Hélène d'Orléans; 6. rotten; 8. Thompson's *Apple*; 7. Old Nonpareil. — H. R. G. 1. Haddon's Incomparable; 2. Winter Crassane; 3. Pitmaston Duchess; 4. Bellissime d'Hiver; 5. Marie Louise; 6. Beurré Diel. *Apples:* 1. Hawthornden; 2. Winter Codlin; 3. Peasgood's Nonsuch; 4. *Chapman*; 1. Norfolk Spiced Pippin; 2. Evesham; 3. Rymmer. *George Wallis*, 1. Old Nonpareil; 2. Beurré Diel. — *Eyrus*. 1. Beurré Rance; 2. Beurré Gris; 3. Winter Nelis; 4. and 5. Beurré Diel; 6. Shobden Court? — W. C. M. 1. not recognised; 2. Beurré Superfine; 3. Souvenir du Congrès; 4. Incomte; 5. Beurré de Capiaumont; 7. *Fraser*; 1. King Edward; 2. Reineite Blanche d'Espagne; 3. Calville St. Saviour; 5. Gooseberry Pippin; others not recognised. — G. L. C. 1. Vicar of Winkfield; 2. Marie Louise; 3. Beurré Rance; 4. Bonne d'Ézée; 5. Fondante d'Automne; 6. Ne 21. Meuris. *Apples:* 1. Cox's Pomona; 2. Gravenstein.

NAMES OF PLANTS: *Hort.* *Lycopersia formosa*; not a weed, as the gardener supposes, but a native of Nepal introduced in 1824. Given space to develop it makes a handsome bush; the stems require to be thinned out and shortened back with a knife in March. — *Geo. F.* Solanum dumetorum? *Drace.* *Fuchsia:* 1. an old variety but little grown now. Send to such a florist as Mr. Cannell, Swanley; 2. F. coccinea (magnifica). — M. C. Lælia Perrini. — *Colonel E. S. Berkeley.* Poor flowers of Dendrobium chrysanthum. What is the habit of the plant? — S. Ford. *Sicyos angulata* (a Gourd). — E. C. L. *Thuja gigantea*

(Lobbi of some gardens). — C. S. *Retinospora squarrosa*; the Asters next week. — J. Maclean. 1. *Fuchsia magellanica*; 2. F. Riccartoni; 3. F. corallina. The Tobacco leaf sent was of a nice tint of yellow, and had the true aroma of the cured leaf. The single Dahlias are distinct, and worth cultivating if their habit is good. — *Coxe, Foia Island*. — 1. *Cupressus Lawsoniana*; 2. C. torulosa; 3. C. sphaeroides; 4. C. Corneana. — K. W. J. 1. *Spiraea sorbifolia*; 2. *Rhus radicans* probably; 3. *Crataegus pyrifolia*, but we are not sure; 4. *Cotoneaster frigida*; 5. *Platanus orientalis*; 6. *Libocedrus decurrens*. — J. P. A. *Oxford Street*. Probably *Epilobium montanum*, but the specimen is a wretched one. — W. S. *Lancaster*. *Empetrum nigrum*. — W. H. *Rogers*. The Oak is *Quercus coccinea*, which bears galls formerly used in dyeing. The Tree Groundsel is *Baccharis halimifolia*, a good seaside plant. — F. Oliver. *Lælia Perrini*. — *Hooden & Co.*, and T. W. R. We cannot name plants from a leaf only. — H. F. *Callistemon salignus* (?), but cannot be sure without flowers.

PEA, KING OF THE MARROWS: F. Taylor. Good colour and fair flavour when cooked; and if it is still bearing, whilst Ne Plus Ultra, sown in the same day, is past, the sort is worth growing, apart from its freedom from mildew.

PEACH TREE BORDER WITH LOAM AND COCOA-NUT FIBRE: J. Do not use the fibre, but rather some well-rotted stable manure, if the loam be poor in quality. The fibre may engender fungus; and, at that, it is not so manurial as fibre.

POTATO: H. O. *Newry*. The red colour is due to a minute fungus, *Micrococccus prodigiosus*, the sudden appearance of which on provisions has sometimes given rise to much superstitious alarm, from the idea that it was blood. It would be interesting to know under what conditions the Potato grew, and whether others in the same field were similarly affected.

SEEDLING PEAR: *Foirs*. Your Pear is of good flavour, and of pleasing appearance. It is a little weak in the core, but there are many more so. If it be hardy, and a good bearer as a standard, it is worth increasing.

TOMATOES WITH THIN SKIN WHEN GROWN IN A HOTHOUSE: A. H. Out-of-doors the fruits have thicker skins than the same would grow in a hothouse, owing to their slower growth.

TSUGA BRUNONIANA: E. C. L. Try Messrs. J. Veitch & Sons.

INTELLIGENT READERS, DO PLEASE NOTE.—*Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and NOT to the Editor.*

CATALOGUES RECEIVED.

J. CHEAL & SONS, Lowfield Nurseries, Crawley, Sussex — Trees, Roses, &c.

T. RIVERS & SON, Sawbridgeworth, Herts.—Fruit Trees and Roses.

JAMES COCKER & SONS, Aberdeen, N.B.—Roses.

CHARLES TURNER, Royal Nurseries, Slough — Fruit Trees, Roses, &c.

COOLING & SONS, Bath, Somerset—Roses and Fruit Trees.

DAMMANN & CO., San Giovanni a Teduccio, near Naples.—General Seed Catalogue.

BADET FRÈRES, Pépinière de Crouches, Troyes, Aube.

FRANCE, Trees, Shrubs, Roses, &c.

COMMUNICATIONS RECEIVED.—Tribner & Co.—W. B. R. S. — B. S. H. G. Robb. F. C. R. H. — P. McQ., Cape Town. — Der Praktische Garten Freund. — W. W. — C. Valardi, Milan. — W. F. H. — J. H. — H. C. H. — J. v. Volken, Brussels. — J. R. J. — M. Regnier, Paris. — F. C. Heineemann. — F. W. — J. R. J. — A. — D. F. Sander. — Wild Rose. — J. B. A. — D. — S. R. P. — Sutton & Sons. — A. B. — W. Heale (the cove with thank). — C. Smith. — R. B. I. — I. O. W. — H. V. A. — B. C. W. — C. P. C. — A. N. I. — G. H. G. — E. P. H. E. — Owen Thomas. — W. Candwell. — A. W. J. S.

Markets.

COVENT GARDEN, October 21.

TRADE continues quiet; no alterations to quote. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.		
Apples, ¼-sieve	1	6	3	Peaches, per dozen	3	0	8
Figs, per dozen	0	0	1	Pears, per dozen	0	1	6
Grapes, per lb.	0	0	5	Pine-apples, Eng., lb.	3	0	0
Crab Cobs, 10 lb.	0	5	0	— St. Michael, each	2	6	0
Leeks, per case	1	13	0	Plums, ¼-sieve	0	9	2
Melons, each	1	0	0				

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4	0	Mint, green, bunch	4	0
Aubergines, each	0	3	Mushrooms, punnet	4	0
Beans, Kidney, lb.	0	6	Mustard and Cress, doz.	6	2
Beet, red, per dozen	1	0	Onions, per bushel.	4	0
Brussels Sprouts, lb.	0	4	Parsley, dozen bunch	3	0
Carrots, per bunch	0	6	Potatoes, per cwt.	4	0
Cauliflowers, per doz.	3	0	Kidney, per cwt.	4	0
Celery, per bundle	1	6	Shallots, per bushel	0	3
Cucumbers, each	0	6	Spinach, per bushel	3	0
Eddies, per dozen	0	6	Tomatoes, per lb.	0	9
Herbs, per bunch	0	4	Turnips, bunch	0	4
Leeks, per bunch	1	0	Veget. Mar., each	0	3
Lettuce, per dozen	1	0			

POTATOES.—Kent Regents, 80s to 90s.; Schoolmasters, 70s. to 80s.; Beauty of Hebron, 90s.; 7 Champions, 45s. per ton.



THOMAS GREEN & SON, LIMITED,

Smithfield Iron Works, Leeds, and Surrey Works, Blackfriars Road, London, S.E.,

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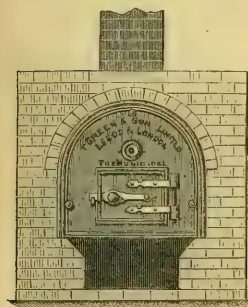
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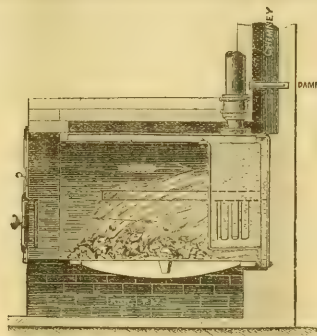
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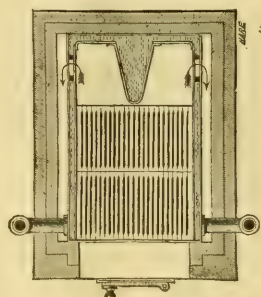
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SECTIONAL PLAN.

The cross section gives a view of the fire-box, water space, and V shaped back.

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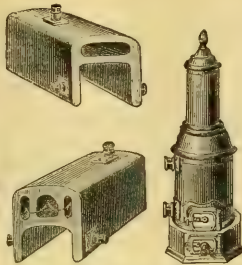
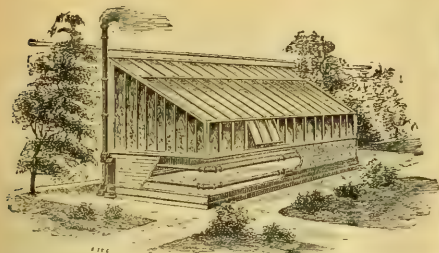
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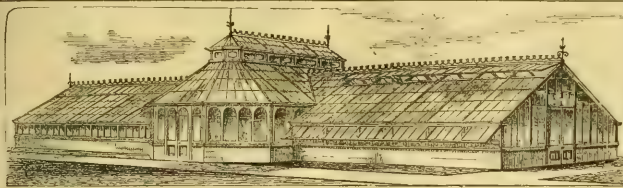
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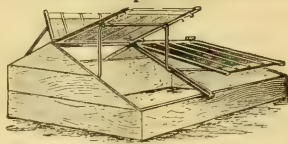
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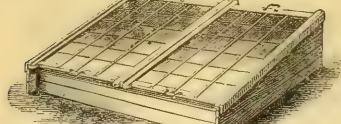
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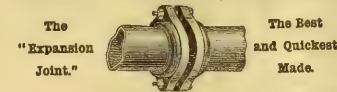
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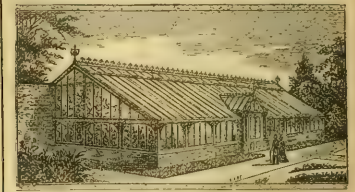
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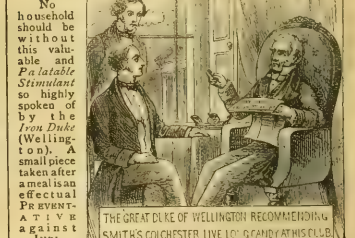
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From THE GARDEN, October 10, 1885.

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From THE GARDENERS' CHRONICLE, October 31, 1885.

"Ye Original Little Booke of Daffodils.—A pretty illustrated Catalogue of the Daffodils, by Wm. Baylор Hartland, of Temple Hill, Cork, has reached us. The numerous illustrations seem very correctly done, one of the best being a plate of the white *Cornus* varieties from photographs, and exhibited on a black ground. The text is historical and controversial, and authorities are freely quoted, so that it is something more ambitious than a trade list."

From THE MANCHESTER CITY NEWS, August 15, 1885.

"DAFFODILS.—A Little Book of Daffodils is the title of a pamphlet by Mr. W. B. Hartland, of Cork, a famous cultivator of the famous Narcissus. It is in reality a catalogue, but the classification, notes, and illustrations raise it above publications of this kind, and will make it acceptable to all who wish to cultivate these 'spring delights,' or who desire to have the latest information concerning them. A correspondent, whose initials ('F. J. B.') give horticultural weight to his words, sends us the following note on Mr. Hartland's book:—'In sending to me, meeting of the Lancashire Botanists' Association, last spring, a collection of blooms which probably surpassed in novelty, size, and beauty of form any exhibition that had ever been held in Manchester, Mr. Hartland expressed himself like a warm-hearted Irishman, how pleased he was to make this contribution in 'loving remembrance of the late John Horsfield, the Lancashire weaver,' who raised that King of Daffodils, Horsfield, which has now become so famous. Mr. Hartland's book is beautifully illustrated, so that he who runs may read it as were. Coming upon us at this season (if the year, the best time for taking the bulb), it is doubly welcome.'"

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From FRANK MILLS, Esq., *Shirlington, Bristol*.
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From Rev. G. E. ENGLEHEART, *Appleton, Andover*.
"Since writing to you I have received your 'Little Booke of Daffodils,' for which I am much obliged. It is very nicely got up and most interesting."

From F. W. BURRIDGE, Esq., *Dublin*.
"Your 'Little Booke' is well done. Printing and descriptions exquisite. Makes one long for more illustrations."

From VERONICA'S NOTES, *"The Garden"*.
"Mr. Hartland has done good service in hunting up the 'Swan's Neck' and other rare old Daffodils, which have lingered in that 'Eden of the West,' 'Faerie Irelande,' as Chaucer has it."

A LADY writes:—
"Your book about Narcissus is very interesting, but is it not too imaginative and Eastern? Surely you must have been dreaming of the prophet Mahomet, who said that if a starving man had two cakes of bread he should sell one of them and buy some flowers of the Narcissus: for that bread was only food for the body, but Narcissus was the 'food of the soul.'"

Extract from THE QUEEN, August 27, 1885.
"The original 'Little Booke of Daffodils' is very well arranged and illustrated, issued by Mr. W. B. Hartland, of Patrick Street, Cork. Lovers of Daffodils would do well to procure this elegantly got up book."

From THOMAS ROGERS, Esq., *Hon. Sec. Manchester Botanical Association*.
"Sir,—I have to thank you most cordially on the part of the Manchester Botanical Association, for the handsome contribution of Daffodil flowers which you sent for a special occasion on April 12. The President of the Association, Mr. James Percival, said that he had no hesitation in declaring the collection was the finest ever seen in Manchester."

"* * Please see 'Satirical Criticism' on the above Little Booke in THE GARDEN for October 2, 1886, over the initials of 'G. H. E.' and to which I have been denied the right of reply, unless such reply were to emanate as a re-hash, and a meaning put upon words that I never used. I am in possession of the re-hash, which I intend to publish at a future period, so that the readers of the GARDENERS' CHRONICLE can see the two pictures."

WM. BAYLOR HARTLAND, OLD ESTABLISHED GARDEN SEED WAREHOUSE, CORK.

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1886.

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G. C.
Oct. 23. 1886.

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GRAPE VINES.—Our stock of Vines is unusually fine condition this year. A LIST of kinds and Prices will be forwarded on application to **B. S. WILLIAMS, Nurseries and Paradise Nurseries, Upper Holloway, London, N.**

SEAKALE for Forcing, superior selected Crowns, 9s. per 1000; under 500, 10s. per 1000. Orders to be accompanied by cheque or Post-office Order.—**ALFRED ATWOOD, Grower, 51, Shillington Street, Battersea, S.W.**

Wednesday and Saturday Next.

CHOICE MANE INDIAN AZALEAS, CAMELLIAS, PALMS, FIGS, and other PLANTS from Ghent; MARIGOLDS, CONIFERS, CRINUMS, FREESIAS, EUPHORAS, English-rose, Standard and Dwarf Roses, BORDER PLANTS, &c.

MR. J. C. STEVENS will include the above in his SALES by AUCTION at DUTCH BURLS, at his Great Rooms, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, November 3 and 6.

On view mornings of Sale and Catalogues had.

Thursday Next. (Sale No. 7259.)

LILIUM AURATUM—Received direct.

First consignment of the season.

500 extra fine Buds just received from Japan, in splendid condition.

Also fine Plants of OONTOGLOSSUM EHRENBRECHTII, and other MEXICAN ORCHIDS.

Home-grown LILIES, CRINUMS, FREESIAS, EUPHORAS, and other BULBS: South African TUBEROSES, 8400 Seeds of PHOENIX RECLINATA, &c.

MR. J. C. STEVENS will SELL the above by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, November 4 at half past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Milford Nurseries, near Godalming, Surrey.

IMPORTANT FINEST SALE of FIRST-CLASS NURSERY STOCK.

MR. J. C. STEVENS has received instructions from Mr. Maurice Young, to SELL, by AUCTION, on the Premises, at 12 o'clock, on WEDNESDAY, November 3, and on FRIDAY, November 10, 20, 21, and 22, at 12 o'clock precisely each day, beautifully grown NURSERY STOCK, in capital condition for removal, including about—

300 mixed EVERGREENS and CONIFERS in Borders; 500 Yews, 4 to 6 feet; 500 Aucubas, 2 to 3 feet; 500 Thuja Lobbi, 2 to 4 feet; Silver Fir, Cedrus Deodara, &c., 6 to 12 feet.

300 CUPRESSUS LAWSONIANA, 3 to 5 feet; 500 Cupressus Lawsoniana lutea, 300 gracilis and others, 1½ to 2½ feet; 500 Abies Douglasii, 3 to 10 feet; and 300 Golden Irish Yew, 2 to 3 feet.

6000 RETINOSPORA PLUMOSA AUREA, and FLAVESCENS, 1½ to 2½ feet.

2000 VARIATED GREEN BOX, 3 to 5 feet; 4000 St. John's Wort, 2000 Berberis aquifolium, 1½ to 2 feet.

2000 LIGUSTRUM OVALLIFOLM, bushy, 4 to 6 feet; and 2000 mixed Evergreen Privet, 2 to 4 feet; 2000 Purple Lonicera, 2 to 4 feet; and 2000 other Flowering Shrubs.

10,000 LAURELS of sorts, 1½ to 2½ feet.

6000 choice named and unnamed RHODODENDRONS, Clematis, and other climbers, Standard and Dwarf Roses.

30 specimens Young's Golden Chinese JUNIPER, 4 to 7 feet.

5000 SPRUCE FINEA, 10 to 12 feet, suitable for Christmas Trees.

2000 transplanted QUICK.

10,000 ORNAMENTAL and FOREST TREES, consisting of Sycamore, Norway Maple, Black Italian, Ontario, and Ashle Poplars, Laburnums, &c., 5 to 10 feet.

May be viewed a week prior to the Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.

N.B.—The Nurseries are situated ¼ of a mile from Milford Station, and 1 mile from the new Godalming Station, on the direct line to London.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his NEXT SALE of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 10, and he will be assisted by Mr. G. C. DOWSETT, of WATERLANS PLANTS for this SALE, will please send particulars as soon as possible.

Seaford, Sussex.

TO THE Nobility, Gentry, and Others engaged in Planting.

IMPORTANT SALE of NURSERY STOCK, comprising about 60,000 Plants, to be sold by Auction, at the Nursery, Seaford, on FRIDAY, November 10, at 12 o'clock precisely. The stock consists of—

Privet, Virginian Creepers, Honeysuckles, Lilium candidum, Caranthes, Thistles, Ivies, Pyracantha, Veronicas, Geraniums, Syringas, and other flowering plants.

Lawsonia erecta viridis, Lilacs, Ribes, Lavender Cotton, Helleborus, &c.; also a few Rhubarb and Artichokes.

Seaford, on FRIDAY, November 10, at 12 o'clock precisely.

The whole of the well-grown Nurseryman's Stock as above.

The whole may be viewed on application on the day previous to the Sale.

Catalogues are being prepared, and may be obtained of the Auctioneers, at Hailsham and Lewes.

By Order of the Trustees of the late W. S. Emden, Esq., and at nominal reserves, the remaining portions of the estate, with all its great rooms, and accounts prior to the end of the year. Three Family Residences (one with stabling and an unusually large garden), situated on the coast at Hailsham, Hampshire, N.W., about 200 feet above sea level.

MESSRS. DEBENHAM, TEWSON, FARMER, and BRIDGEWATER will SELL, at the Mart, on THURSDAY, November 3, at 12 o'clock, the capital FARMY RESIDENCE, No. 18, Upper Park Road, Haverstock Hill, N.W., comprising seven bed chambers, bath room, three reception rooms, and offices, stabling, coach house, and carriage upwards of one acre of land, for many years occupied by the Testator. With possession.—Also, in separate lots, the two similar Houses, with gardens, No. 16 and 18, Upper Park Road, Haverstock Hill, N.W., for many years occupied by the Testator.

Particulars of Messrs. BOLTON, ROBBINS and BUSK, Solicitors, of 40, Abchurch Lane, London, E.C., and of the Auctioneers, 80, Cheapside, E.C.

To Nurserymen and Others.

FOR SALE, a most complete and Old-established NURSERY and FLORIST'S BUSINESS in an extremely good locality, situated 1½ mile from the centre of the town of Birmingham. There are seven good Greenhouses, well stocked, top and bottom, and a large open space of 10 acres.

Apply H. COLLINS, 350, Moseley Road, Birmingham.

FOR SALE, an Old-established SEED, NURSERY, and FRUIT BUSINESS, in good Market Town in North of England. Satisfactory reasons given for disposal. Incoming light.

A rare opportunity for a pushing man.

Apply to JOHN MONKHOUSE, Accountant, Kendal.

To Gardeners and Others.

ABOUT 20 ACRES of very productive LAND TO BE LET, at a Low Rent. The Property is situated near two Railway Stations, and within easy distance of the City and West End. It comprises three large and well-stocked walled Kitchen Gardens with numerous Glasshouses, Flower Gardens, and rich Pasture Land.

Particulars of the Property apply to MESSRS. TEWSON, FARMER and BRIDGEWATER, 80, Cheapside. (35,363.)

To Market Gardeners, Florists, &c.

TO BE LET, with Immediate Possession, 33 Acres of LAND, of excellent quality; well adapted for Fruit Trees, Strawberries, Roses, &c. Fourteen miles south-west from London, and close to a station.

For terms apply to Messrs. DOWSETT and WOODS, 70, Lincoln's Inn-Fields, W.C.

Grape and Tomato Houses.

TO BE LET, with Immediate Possession, Six GLASS HOUSES, 112 feet long by 20 feet 6 inches wide. Recently erected; with Hot-water Pipes, Patent Ventilating Gear, and all modern improvements. A detached Dwelling House, and something over an Acre of Ground. Situated in the best Grape and Tomato district in England.

Apply by letter to FREEHOLDER, Box 352, Advertisement Offices, 24, Wellington Street, Strand, London, W.C.

Hartland's Original

"LITTLE BOOK," DAFFODILS, COWSLIPS, OXLIPS, and PRIMROSES.

The several statistical remarks of "G. H. E." all about Jacob's Stone, The Lost Tribes (the Irish) and Aesthetic, appearing in the "G. H. E." of 1885, have been reprinted, and are now published in combination with "H. B. H.'s" reply (in full), dealing with the history of "white" and other Trumpet Daffodils found in the "G. H. E." of 1885, and which had been for a good sized stamped envelope. "The Book," what little of it is left, may still be had (over 50 pages) for one shilling; but in all cases the best and most complete Daffodil Catalogue, W. B. HARTLAND'S Old Established Garden Seed Warehouse, 24, Patrick Street, Cork.

G O O D A N D C H E A P —

40,000 GOOSEBERRIES, including Whinham's Industry, 15,000 APPLES, PEARS, and PLUMS, strong and healthy varieties, including ARDRALE, Gausson, Common, and Rotterdam, &c., 4 to 6 feet, extra fine. 30,000 Oval and Evergreen PRIVET, strong and bushy, 2 to 4 feet. 20,000 Large stock of TREES, including THUI, LABURNUMS, LIMES, SEAKALE, &c. Special low quotations on application. Sample of small articles free, large articles for stamps. Our special offer of choice PEAS and Beans ready shortly.

HARRISON and SONS, Seed Growers, Leicester.

DOUBLE TUBEROSES.—Extra fine.

MORLE and CO. offer the above cheaper than any House in the Trade. The principal Covent Garden Market growers purchase regularly of us, which is the best proof of quality. For price per 100, send 2000, write for Special List, 1 and 2, and 162, Fenchurch Street, E.C.

ONE THOUSAND ONE HUNDRED

FIFTY Choice FLOWER ROOTS for One Guinea, carriage paid to any address. For contents see BULB CATALOGUE, free—1 and 2, and 162, Fenchurch Street, E.C.

MORLE and CO., Wholesale and Retail Seedsmen and Bulb Importers, 1 and 2, and 162, Fenchurch Street, E.C.

DUTCH and other FLOWER ROOTS.—

MORLE and CO.'S Choice BULBS gained 1st and 2d prizes last season in competition with others costing double the money. Everything in the best and lowest prices. BULB CATALOGUE, free—1 and 2, and 162, Fenchurch Street, E.C.

FOR SALE, 36 ARUM LILIES, strong,

from 18 inches to 24 inches, in open beds; 1 specimen; ALLAMANDA SCHOTII, in good health. Apply to D. LUMSDEN, Bloxholm Hill, Lincoln.

MANETTI STOCKS, extra fine, all

clean free for eye when made, 3s. per 100, 25s. per 1000. Please see KIRK ALLY, The Nursery, Fen Drayton, St. Ives, Hunts.

To the Trade.

MR. JNO. MOOY has a large Stock of

Yellow and other sorts of CROCUSES to offer at very low prices, which may be obtained upon application.

12, White Hart Street, Catherine Street, Strand, W.C.

Novelty 1

CUPRESSUS LAWSONIANA ROBUSTA.

This variety, raised by me in 1874, and introduced into the Trade in 1881, is distinguished by its strong, erect growth, and beautiful dark green colour. It is one of the hardest varieties ever raised. It did not suffer in the least even in the severe winters of 1879 and 1880, when most varieties of Cupressus were more or less injured. Plants of 4 feet 8 inches, £6 6s. per 100; 8 inches, £10 10s. per 100.

Wholesale Trade CATALOGUE free on application.

M. C. JONGKINDT CONINCK, Tottenham Nurseries, Denmark Road, near Zeevil, Netherlands.

To the Trade and Others.

J. SADDINGTON, NURSERYMAN, & Co., J. Lifford, Carnation, Yellow MARGUERITES, CALLA ETHIOPIA, IVY GERANIUM (Madame Thibaut), Maiden Hair, PINK ROSES in pots, AZALEAS and BOUQUARDS. Also a quantity of LABURNUMS, fine plants, 12 to 18 ft. high. Prices per dozen or 100 on application.

EIGHTY THOUSAND CLEMATIS, in

4 Pots, of all the finest Double and Single Varieties (some of the flowers of which become to inches across, and are of every shade, from pure white to the darkest purple) for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.—RICHARD SMITH and CO., Nurserymen and Seedsmen, Worcester.

MESSRS. FRED. HORSMAN and CO.,

Orchid Importers and Collectors, beg to announce that their new interleaved CATALOGUE of Orchid Specialities is now ready, and will be forwarded post-free on application to FRED. HORSMAN and CO., Colchester.

STANDARD and DWARF NAMED RHODODENDRONS, very fine, are offered by

W. H. ROGERS, Esq., Nursery, Southampton.

CATALOGUES and prices on application.

THE LONDON CORN EXCHANGE

ANNUAL CHRYSANTHEMUM SHOW will be held at the Corn Exchange Hotel, Mark Lane, E.C., on TUESDAY and WEDNESDAY, November 2 and 3.

CLASS 1.—For twenty-four named blooms, 13 Incurred and 12 Japanese, open to Nurserymen and Amateurs, 1st prize, 2s. 6d.; 2d prize, 1s. 6d.; 3d prize, 1s. 3d.; 4th prize, 1s. 1d.; 5th prize, 1s. 0d. Amateurs only. Further particulars to be obtained of

Mr. HENRY ROBINS, Secretary, Corn Exchange.

Last Day of Entry, October 30.

KINGSTON and SURBITON

CHRYSANTHEMUM SOCIETY.

THE TENTH ANNUAL EXHIBITION will be held in the Drill Hall, Kingston, on TUESDAY and WEDNESDAY, November 9 and 10, and will be in addition to valuable Money Prizes, the Champion Challenge Vase, value 25 guineas, and two Cups, value 5 guineas, will be offered. Entries Close November 4. Schedules and further particulars apply to

T. JACKSON, Hon. Sec. Fire Road, Kingston-on-Thames.

NATIONAL CHRYSANTHEMUM

SOCIETY, Royal Aquarium, Westminster, S.W.

GRAND CHRYSANTHEMUM FRUIT, and VEGETABLE EXHIBITION, WEDNESDAY and THURSDAY, November 10 and 11. Schedules free on application to

Mr. WILLIAM HOLMES, Hon. Sec. Frampton Park Nurseries, Hackney, E.

Floral Committee meet on Wednesdays, October 27, November 10 and 24, and December 8, at half past 10 o'clock P.M.

RICHMOND (Surrey) CHRYSANTHEMUM SHOW.

THE SIXTH AUTUMNAL EXHIBITION of PLANTS, FLOWERS, FRUIT, and VEGETABLES will be held at the Castle Hotel, Richmond, on THURSDAY and FRIDAY, November 11 and 12. For Schedules apply to

Mr. J. H. FORD, Hon. Sec. 22, George Street, Richmond.

WATFORD CHRYSANTHEMUM SOCIETY.

President.—The Right Hon. the EARL OF CLARENDON.

THE FIRST ANNUAL SHOW of CHRYSANTHEMUMS and other AUTUMNAL FLOWERS and FRUIT will be held in the Agricultural Hall, Watford, on WEDNESDAY, November 16 and 17. Schedules can be obtained on application to the Hon. Sec. and Treasurer,

CHAS. R. HUMBERT, Watford, Entries Close on November 11.

HULL and EAST RIDING

CHRYSANTHEMUM SOCIETY.

THE ANNUAL GRAND EXHIBITION will be held in the Artillery Barracks, Hull, on THURSDAY and FRIDAY, November 18 and 19, when PRIZES to the value of £175 will be offered for CHRYSANTHEMUMS alone.

CLASS 1.—4 Blooms, 1st prize, 10s.; 2nd prize, 8s.; 3rd prize, 6s.; 4th prize, 4s.; 5th prize, 2s. 6d. 6 Blooms, 1st prize, 15s.; 2nd prize, 12s.; 3rd prize, 10s.; 4th prize, 8s.; 5th prize, 6s. 6d.

CLASS 2.—The SILVER CHALLENGE VASE, value 15 guineas, will be offered with the 1st prize in Class 1. Entries Close November 11. Schedules may be obtained from the Hon. Sec.

R. FALCONER JAMESON, Queen's Dock, Hull.

WM. HAWKSWORTH.

St. Saviour's Island, Surrey.

TO NURSERYMEN, LANDSCAPE GARDENERS, and OTHERS.

THE GUARDIANS are desirous of RECEIVING PLANS, SPECIFICATIONS, and TENDERS for LAYING-OUT and PLANTING the GROUNDS of their New Entrance, at the Victoria Ground, Champion Hill, S.E., and MAKING-UP the ROADS and PATHS, with all necessary DRAINAGE. A Block Plan of the Building, showing the necessary ROADS, and any further particulars, may be obtained on application to the Board's Architects, Messrs. JARVIS and SON, of 29, Trinity Square, Borough, S.E.

Plans forwarded to me by noon on THURSDAY, the 18th day of November next. The Guardians do not bind themselves to accept any Plan, Specification, or Tender. By order,

HOWARD J. JARVIS, Secretary to the Guardians.

Clerk's Offices—John Street West, Blackfriars Road, S.E.

October 26, 1886.

HELLEBORUS NIGER, Imported.

HELLEBORUS NIGER, extra large English clumps.

LILIUM AURATUM, in three sizes { From Japan.

LONGIFLOREM

Special low offer on application to

WATKINS and SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, London, W.C.

To the Trade.

JULES DE COCK, NURSERYMAN, Ghent.

Belgium, offers:—AZALEA, Madame Vander Cruysen, best for forcing, very strong, extra fine, covered with buds, £8 and £10 per 100; AZALEAS, very strong plants, double white, 2s. 6d., 6s., 8s., and 10s. each; DRUTZIA BICOLOR, strong for forcing, 12s. per 100; SINEENSIS, do., do., 6s. per 100; DIELYTRA SPECTABILIS, do., do., 10s. per 100; SPIRÆA JAPONICA, £4, £5, and £6 per 100; CLAVIA MINIATA, best mixed sorts, 1s., 2s., 3s., 4s., and 6s. per 100.

Cash with Order from unknown persons.

THE AUTUMN FOR FOREST PLANTING

and HEDGING.—Alder, 3 to 4 feet, 22s. per 1000.

Ash, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Birch, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Elm, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Larch, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Maple, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Pine, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Privet, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Rose, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Spruce, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Thorn, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Yew, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Box, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Cherry, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Apple, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Peach, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Plum, 2 to 3 feet, 12s. per 1000; ditto, 3 to 4 feet, 20s. per 1000.

Special offer for 20,000 Buds, 1s. 6d. per 1000.

GARLIES MITCHELL, Nurseryman, Stranraer.

DUTCH BULBS,

DIRECT FROM THE GROWERS.

ANT. ROOZEN & SON'S CHOICE FLOWER ROOTS.

OUR GUINEA PACKAGES

OF CHOICE HARDY FLOWER-ROOTS
For Indoor and Spring Gardening, much enlarged, now
contain as under:-

Collection "F" for Spring Gardening, Containing 932 Bulbs.

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| 35 Hyacinths, distinct colours | 50 Persian Ranunculus. |
| 50 Tulips, single early | 24 French Ranunculus. |
| 50 Tulips, double | 50 Snowdrops, single. |
| 24 Tulips, single late | 21 Spanish Iris. |
| 20 Narcissus, Pityanthus. | 21 Titled uniflora. |
| 20 Narcissus, inc. imparbilis. | 24 Gladioli. |
| 21 Narcissus, Pottius. | 4 Lilium umbellatum. |
| 20 Anemones, double. | 12 Scilla sibirica pænoc. |
| 21 Anemones, single. | 12 Choice Oxalis. |
| 40 Crocus, in 4 distinct colours | |

Collection "C" for Indoor, containing 284 Choice Bulbs for Pots and Glasses.

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| Hyacinth, 12 in 12 splendid
named varieties. | Narcissus, double and single—
named varieties. |
| 4 Roman Hyacinths. | |
| Tulips, single early— | |
| 12 in 4 fine named varieties. | |
| 6 Duc van Thol, red and yel- | |
| 6 " " " " scarlet, [flow. | |
| Tulips, double early— | |
| 6 La Candeur, pure white. | |
| 6 Rex Ruborum, fine crim- | |
| 6 T. urneol. | |
| Crocus— | |
| 100 in 12 fine named varieties. | |
| Narcissus, Polyanthus. | |
| 12 in 12 fine named varieties. | |

Half of either of the above for 10s. 6d.
The above Packages may be had from our Agents, Messrs.
MILBURN and CO., 3, CROSS LANE, ST. MARTY-A-HILL,
LONDON, E.C., on receipt of Cheque or Post-office Order.
For particulars of our other Collections of Bulbs for INDOOR
and SPRING GARDENING, see our complete and revised
CATALOGUE for 1886, which will be sent, post-free, on application
to our Agents, or ourselves direct.

**ANT. ROOZEN & SON, Nurserymen,
OVERVEEN near HAARLEM, HOLLAND.**

BULBS.

Very long experience enables us to offer the
BEST QUALITY at a moderate price, as
proved by hundreds of Testimonials.

ILLUSTRATED LIST, Descriptive, Select,
and comprising important **NOVELTIES**, on
application.

**RICHARD SMITH & CO.,
NURSERYMEN AND SEED MERCHANTS,
WORCESTER.**

Kent—The Garden of England.

300,000 FRUIT TREES—true to name.

**GEORGE BUNYARD & CO.,
THE OLD NURSERY, MAIDSTONE**

(Established 1799), will forward, for Six Stamps, their

DESCRIPTIVE FRUIT CATALOGUE,

with Illustrations and Cultural Notes (copyright edition).
See *Gardener's Chronicle* of Sept. 4, p. 298. The finest stock ever
offered—clean, healthy, with grand bounteous roots. Frequent Trains
from London by North Kent and London & Chatham Railways.

PRIZE COB and other NUT TREES.

Gentlemen desirous of obtaining the true

WEBB'S PRIZE COB FILBERT TREES,

AS ALSO THE

Kentish Cob and other Nut Trees,

should send their Orders as early as convenient to
Mr. COOPER, FRHS., Calcut Gardens, Reading,

of whom alone the various sorts can be obtained.

PRICE LISTS and PAMPHLETS on application.

JARMAN'S BULBS

FIRST QUALITY. PRICES LOW.

JARMAN'S SEEDS

SEND FOR

LARGE DESCRIPTIVE CATALOGUE

of Bulbs, Seeds, Roses, Plants, Ferns, &c.

A Complete Guide for Amateurs. Gratis and Post-free.

**THE PEOPLE'S SEEDSMAN, CHARD,
SOMERSETSHIRE.**



CORDON FRUIT TREES

A SPECIALTY. SEND FOR NEW
ILLUSTRATED CATALOGUE.

**Ornamental Trees and Shrubs,
Roses, Rhododendrons, &c.**

J. CHEAL & SONS
Crawley, Sussex.

CHEAP OFFERS IN CHOICE PLANTS

For House and Garden.
100 STOVE or GREENHOUSE PLANTS.
In 100 varieties, for 4s. 6d., or 10s.
Other offers and in smaller quantities,
see CATALOGUE, which will be for-
warded on application.

- Choice Varieties of the following:—
- 12 TREE CARNATIONS, 6s.; 12 Yellow-flowered, 12s.
 - 12 PINKS, Laved Flowers, 4s. and 6s., among plants.
 - 12 AZALEA INDICA, covered with flower buds, 12s., 30s., and 24s.
 - 12 MOLLIS, ditto, fine for cutting, 12s. and 18s.
 - 12 CAMELLIAS, covered with flower buds, 12s., 30s., and 24s.
 - 12 CROTONS, choice varieties, 6s., 9s., and 12s.
 - 12 DRACENAS, choice varieties, 6s., 9s., and 12s.
 - ORCHIDS, choice varieties, for cool or warm house, in 12, 24, or 30 varieties, at 2s. and 4s. per dozen.
 - 100 varieties, 40s.; 50 varieties, 10s. and 15s.

1000 BULBOUS FLOWER ROOTS, 2s.
**E. G. HENDERSON & SON,
Pine-apple Nursery, Maid Vale,
LONDON, W.**

The "Old" Estab-
lished Nursery and Seed
Business.
**F. & A. DICKSON & SONS,
THE QUEEN'S NURSERYMEN AND
SEEDSMEN,
CHESTER.**

International Exhibition, Liverpool, 1866.

MESSRS. F. & A. DICKSON & SONS
have pleasure in announcing that the Jurors have
Awarded them **THE GOLD MEDAL.**

Highest Award, for their Exhibit of Trees and Shrubs.
Nurseries over 200 acres in extent. Forest Trees, Fruit Trees,
Roses, Evergreens, Conifers, Covert Plants, Stove and Green-
house Plants, &c.

Forest Tree CATALOGUE will be published in a few days.
Gratis and Post-free on application.

Trees, Plants, Seeds, and every requisite for Garden, Farm,
or Estate.

F. & A. Dickson & Sons.
**THE "UPTON" NURSERIES,
AND 106, EASTGATE STREET, CHESTER.**



**CRUX & FILS,
Nurserymen,
VALLÉE D'AULNAY,
CHATENAY (SEINE).
Great Specialty:
Trained Fruit Trees,
very strong, will fruit
early.
1867—Prize of Honour for
Artistic Efforts.
1878—Two Large Prizes, Cross
of the Legion of
Honour.
JERSEY FRUIT TREES.
Carriage Paid for Cash with Order. Write for Illustrated
CATALOGUES to **JOSUUA LE CORNU & SON, High View
Nurseries**, who will send, Carriage Paid for Cash with Order,
40 JERSEY ROSES FOR 2/-**

ROOTS for SPRING FLOWERS.

**WALLFLOWERS, MYOSOTIS, SILENE COMPACTA,
SWEET WILLIAMS, POLYANTHUS, PRIMROSES,**
single, very hardy and all shades of colour, strong, trans-
planted, 1s. per dozen; 5s. per 100.

**DAISIES, red, white, pink, 12 per dozen; 4s. per 100; 35s.
per 1000.**

VIOLAS and bedding **PANSIES, Alpine AURICULAS,
AUBRIETIAS, ARABIS, 1s. 6d. per doz; 8s. per 100.**

250,000 of the finest Hardy Perennials,
all best named varieties.

CARNATIONS and PICOTEES, 6s. per dozen.
PANSIES, showy and fancy, 3s. per dozen.

POTENTILLAS, 5s. per dozen.
HEPATICAS, red and blue, 3s. 6d. per dozen.

PHLOXES, 1 year, 3s.; 2 years, 5s. per dozen.
PIRETHRUMS, 4s. per dozen; 25s. per 100.

**PRIMROSES, double white, lilac and sulphur, 3s. 6d. per
dozen.**

PRIMA SIEBOLDI, 4s. per dozen.
Mixed German IRIS, 2s. per dozen.

Mixed English IRIS, 2s. per dozen; 5s. per 100.
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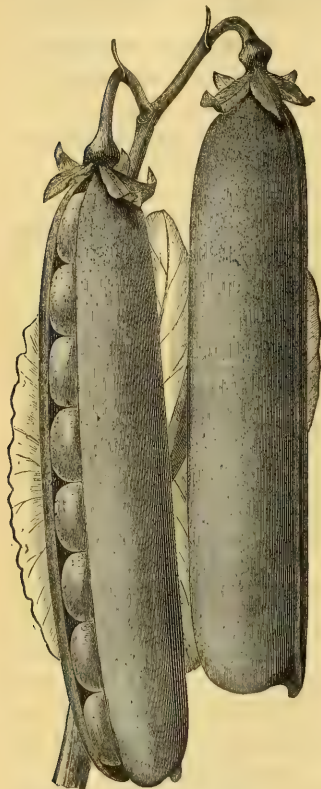
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THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 30, 1886.

CORNISH MOORLANDS.

PASSING up through the quaint narrow streets of St. Ives, reminding one by its lichen-stained walls, grey tiles, and ancient seaworn look, of some towns in Brittany, we reach the once famous tin mine of St. Ives' Consols. Before us stretches a wide rough moorland, with a background of rugged hills. On the flanks of some of these, and climbing to their summits, like ghosts of a past prosperity, stand the deserted white engine-houses, silent and smokeless, the huge beams and fly-wheels rusting in the rains and sea-fogs. The moorland hills trend away in gloomy solitudes, partly shrouded in dense mists. Suddenly the clouds break, the sunshine pours through the rifts, and the landscape rejoices in its ample robes of emerald, purple, and gold. There is a mingling of the tones, softened by distance into rich browns, russets, and bronzy-greens. As we look more closely into the detail we see that there has been the usual fight for the survival of the fittest; at present, however, they only seem to jostle each other—the Bracken, Gorse, and Heather—in friendly rivalry; the dense dark cushions of Furze are stuck all over with the purple spikes of the Heather.

Pausing for a moment beside a moorland stream, we notice the Water Veronica and Myosotis palustris crowding the current with the Cresses. But what is the little stranger carpeting the bank, under the shade of the Ferns, with flowers like a small Convolvulus but of a Speedwell hue? It is the elegant Campanula hederacea; over and over again we find it creeping modestly round the skirts of the Heather, or peering up among the short sweet herbage in company with a tiny golden-yellow Potentilla. What a treasure if we could transplant this bit of delight to our garden at home! The streamlet, its Cresses and Forget-me-nots, the Ivy-leaved Bellflower, the arching Lady Ferns, the mossy and lichen-stained wall, the tufts of wild Thyme, Heather, Bracken, and Gorse, the Foxglove, the Mullleins, the Brambles! We stroll for a mile or two by the margin of another moorland stream, here deepening into pools, there gliding beneath the Fern fronds, hastening on with sparkle and flash and pleasant soothing murmurs to its bourne in the broad Atlantic, scarcely two miles away. Seated on a fragrant cushion of wild Thyme, under a canopy of Bracken and Bramble, drooping with clusters of blue-black fruit, we watch a butterfly's ball. Bending across the stream is a tall clump of Hemp Agrimony. Its pale lilac corymbs are the ball-room floor, the walls the granite hills, the ceiling the great blue sky. Waltzing over it and settling on it at the moment we write are five Purple Emperors, three Peacocks, a Frigate, and a Brimstone, momentarily shifting the angle of their wings to catch the sun-rays more

directly, sipping meantime the nectar from the pearl and ruby cups. Behind the Agrimony there is a huge granite boulder, bearing in its weatherworn depressions and cavities tufts of Heather and Polypody, dark green velvety mosses and patches of Stonewort. The remainder of the surface is covered with various coloured lichens, from brilliant orange-chrome to russet and pale silvery-grey. Surrounding this rich rough gem is a garrison of Ferns and flowers—emerald, purple, and gold. Here, sometimes, on its sunny slopes sits the falcon or the chough: and, as still evening comes on, the nightjar skims round with ceaseless whirling in pursuit of the twilight moths.

The Cornish lanes are full of interest to the botanist and the naturalist, and especially to the Fern hunters; nearly twenty species may be found, the rarest being *Capillus Veneris*, the true Maidenhair; the hay-scented Fern, *Lastrea recurva*, is quite common; *Asplenium marinum*, the Sea Splenwort, may still be found on the cliffs, *A. lanceolatum* in the crevices of stone walls, and *Osmunda* in some of the watercourses, though in most of the stations where it grew abundantly it is getting scarce. Some visitors are not contented with taking a root or two, but despoil a whole locality. A greedy enthusiast the other day obtained a ladder and stripped the well known station near Carbis Bay of every root of Maidenhair he could lay his hands upon. Among the rarer wild plants of the neighbourhood we noticed *Hypericum montanum*, *Sibthorpia europæa*, *Anchusa sempervirens*; and scattered about among the Cornish heath the lovely *Erica ciliaris*, with its delicate rose-coloured bells.

A great advantage of the scenery of the Cornish moorlands is that when the eye is sated with the richness and variety of the flora, it is necessary only to glance upwards from the embroidered carpet at one's feet, and a glorious panorama lies before us, including hundreds of square leagues of sea. On the skirts of the moor are the little farms varying from 10 to 60 acres, the small fields being enclosed by the stone walls. They consist chiefly of dairyland, and to judge from the quantity of stock on a limited area the soil must be of excellent quality. The farmers are a hardy, industrious and frugal race; well fed, healthy, and contented; sober, thoughtful, and intelligent. The yellow and blue placards on wayside walls may advise them or not to vote for So and So; they take the even tenor of their way, neither coaxed nor incited by the professional agitator, nor intimidated by the landlord, though there is still a widespread belief that the ballot is not absolutely secret. Their little homesteads may not always be models of neatness, and their cottages are sometimes destitute of a piano and stair carpet, but they pay £3 an acre for their farms, get an honest living out of them, and bring up their sturdy handsome boys and girls in quiet orderly ways; have a good store of Furze for winter fuel piled up by the chimney corner, well-cured hams and fitches on the crutch, with plenty of butter, eggs, and honey, and a cozy corner for the stranger if overtaken by a storm, with wholesome refreshment should he need it. When told something of the prospects of farming in the Midland and Eastern Counties, of the wide-spread ruin and decay of hundreds of thousands of acres of good land lying waste, they are astonished. "Why," said one of them—a splendid specimen of the moorland farmer—"men about here bring up large families respectably on from 30 to 40 acres of land. But then," said he, with a significant glance, "we work ourselves with the men, and never go hunting and holiday making; to St. Ives market once a week with a little stock—corn, butter, poultry, and eggs—and home again." The only grievance seems to be the iniquitous

three lives system. This invariably crops up in the conversation, and the unwillingness of the "lords" to modify the arrangement in the way of granting better security and permanence to the tenant. Nearer to St. Ives the rent in the sheltered valleys rises as high as £8 to £10 an acre. This is where the early Potatoes and Broccoli are grown for the London markets. Abundant applications of manure are necessary for the last-named crop. The dressing consists of stable and farmyard dung, fish offal, seaweed, and sand. Here again there are bitter complaints of the railway charges eating up the profits. Occasionally, when there happens to be a glut in the market, the grower has actually to pay for sending his produce, the price fetched at Covent Garden not being sufficient to cover the freight and commission. In West Cornwall the mining industry has almost entirely collapsed: in nearly every little village one may see the dismantled cottages where the men lived, some of them miles distant from the mine. As may be inferred from the almost entire absence of trees, the wind is violent, sweeping over from the Atlantic, with its accompaniment of sea fogs and rain for months together. For the same reason bird life for the greater part of the year is absent; in spring it is abundant, especially in the valleys, where the voice of the cuckoo and the songs of the blackbirds, thrushes, linnets, and larks, may be heard nearly a month earlier than inland, and the ground is carpeted with spring flowers. Wherever one goes in the west country there is the same complaint about the difficulty of getting plots of ground for gardening purposes, and yet, as we were assured, over and over again, the wayside enclosures were made chiefly by the miners in their spare time, permission being given to reclaim the land, and hold it for small acknowledgment for three years. After that period, however, the rents charged were excessive, and the poor tenants, being unable to pay them, the plots were thrown into the adjoining farms. Not five in a hundred of the fishermen or labourers of St. Ives have so much as a yard of land in which to grow a Cabbage or a bed of Leeks, and this with hundreds of acres of land lying waste in the immediate neighbourhood. Vegetables, it is true, especially Potatoes, are plentiful and cheap; at less than a halfpenny a pound excellent Potatoes may be bought; but many of the people here are so very poor, owing to the failure of the pilchard fishery, that even the halfpenny may not be forthcoming. *T. W., Harrow.*

THE BAYFORDBURY CEDARS.

We have recently published an illustration of these noble trees as seen from a distance (p. 521). A nearer view, however, is required to see the statelyness and majesty of their trunk and branches. Some idea of what may be gleaned from an inspection of the woodcut now given (p. 553), taken from a photograph obligingly communicated by Mr. Baker. The details relating to these trees will be found at p. 520.

New Garden Plants.

DENDROBIUM SMILLÆ, F. von Müll.

I AM afraid Baron F. von Müller has no adequate idea what a beauty he has named and described. Mr. Dallachy's specimen, given by the Baron to royal Kew, is rather a poor thing. Mr. Fitzgerald, the fortunate author of the grand work on Australian Orchids, would decidedly have waited to represent the plant in its full development, had he guessed what it would become. The representation (vol. i, part 7), taken from the garden of Sir W. McArthur, may have been taken from a freshly imported plant (*Celandaria Smillæ*). I had it both from Sir Trevor Lawrence and from Mr. Bull in a much finer state.

To day, however, I have before me a gorgeous inflorescence, laden with more than a hundred big flowers. The impression is quite curious. The buds stand all transverse, nearly rectangular on the main axis. Their rose peduncles and stalked ovaries, chin-

and bases of sepals, make a neat contrast with the light green of the other parts of the sepals. The open flowers are bent down, and form a light green mass, embellished by the dark tips of the sepals and petals, and the much darker calceolar apexes of the lips. This magnificent inflorescence, 4 inches high, 2½ inches broad, was kindly sent by Messrs. Williams *per te filio*, who tell me that they received it from W. E. Brymer, Esq., Islington House, Puddletown, Messrs. Williams will, I hope, do justice to the fine thing in the next edition of the *Manual*, where it is now omitted. *H. G. Rehb. f.*

DENDROBIUM (DENDROCORYNE) INAUDITUM, n. sp.*

We have had till now two long and thin-stemmed *Dendrobium* comparable to this one—Dr. Lindley's *Dendrobium longicollum*, from Singapore, and my *D. tipuloides*, from the Viti Islands. Then my *D. (Diplocaulobium) nitidissimum*, gathered both in the Admiralty and in the Viti Islands, might appear comparable, had it not at once stiff short bulbs, with one leaf, and which evidently never produces a flower; therefore I gave it the name of *Diplocaulobium*. This novelty is one of the most curious things I ever had under my hands, and was brought by the Lindenian collectors from Polynesia. I have at hand a photographic representation kindly sent me by Mons. Lucien Linden. It shows a dense cluster of singular bulbs. They are tumid, fusiform, furrowed, thick at the base, and extended into a long abruptly narrow compressed stem, that is dilated at the top in a very short cupular bulb, carrying an oblong leaf, a little cuneate at the base, blunt acute at the top. The lamina is quite revolute at the margin, since its scar is quite complicate, surrounding the cupulas when the blade is quite open. The apexes of all the stems are crowned with the remainder of the spathe when the leaf-blades are fallen.

And now I have just obtained the top of such a stem with two good flowers. The stem is blackish horse-chestnut, and where it is dilated into a short compressed cupular expansion it is green. The base of the fallen leaf remains so that it has a circumscissile base left, just as is the case in the corollas of *Datura*, and of *Alectorolophus*. From the old spathe, which are much broken up into fibres, arise two fine fresh flowers on tripollicar stalks. These flowers are much like those of the species named above, or, if you prefer the comparison with a better known thing, compare them to those of *Dendrobium tetragonum*, though the sepals and petals are much narrower in our plant. Mentum blunt. Sepals long, lanceo-linear acuminate; the lateral ones, of course, broader at the base. Petals nearly equal. Lip trifid, side lacinia nearly blunt square; mid lacinia ligulate, suddenly acuminate at the top, much undulate at sides. There are two blunt parallel keels in the middle between the side lacinia. Column plump, trigone, slightly trifid at the top. Sepals and petals (nearly ½ inch long) sulphur. Lip and column ligal ochre, with rich brown marbling and spots. It is the first species of that kind that had flowered for nearly half a century in Europe, *Dendrobium longicollum* having flowered 1840. *H. G. Rehb. f.*

ESMERALDA CLARKEI, n. sp.†

A plant in the way of *Vanda Cathcarti*—my *Vanda Cathcarti*—so much so, that the best Orchidists thought it was that plant before the flower had been seen. Perhaps the leaves are a little narrower—at least, those I saw were so. Finally appears the peduncle, and bears three flowers, which combine the lip of *Vanda Cathcarti* with the sepals and petals of such a *Renanthera* as *flos-æris* (moschifer). Median sepal and petal cuneate, ligulate, obtuse, straight, darkest horse-chestnut brown, with a few narrow light ochre transverse bands at the base, sulphur outside. Lateral sepal curved,

* *Dendrobium (Dendrocoryne) inauditum*, n. sp.—Pseudotubis $\frac{1}{2}$ crasso-fusiformis, sulcatis in column quatuor longius angustum aniceps extensis: folio ovato elliptico subacuto: floribus ex spatulis, longipedicellatis, mento obtusangulo, sepalis lanceo caudis: tepalibus subaequalibus, labello trifido, lacinia lateralibus subquadratis obtusangulis, lacinia antica ligulata undulata, apice aristata, carinis parallelis obtusis geminis inter lacinias laterales—flore sulphurea: labello pallide ochraceo brunneo marmorato ac guttato ac areolato. Carnis brunnea. Ex Polynesia ins. introd. Linden. *H. G. Rehb. f.*

† *Esmeralda Clarkei*, n. sp.—Sepala ovato-oblongo: medio lacinia lateralibus ligulatis curvis: tepala cuneato-ligulatis angustioribus curvis, labello unguiculato, medio brevissime conico calcarato, costis calcaris a callo transverso apice breviter cordatis oblongo-elliptica marginis asperulo lobulata, carinis septuies septuies novies in decem, caudicula lacinia subito dilatata, glandula hippocrepatica. Himalaya, 8000 ped. C. Clarke! Imp. cl. H. Low & Co., prima floruit apud Cl. J. Day. *H. G. Rehb. f.*

and of the same colour. Petals narrower, with a very narrow base, also curved. All these parts have numerous transverse ochre-yellow bars. Lip distinctly unguiculate, trifid, having a notch with a conical acute spur in the middle, the mouth of which is covered by a retrorse callus, which projects in the form of two retuse shanks, while another callus stands at the base. Side-laciniae blunt, dolabriform, acute at the edge of the anterior margin, the apex being antrorse, and sometimes with one, at other times with two small supplementary teeth. Mid-lacinia cordate, oblongo-elliptical, with a rough lobulate border as in *Vanda Cathcarti*, but much narrower, and with seven to nine radiating keels, which are whitish, as is the greater part of the lip.

flower I got, 1864, from M. Linden, had a narrow caudicula and a narrow glandula. In February, 1872, I received fine Bowers from Mr. Mendel with a broad caudicula and a broad transverse glandula. Several species of *Sarcanthus* have very broad caudiculas and glandulas, when other ones show those organs narrow.

As to the generic name I stick to that given by myself. I never took any steps to make it popular. Those amateurs who are of the usual conservative view may call it *Vanda Clarkei*—I only protest against making me the author of it. The canon laid down by Alphonse De Candolle would give the decision in many questions of nomenclature, viz. that one should never make an author say what

pression for a village of stoves and conservatories at Upper Clapton. There were very small inflorescences just peeping out. I was, therefore, most agreeably surprised to obtain a fine inflorescence from Mr. Day, who, having received the plant from Messrs. H. Low & Co., had once more the success of flowering first in Europe a very interesting Orchid. *H. G. Rehb. f.*

ONCIDIUM TIGRINUM (Llave and Lexarza),
VAR. *LUGENS,*

This variety has both sepals and petals of a uniform dark reddish-brown inside, the extreme tips being yellow. The dorsal keels on those organs are green. It was sent me by Mr. F. Sander, to whom it had been forwarded by Dr. Duke, The Glen, Lewisham. *H. G. Rehb. f.*



FIG. 109.—CEDAR AT BAYFORDBURY. (SEE P. 552.)

Border and area between the keels of the anterior laciniae light brown. Side-laciniae with brown transverse streaks. Calli white, with some brown. Column plump, ochre-coloured, with brown spots. Anthers ochre-coloured, mitre-shaped, with reddish apicules, caudicula narrow under pollinia, suddenly much dilated. Glandular body hypocreptic and concave.

That the plant is just the sister of *Vanda Cathcarti* no one will doubt. There is a certain language of flowers that you must listen to, and as soon as your definitions go another way you get to confusion. The difference in the shape of the sepals and petals might frighten a beginner. The lip corroborates the character I took for *Esmeralda*. There is one difficulty. This is the transverse caudicula and glandula. The matter is, however, not so very bad as it might appear to be. To begin with, *Vanda Cathcarti* herself has now and then different glandulas. The first fresh

he did not intend to say. What would Linnæus have felt in seeing *Cypripedium calceolus*, L., in lieu of *Cypripedium calceolus*, L.? What disgust I felt the other day when seeing in a new publication "*Uropepidium Lindenii*, Rehb. f.," whereas the plant is *Uropepidium Lindenii*, Lindl., and when I would never admit such rash changes of names.

The plant was discovered on October 17, 1875, by Mr. C. B. Clarke, the learned monographer of Indian Composites and of Commelynaceæ, the co-operator of Sir Joseph Hooker in the *Flora Indica*, of Messrs. De Candolle for Commelynaceæ and Cyrtandrea, one of the few acknowledged "Indian botanists." Later the plant arrived at Messrs. H. Low & Co.'s. Dried flowers had been kindly given me by my oldest English correspondent, Mr. Stuart Low. I was much pleased to see the other day a few living plants at that "immense expanse of glass," the English ex-

ORCHIDS AT MESSRS. JAS. VEITCH AND SONS.

In the great Cattleya-house, as indeed in all the other departments, the perfection of culture is to be found; the great masses of *Lælia purpurata* and *L. elegans* bearing flower-sheaths on nearly every leading growth, and the seemingly countless numbers of *Cattleya Trianae*, *C. Mossiae*, *C. Mendeli*, *C. gigas*, *C. Dowiana*, &c., are as thickly set with the promise of flowers to come as they can well be, while the plants themselves are in point of vigour all that the heart of their exacting grower, Mr. Canham, could desire. Chief among the bright things in bloom in the Cattleya-house must be named Messrs. Veitch's last addition, *Cattleya Bowringiana*, which with its bright rose and dark crimson flowers seems to fill a void at this season, and onward throughout the winter; it is a distinct and eminently

desirable plant, and so floriferous that it frequently bears ten or a dozen flowers on a spike. Several plants of the true autumn-flowering *C. labiata* are also in bloom, and one of that still rarer and equally beautiful true old *C. labiata* *Pescatorei*, which is also a winter bloomer. The Mexican *Lælia* are showing well for bloom, among them being fully expanded some fine plants of *L. autumnalis* *atrorubens*, which is a very showy form, more floriferous and better in every respect than the ordinary variety. Also in bloom in the Cattleya-house are a fine lot of *Lælia Perrii* and some good examples of *L. elegans*, including the showy and fragrant *L. e. prasiata*, and even the small plants of *L. superbiens* are furnished with spikes. Some *Vandas*, different forms of *Cattleya intermedia*, *C. bicolor*, *C. maxima*, and *C. Dormaniana*, also take their part in the show of flowers.

CYPRIPEDIUMS.

The hybrid *Cypripediums* raised at Chelsea have always a goodly number of them in bloom. Of them the grand *C. Morganæ* (illustrated lately by us at vol. xvi., p. 243) may be said to be the queen, as it runs the famed *C. Stonei* plantigenium very hard in point of beauty, even if it does not beat it. *C. Schröderæ* with its gigantic rose-pink flowers and extraordinary elongated petals, may be said to be the king of the *Sedeniform* section, which seems to be perpetual flowering. At present in this section *C. Sedeni* and the chaste *C. S. candidum*, *C. calceum* and *C. cardinale*, are in flower. Also in bloom, as head of another section, is the beautiful *C. crenatum* *superbum*, whose dorsal sepal exhibits a rich combination of colour, white, black, and crimson being charmingly blended on its polished surface. Among the other rare hybrids, most of them the result of Mr. Sedeni's skill, in bloom are *C. stenophyllum*, of the *Sedeni* strain; *C. conchiferum*, a hybrid with *C. Pearcei*; *C. Arthurianum*, a lovely cross out of *C. Fairreanum*, with yellowish flowers spotted and veined with blackish crimson; *C. vexillarium*, another cross with the same rare species; *C. Ashburntoniæ*, *C. Crossianum*, *C. marmorophyllum*, *C. selligerum* *majus*, *C. Lee-anum* *superbum*, a charming variety raised from *C. Spicerianum* and *C. insigne* *violaceo-punctatum*; and *C. macropterum*, between *C. Lowii* and *C. Veitchii*. Of the species of *Cypripedium* there is a fine show of *C. Spicerianum*, *C. Godefroyæ*, *C. concolor*, *C. Stonei*, *C. Haynaldianum*, *C. insigne* *sylybense*, and the largest flowers of *C. Veitchii* we have yet seen.

DENDROBIUMS, PHALÆNOPSIS AND ODONTOGLOSSUMS.

In the warm and intermediate houses in bloom are several of the rare and floriferous *Dendrobium ciliatum*, *D. palpebre* with Primrose scented flowers, *D. rhodostoma*, Messrs. Veitch's perpetual flowering hybrid; *D. fornosum* *giganteum*, *D. bigibum*, *Sigmatostalix radicans*, the rare scarlet *Renanthera matutina*, some showy *Plieones*, a grand form of the beautiful *Vanda Sanderiana*, another of the blue *Vanda cerulea*, some profusely flowered *Burlingtonia fragrans* (one with sixteen spikes); *Peristeria elata* and in the *Phalenopsis* house a good show of *Phalenopsis amabilis*, *P. violacea*, *P. rosea*, *P. Lowii*, and *Odontoglossum Roezlii*, while in a corner of it is a nice batch of *Anæctochilus*, with their beautifully coloured leaves: these are not under glasses, but thrive well grown as the other plants in the house. In the large *Odontoglossum*-house and lean-to at its end, which are always gay with flowers, there is at present a fine display of *Odontoglossums*, of which the *O. crispum* and its varieties and *O. Pescatorei* are the favourites, and *O. grande* the showiest. *O. Sanderianum*, *O. madrense*, *O. hastilabium*, and the pretty old *O. Uro-Skinneri*, which has again become scarce, are also in bloom, and with them a fine lot of the violet-coloured and violet-scented *G. Edwardii*, sending up strong spikes; so also a fine batch of *Oncidium macranthum*.

ONCIDIUMS.

The genus *Oncidium* has in bloom many examples of *O. tigrinum* and *O. varicosum*, *O. leucophilum*, *O. Forbesii*, *O. pretectum*, *O. ornithorhynchum*, *O. Jonesianum*, the pretty *O. Batemannianum*, *O. O'Brienianum*, *O. incurvum* and its rare white variety, *O. l. album*; *O. linguiforme*, with numerous flowers with light bronzy-yellow sepals and petals and rose lip; and several other rare species.

VARIOUS OTHER ORCHIDS.

Also in bloom in these houses are *Calanthe Domi-*

niana, *C. masuca*, *C. Mylami*, *C. Turneri*, *C. veratrilolia*, *C. oculata* *gigantea*, *Miltonia Moreliana*, *M. Clowesii*, and that finest of its varieties, *M. C. castanea*; several finely flowered *Houlletia Brocklehurstiana*, *Pilumna fragrans*, *Maxillaria venusta*, *M. grandiflora*, the wonderfully curious *Cynoches Eger-toniana viridis*, *Trichosma suavis*, some *Masdevallias*, *Epidendrum falcatum*, *E. Cooperianum*, *E. vitellium majus*, *Galeandra Baueri*, many *Lælia pumila* *Dayana* and *L. prestans*, and scarlet *Sophronis grandiflora*, as also the neat little orange-coloured *S. cernua*, and odd plants of many other things.

OTHER PLANTS.

The bright and interesting display is not confined to Orchids at the Royal Exotic Nursery, for all the other departments have their houses of flowers, such as those devoted to the winter Carnations, the Bouvardias, the grand collection of Pitchers (always kept in beauty to flowering plants), and the *Rhododendron-house*, which is never without flower. At present there are some good examples of *R. Empress*, *cerise* or orange; *R. militaire*, orange-scarlet; *R. Rose Perfection*, lilac-rose, with white tube; *Indian Yellow* and *Gloria Mundi*, reddish-yellow, with light tube; and one or two of the new double-flowered varieties.

In one of the plant-houses is a charming group, made up of a number of the lovely *Amasonia punicea*, with its tall spikes of sulphur-yellow flowers and brilliant scarlet bracts, mingled with a number of the feathery-fronded *Nephrolepis rufescens bipinnatifida*, and producing an indescribably charming effect. Also of extra interest is a good batch of the crimson-flowered winter Begonia John Heal, each flower of which lasts a fortnight, and there is a continual succession of its pretty sprays. Visitors also should not fail to note the roof of the entrance cool-house, which is covered for about 85 feet with mingled white and red *Lageria*, which has been flowering all summer, and is still a sight worth seeing.



TOBACCO CULTURE IN JERSEY.

I HAVE, with many others, tried the cultivation of Tobacco with a view to profit in this much favoured climate, and successfully, as far as the growth of the plants and development of the leaves have been concerned; but, I have entirely failed in the curing and preparation for use. The land being well prepared, the plants, raised and planted out carefully at 3 feet between the rows and 2 feet between the plants, grew vigorously to the height of 3 feet—when I stopped them for the development of the leaves many of which exceeded 2 feet in length and from 8 to 16 inches in width—presenting every desirable feature of fine growth. Success seemed within my grasp! A tobaccoist in the town of St. Heliers was quite elated, and undertook the task of drying and preparing for use. After "there is many a slip 'twixt the cup and the lip." After trying them up, in neat bundles of ten leaves, and hanging them up, in a cool shed, to dry gradually, and then placing them layer upon layer in a large case for fermentation, we had Tobacco of a fine colour, but no flavour. One cigar of South American produce was worth one hundred of those manufactured from the leaves. I have not repeated the experiment. It was quite evident that sun-heat was the element wanted. The process of drying was too long, and the nature of the Tobacco, and with it the flavour, evaporates in the manufacture. It was as flavourless as most of the Tobaccos grown in Normandy and Brittany. To the numerous propositions which might be advanced as to why this was not done, or that was not done, an easy reply can be made. All was done that could be done, but we had not command of the elements, and could not command the sun to shine when it was required. The late John Diamond, of Exeter, was of opinion that to grow exotic plants in Western Europe it would be necessary to import the tropical climate with the plants, and he was pretty correct in his judgment. I am quite convinced it is useless to grow Tobacco in England or its immediate dependencies, except as an ornamental border plant. The variety I grew was *Nicotiana glauca*, and a beautiful plant it is, with its bold stem, fine outstretched leaves, and pretty pale rose-coloured flowers. It seeds very freely, and I have, most seasons, some

specimens of it growing in my nurseries, as accidental plants, the seeds being carried about with the manure. I will gladly send a small packet of the seed to any horticulturist who is desirous of proving for himself the correctness of what I now advance on the subject. A fine season, other circumstances being congenial, will produce large plants, which are so ornamental that they amply repay the little trouble attending their culture; but growing the plants, curing, and manufacturing the produce in an acceptable and profitable manner are very different processes. [See pamphlet by Messrs. Carter & Co. on this subject. Ed.] *C. B. Saunders, Jersey.*

THE WHEAT CROP OF 1886.

WE are indebted to the kindness of Sir J. B. Lawes, Rothamsted, for the following important paper on our Wheat crop:—

Before harvest there was a very general opinion expressed by contributors to the agricultural journals that the Wheat crop of the country would be considerably below the average in yield per acre. At Rothamsted the results of threshing, both of the farm and the experimental crops, show a produce considerably above what I anticipated. Two fields of Wheat after red Clover each give about 50 bushels per acre, and the figures in the following table, which records the results of the experimental crop of 1886, the forty-third in succession on the same land, confirm the yield of the ordinary farm crops.

Harvest.	Unmanured. Plot 3.	Farmyard Manure. Plot 5.	Artificial Manures.			Mean of Plots 7, 8, & 9.	Mean of Plots 10, 11, 12, & 13.
			Plot 7.	Plot 8.	Plot 9.		
<i>Bushels of Dressed Grain per Acre.</i>							
Present year, 1886	9	36½	35½	42½	44½	40½	28½*
Average 10 years, 1876-85	11½	30	29½	33½	35½	32½	24½†
Average 24 years, 1852-75	14	35½	34½	37½	39½	36½	28½‡
Average 34 years, 1832-85	17	33½	32½	36½	36½	35½	27½§

Weight per Bushel of Dressed Grain in Pounds.							
Present year, 1886	61½	63½	62½	62½	60½	62	60½
Average 10 years, 1876-85	58½	60½	60½	60½	59½	60½	59½
Average 24 years, 1852-75	57½	63	59½	59	58½	58½	58½
Average 34 years, 1832-85	53	60½	59½	59½	58½	59½	59½

Total Straw, Chaff, &c., per Acre, in Cwt.							
Present year, 1886	5½	24½	27½	35	38½	33½	21½
Average 10 years, 1876-85	8½	27½	31½	39½	41½	37½	24½
Average 24 years, 1852-75	12½	33½	34½	41½	42½	39½	28½
Average 34 years, 1832-85	11½	31½	33½	40½	42	38½	27½

I may observe that although the average yield of the selected plots of the present year differs but little from that of 1885, yet there was a very marked difference in the yield of the individual plots which contribute to the average in the two seasons. Thus, the unmanured plot gave only 9 bushels per acre this year, against about 15 bushels last year; and the dunged plot gave 36½ bushels this year, against over 40 bushels last year. On the other hand, each of the three artificially manured plots has yielded considerably more this year than it did last year.

An explanation of the great difference in the yield by the same manures in the two seasons is to be found in the difference in the characters of the seasons themselves. During the five months, September to January inclusive, the rainfall at Rothamsted amounted in 1884-85 to 12 inches, but in 1885-86 to 17½ inches; and during the same five months the drainage passing through our 5-foot soil drain-gauge amounted in 1884-85 to only 7½ inches, but in 1885-86 to 12½ inches. We should expect, therefore, that the soluble matters, and especially the nitrogen as nitrates, in the soil of the unmanured plot, and in that of the

* Equal to 39½ bushels, at 61 lb. per bushel.

† Equal to 24½ bushels, at 61 lb. per bushel.

‡ Equal to 27½ bushels, at 61 lb. per bushel.

§ Equal to 26½ bushels, at 61 lb. per bushel.

plot where dung is applied in the autumn, would be much more washed out in the winter of 1885-86 than in the previous year. The loss by washing out would, however, be proportionally much less in the case of the artificially manured plots, which receive only a small proportion of their nitrogenous manure in the autumn, and the remainder not until the spring. It is evident, however, both from the produce per acre, and from the higher weight per bushel of the grain, that the summer of 1886 was more favourable for the Wheat crop than that of 1885.

Taking the foregoing facts into consideration in forming a judgment of the Wheat crop of 1886 over the country at large, it may be concluded that, on fallow land and on land in poor condition, where the crop would depend largely on the natural resources of the soil, the yield would be much below that of 1885, and much below an average; it would also generally be so on light lands subject to much drainage. On the other hand, on heavy soils, especially when highly firmed, we should expect that the yield will be above that of last year, and above the average; indeed, that in some localities very heavy crops have been grown. Speaking generally, too, spring-sown artificial nitrogenous manures ought to have given remunerative returns to the farmer in the season just past.

With a season affecting the crop so differently according to the character and condition of the land, it is somewhat difficult to strike the balance, and to decide how far the crop of the country at large is above or below the average. I propose, however, to adopt the figures given in the table without modification, and accordingly to estimate the average crop of the United Kingdom at 29½ bushels per acre. The result is seen in the following calculations. The area under Wheat in the United Kingdom was, during the past season, about 200,000 acres less than in 1885, and amounted to only 2,358,372 acres. This area, at 29½ bushels per acre, gives an aggregate produce of 6,822,798 quarters; which, deducting 2½ bushels per acre for seed leaves only 7,959,506, or scarcely 8,000,000 quarters for consumption. The estimated average population for the harvest year September 1, 1886, to August 31, 1887, is 37,048,347; and allowing a consumption of 5·65 bushels per head, the total quantity of Wheat required to feed the population will be 26,415,395 quarters, or say in round numbers 26,500,000 quarters. Of this, according to our estimate, only about 8,000,000 quarters will be available from home produce, leaving a probable requirement, from stocks and imports, of about 18,500,000 quarters. *J. B. Lawes, Rothamsted, October 22*

COLONIAL AND INDIAN EXHIBITION.

COLONIAL PAINTINGS, PHOTOGRAPHS, AND DRAWINGS.—A most interesting and bulky volume might be produced on the photographs and paintings of Indian and Colonial scenery exhibited in the different courts of the Exhibition.

New Zealand.—The collections of New Zealand paintings will not readily be forgotten, especially those of the celebrated Pink and White Terraces, which have become famous, if not historical, on account of the recent eruption.

New South Wales.—The photographs also are of unusual excellence. The New South Wales collection of paintings will also be well remembered, many of them giving vivid impressions of characteristic vegetation, especially of forest scenes in which the various species of Eucalyptus play a prominent part. The splendid set of water-colour paintings of Australian plants by Mrs. Ellis Rowan will be especially valued for their general beauty and accuracy of drawing.

Trinidad shows some instructive photographs of the growth and preparation of Cocoa (*Theobroma cacao*), the staple product of the island; while on a screen between the Trinidad and the British Guiana, courts is a series of excellent photographs, several of which illustrate the cultivation and preparation of Sugar, including a general view of a Sugar plantation, a field of young canes, banking and planting, weeding, passing canes through the mill, view of manager's quarters—a really fine house, behind which are the works, and in front and around some tall Palms and various tropical plants—apparently very comfortable quarters, which is fully confirmed by another photograph of the interior of the manager's parlour, the appointments of which are even luxurious. This series is both interesting and instructive. One pho-

tograph which cannot fail to attract attention represents a portion of a trench 3 miles in length filled with the Victoria regia Water Lily, the circular leaves of which are so thickly grown together as to form a covering from bank to bank. Three miles of this magnificent aquatic must be a splendid sight when in flower.

Straits Settlements.—In the Straits Settlements a collection of photographs of buildings and some of the principal economic plants are shown, amongst others a group of Sago Palms at Singapore, an avenue of Cocoa-nut Palms, also at Singapore; a Tea plantation, in which the plants strike us as being very wide apart, not only in the rows but from each other. That illustrating the preparation of Gambir (*Uncaria Gambir*) is of considerable interest. Outside the thatched huts, which are shown on either side, is spread the Gambir to dry on light Bamboo frames. Another photograph shows a very fine group of young Betel-nut Palms, the trunks of which are remarkably straight and slender. A Pepper plantation, with the crop in process of harvesting, is shown, as well as Liberian Coffee trees in full bearing.

Ceylon.—In the Ceylon court, besides others of special trees and characteristic vegetation, the series illustrating the preparation of Tea is extremely good, and will be found very useful.

Natal.—In Natal there are a large number of photographs of very varied subjects. Those bearing on subjects with which we are most interested are amongst a series exhibited by Mr. G. T. Ferncyhough, of Pietermaritzburg; one represents the smoking of Dukka, or Hemp (*Cannabis sativa*), or, as the Kafir calls it, "Isangu." Dukka is described as being a "corruption of the Dutch work for the weed." The following description is given of the photograph:—"The plant grows wild all over Natal in waste places, and produces large crops of seed, but is useless for fibre—at least, so far as experiments have gone, and the natives alone make use of it. At a certain stage of its growth, *i.e.*, when the flowers are fully out, branches are cut off, and allowed to dry in the sun, and are then tightly packed in bundles, wrapped round with grass matting, when it is ready for use. The pipe of the Kafir is a species of hookah, and is called 'Igadu.' It consists of a bullock's horn, in which about half-way up is tightly inserted a hollow stick in a slanting direction, which reaches nearly to the bottom of the horn. This stick is surmounted with a bowl or pipe-head, made of a softly cutting green-stone—"soap-stone," which is very heavy. The pipe being filled with water, and the smoke is drawn up into the mouth; several puffs are taken, until a volume is secured, which is retained for a time and partly swallowed. This soon produces spasms, and results in a most violent fit of coughing, that would kill any ordinary white man. This is the luxury sought for, together with the stupefying and soothing influence of the narcotic contained in the plant. The fit of coughing having subsided, the saliva generated is then passed through a long hollow reed, and a series of bubbles results which are formed into circles, representing kraals, or into strings and other shapes, and according to number, size, and other indications are taken as signs of future wealth, number of wives, and other items interesting to the childlike mind of the Kafir. This continues until they have had enough, and sleep or go away. The smoking of this wild Hemp is the most noxious and injurious habit that the native indulges in."

While writing of Natal it may be well to mention that the exhibits of Tea grown and prepared in the colony have attracted a considerable amount of attention, and that the Tea is now on sale in the Natal court. We have had an opportunity of tasting this Tea, and find that the quality is very good. The only fault is that it is a little too much roasted. This, of course, will be readily improved upon, and there seems no reason whatever against Natal becoming a regular Tea-growing country. Numerous samples of Tea from different estates are exhibited, and it is worthy of note that the China Tea from one estate—namely, that of Mr. Brickhill—was obtained from plants introduced from the Royal Gardens, Kew, twenty years ago.

FRUITS, &c.

Amongst a fine collection of preserves from native fruits those exhibited by Messrs. Jameson & Co., of Durban, attract most attention, though from the fact of their being in sealed tins the public are unable to

see what they are like, still less to judge of their value. Mention may, however, be made of three of these from characteristic tropical fruits, namely, the "Amatungulu" (*Carissa* [*Arduina*] *grandiflora*), which is of a dark reddish colour, not unlike Plum jam in appearance, but with a less decided flavour. The Papaw (*Carica papaya*), about the medicinal properties of which so much has been written of late; this produces a fine soft preserve of a yellowish-green colour, and a slightly acid taste. The Grandadilla (*Passiflora maliformis*) has, perhaps, the most distinct and agreeable flavour of either, having a slight trace of Pine-apple; one objection, however, is the presence of the very numerous black seeds, which cannot readily be crunched between the teeth, nor can they readily be ejected, inasmuch as the pulp clings to them with great tenacity. It is interesting to see what can be done in the matter of preserve-making from tropical fruits; and though few, if any, can ever approach the best known English fruits, the foreign produce might be made to supplement that of our own country. Though it may not be practicable to import fresh fruits in any quantities into England from distant countries, there seems to be a field for tropical candied fruits, which might be brought in tins or jars, as well as for whole fruits preserved in syrup, and hermetically sealed in a similar way.

The Natal exhibits of vegetable food substances generally are very interesting, and great credit is due to Mr. Morton Green for his readiness in making the exhibits known, and assisting by the help of samples to develop the resources of the colony. *John R. Jackson, Curator, Museums, Royal Gardens, Kew.*

SCOTCH NOTES.

ERICAS, &c., AT MILLBANK, EDINBURGH.

MILLBANK, the seat of W. Syme, Esq., situated on the outskirts of the south-western suburbs of Edinburgh, is a place of much interest to gardeners and others with a partiality for Heaths and other shrubby greenhouse plants. Mr. John Patterson, the gardener, is a lover of the classes of plants alluded to, now rarely seen, and has earned for himself a high reputation as a cultivator of them. His *Ericas* are especially good, and the collection is rich in varieties that are seldom met with in good condition. On the occasion of a recent visit we noted fine specimens of *E. Maroccanica*, *E. retorta* major, and *E. Aitonii turgida* in bloom. The plants averaged about 3 feet in height and diameter, and were perfect in every way, and being covered with bloom, were a grand show in themselves. Other remarkable specimens in the collection, but not in flower, were *E. Bothwelliana alba*, a very fine plant about 3 feet by 3 feet 6 inches; *E. Paxtoniana*, about the same dimensions. *E. Victoria*, *E. Lindleyana*, *E. profusa*, and *E. Lowii* are rather smaller plants, but remarkably well grown, and promise to rival in size at no distant date the larger specimens above-named. Of newer and more rare kinds we noted the following:—*E. obbata*, *E. Turnbulli*, and *E. Fairreana*, in very healthy half-specimens, and a small plant of the very rare *E. Lady Mary*, raised by the late Mr. Turnbull, of Bothwell Castle, and which has, we think, never passed into commerce, though he regarded it as the best among the many he had raised during his long career.

Azaleas are a great specialty with Mr. Patterson. Many specimens of great size but of only good sorts are grown in an easy and natural style, yet compact and thoroughly balanced all round. All are splendidly set with bloom-buds, giving promise of a rich display of flowers over many months, as the stock is grown in batches so as to prolong the season to the utmost. [If our correspondent or Mr. Patterson would kindly furnish a paper on the cultivation of the Heaths and other hard-wood plants, as practised at Millbank, it would doubtless be appreciated by our younger gardeners. *Ed.*]

Orchids are grown to a limited extent—a few only of the best genera and species being attempted. Some splendidly flowered pans of *Pleione lageneria*, and a few *Odontoglossum Alexandræ* were the only sorts in bloom. Amongst the latter was a very distinct form, with pure white flowers, having a few large rose-coloured spots on the sepals and petals.

Griffinia hyacinthina was well bloomed in one of the stoves. This charming *Amaryllid* should be more

widely known than it is; flowering as it does at this season when flowering plants in the stove are by no means plentiful, it is most useful, and the bright blue-white shaded flowers are most attractive.

MESSRS. LAIRD & SONS' WEST COATES NURSERY,
EDINBURGH.

We were very pleased to observe plants of some of the newer Ferns in the above nursery the other day. Amongst these *Davallia tenuifolia* Veitchiana is undoubtedly a gem; the gracefully arching fronds and delicate lace-like pinnules mark it as one of the most elegant and pleasing of Ferns. *Nephrolepis Bausei* is perhaps the most distinct and pleasing form of this popular genus of Ferns. It is of dwarf habit, and the pinnæ are deeply cut or pinnatifid, the points of the segments being finely tapered and more or less reflexed, giving a peculiar and charming distinctiveness to the plant. *Davallia retusa* appears to be a very free-growing species, and is certainly one of the most characteristic and elegant of its class. The very openly tripinnate fronds exhibit the pretty red colouring of the stipules well in contrast with the light green of the comparatively large pinnules. The latter are of peculiar form, being very distinctly triangular, or more frequently rhomboidal. *Gymnogramma schizophylla* gloriosa is one of the most elegant of Ferns, and is very distinct from any of the varieties of the type. It is dwarf, compact, and even dense, yet extremely graceful in habit, a matchless basket Fern. *Adiantum cuneatum* elegans, if there are no spurious forms of this highly-rated variety in circulation, we must say are disappointed with it. The specimens at West Coates Nursery differ from the ordinary forms of the type only in being more loose or leggy, imparting rather a tangled than an elegant aspect to the plants. A. monochlamys, a very pretty dwarf growing Maidenhair, with subglaucous pinnules very closely set on the fronds. It is a greenhouse species.

Vallota purpurea magnifica is a brighter and better thing than the old well known type. The flowers are larger, the perianth segments more full and rounded, giving the individual flowers a more symmetrical outline. The colour is soft vermillion and lacks the purplish tinge that suffuses the flowers of the ordinary form, and the throat or tube of the perianth is striped with pure white. X.

DENDROBIUM PHALÆNOPSIS.

THIS (fig. 110) is one of the showiest of the East Asian species of *Dendrobiums*, and is allied to the *D. bigibbum* section. The stems are slender and erect, about 1½ foot in height, and bear near the top eight or ten lanceolate leaves. The racemes, which are terminal, on erect peduncles, 10 inches long, carry about fifteen flowers from 2 to 2½ inches across. The sepals are oblong ovate, magenta with a whitish centre, the spur deep purple; the petals are rhomboid obovate, of a warm magenta-purple, the lower half paler in the centre; the lip is of an intensely rich rosy-purple, an inch long, acute, with the broad lateral lobes meeting over the column, its base forming at the hinge a second spur and the front lobe deflexed, magenta with maroon-crimson veins; the throat of the same colour; the veins of the throat are thickened and covered with dark papillæ. It flowers in April.

The Rosery.

HOW TO PLANT ROSES.

NOVEMBER is the month in which this operation is best performed, but the best way to perform the operation is not well known by some Rose amateurs. Everybody desires to plant Roses in his garden; they are planted in the full expectation of a splendid blooming season; but those expectations are not so fully realised as they might be, if careful preparations had first been made. It is not sufficient merely to dig a hole large enough to contain the roots, and to fill in the soil again, however carefully it may be done. Good manure is necessary, and it must be applied in the right way. Pig manure is good, but I have always used for Roses stable and cow manure in about equal proportions, and find they do remarkably well with it. Recently we have tried peat manure

from the stables. If care be taken not to use it too freely it seems to be a powerful manure, giving the dark Roses a good colour. Trench the ground 2 feet deep if possible, and place two layers of manure in during the operation, one at the bottom of the trench, and the other 9 inches below the surface. Those who have to deal with light sandy soils may plant in wet weather almost as soon as it has ceased to rain. In medium clay, or clay soils, the case is quite different. It is necessary to wait until the ground is comparatively dry, because disturbing it in wet weather may bring it into a state of hardness most unfavourable to the healthy growth of the Rose plant. Carelessness in planting, or in not choosing a favourable opportunity, may be a cause of failure more annoying to the cultivator, because it might have been avoided by a little patient waiting. The ground is not in a good state for planting if it sticks to the boots or spade. Before planting examine the roots, and cut out the suckers quite close to the stem. If not cut quite back, fresh eyes will start, and the last state of that plant will be worse than the first. Cut back any very long roots, also any bruised portions. We dig out the hole large enough to hold all the roots spread out straight, and we never plant a Rose without placing some good moderately dry compost, prepared in the potting shed, amongst the roots. Turfy loam, with a third part of decayed manure, answers well. All standard

budded Roses sometimes become an intolerable nuisance, owing to their tendency to produce suckers. In the hands of the inexperienced a choice hybrid perpetual Rose will become in time a vigorous bush of the Manetti, from which all trace of the Rose itself has departed. Hybrid perpetuals and Tea Roses should be grown on their own roots—at least, all the vigorous kinds.

ROSE CUTTINGS.

They are easily enough propagated from cuttings taken off in August or September, and the cuttings planted in a shady place under a close hand-glass—they form roots before the winter. Tea Roses may be successfully treated in this way. If cuttings were put in during the month of August, they would now be ready to be potted singly in 3½ or 4 inch pots. They could be grown on during the winter in cold frames, and be planted in the open ground in April. A quantity of such plants put out in rich soil would produce a plentiful supply of Roses and Rose-buds all through the summer and autumn.

DRAINAGE.

One thing more must also be mentioned in reference to planting, and that is drainage. Dig a hole 2 feet deep during the winter in wet weather; if drainage is insufficient, water will stand in the hole.



FIG. 110.—DENDROBIUM PHALÆNOPSIS.

Roses should have a stick placed to them at the time of planting. In November it is bad management to have to tread on the ground oftener than is absolutely necessary. One successful cultivator would never tread in the soil round the roots in November; he preferred to let it settle gradually. I think he was right. Place over the surface of the ground round the base of the plants some decayed manure, and the operation of planting is completed.

STOCKS OR OWN ROOTS?

The question as to what is the best stock, or whether the best is not their own rootstock, is one on which opinions are still very much divided. It would have been settled long ago if each system of culture did not possess sufficient merits of its own to sufficiently recommend it for general adoption. Standard Roses, of course, are budded on the Dog Rose. The stocks are planted in November or December; strong shoots will be produced in the spring near the top of the stem, and close to the base of these the buds are inserted in July. The seedling Brier answers remarkably well either for hybrid perpetuals or Tea Roses. Hybrid perpetuals are also budded in July or spring grafted on the Manetti. Mr. W. Paul's nursery at Waltham Cross I saw during the summer quantities of Tea-scented Roses which had been worked on the Rose de la Grifferaie. Mr. Paul also showed me a large quarter of Roses on their own roots; and he says the demand for these is increasing. One cannot wonder at this, for

I had to do with a good garden of clay soil, which I was told had been well-drained some twenty years previously, and that it was all right. The ground was prepared for Rose beds in the autumn without taking any further notice of the drainage, but I found on digging out round holes 3 feet wide and 2 feet deep for Coniferous trees, if they were open twelve hours a few inches of water stood in the bottom of some of them, and in order to be secure the whole garden was drained. Tea and other Roses have done splendidly, but success could not have been expected if their roots had been in water for a portion of the year. On the recommendation of Mr. Geo. Paul I planted four years ago in November a raised bed with Tea Roses. The bed was raised about a foot higher than the surrounding lawn, its sides were sloping, and they were neatly turfed over. The Rose beds are, I think, even more effective made in this way, and the chances of their being injured by wet are considerably reduced. Those who have had to do only with light soils over a gravel subsoil have no idea how difficult and unpleasant it is to deal during wet weather in winter with heavy clay soils unless they are well drained. No wonder that rows of standard Roses neatly planted on each side of the walk do not succeed. Examine the roots. They are in a puddle of water. Lime rubbish or other loose material put into such holes drain the water into the roots, not away from them. It is useless trying to grow Roses or anything else in heavy undrained soil. The effect of a few 3-feet deep drains and 2-inch pipes



FIG. 111.—CAPPARIS SPINOSA: THE CAPER PLANT.

laid in the bottom with a good outlet for the water, is astonishing.

POT ROSES.

The plants intended to flower in March should be pruned now. Before doing so let the soil in the pots be comparatively dry. This prevents any of the sap from exuding at the cut places. Do not give any water for a month unless the soil should become dusty dry, which is undesirable. I have previously stated that August is a suitable month in which to pot them, and if that was done they will require no further attention until they are placed into any glass-house in December. We have no better place for ours than an early vinery; and a very good place it is.

They require exactly the same treatment as the Vines—a rather moist atmosphere and a temperature of 45° at night; this is kept up for two weeks, when it is raised two or three degrees, to be gradually increased to 55°. Usually the Roses start earlier than the Vines. They have a much better chance, as the pots containing them are either placed on a bed of fermenting material in the house or over the hot-water pipes. We have Tea Roses flowering nicely in pots now. The plants made good growth and formed their flower-buds since they were repotted in August. But that is no great feat, considering that to-day (October 23) we have been cutting good Tea and other Roses on our raised beds out-of-doors. Now that cold and wet weather has set in with little sunshine, the outer petals decay on the buds, and prevent the perfect expansion of the flowers. Were it not for the inclemency of the weather, we should have quite as good a display of Tea Roses on our plants out-of-doors now as we had during the height of the blooming season. Some of the plants have scores of buds on them ready for expansion. The hybrid perpetuals are not to be named beside them for profusion of bloom. *J. Douglas.*

CAPPARIS SPINOSA.

THIS ornamental, as well as interesting plant, is now flowering freely in the Cambridge Botanic Garden, whence specimens were forwarded for the accompanying illustration (fig. 111). Though well known and occasionally seen in flower years ago, it has latterly had but little attention. The flowers, however, as may be imagined, are very beautiful, being about 3 inches across, with large pure white petals and numerous loose stamens, of which the filaments are long and conspicuous, white below and rich purple above. The sweet perfume, too, adds not a little to the attractiveness. This specimen, though quite young, covers an area of about 3 square feet, and the best shoots of this year are 3 feet long, each leaf towards the extremities and for some distance back bearing a bud. It was planted, when quite small, about two years ago, when Mr. Ewbank drew attention to the loveliness of the flowers.

I then gave some hints as to management, and having no flowering specimen, commenced here the same treatment with the result as above mentioned. A considerable number of flowers have been produced this year, and they will continue to open, no doubt, so long as weather permits. The specimen is growing at the foot of the south wall, where it was planted on a low mound of broken bricks and good soil. A woodwork arrangement was made to carry a light for winter protection; it scarcely amounts to a frame, as plenty of air is always required, and for this reason the light is tilted up in front almost at all times when in use. It could however, be closed in if the weather were very severe, but the plant may be considered hardy against a wall, further protection being required rather on account of wet than cold. The side shelter from cold winds is no doubt advantageous. The light remains on through the spring and until summer has fairly set in, as any roasting the plant may get before then is likely to be rather beneficial than otherwise. It will go on again as soon as protection from heavy rain is necessary in order to keep the plant dry to encourage the ripening of the wood. The Caper grows easily from seed, and cuttings taken from pot plants will strike, but it would perhaps be useless to put in cuttings from a plant growing freely in the open ground.

It is rather a curious fact that this plant cultivated in a pot with all due care scarcely grows at all, while planted out under favourable conditions it grows vigorously. *R. Irwin Lynch.*

Orchid Notes and Cleanings.

PHALÆNOPSIS VIOACEA.

THIS handsome autumn-flowering Orchid seems to be one of the most varied in the genus as to the range of coloration, three forms having just been placed in my hands, no two of which were nearly alike. First a fine flower of the variety *chloarea* came from Mr. Burbridge, then the variety *Schroederiana*, from a plant which flowered at Kew; and lastly, a form which hardly fits the characters of any of the published forms, being somewhat intermediate between the latter and those varieties with light yellow sepals. The fact is that with such a variable species varieties might be multiplied to an almost unlimited extent, with a good series of plants under observation. The differences, however, are often merely those of individuals. The variety *chloarea* seems to me the most striking and effective of all, the pure white segments, faintly tipped with pale green, and the intense violet blotch on the inner half of the lateral sepals, forming a charming contrast. *R. A. Rolfe*.

ANGRÆCUM CAUDATUM.

While forming a companion plant to *A. Kotschy*, of more recent introduction, this is abundantly distinct, notwithstanding its first-sight resemblance. Their similarity is all the more striking seeing that they are geographically so widely separated, *A. candidum* being a native of Sierra Leone, while the other was introduced from Zanzibar, on the other side of the continent. A close comparison of the two, however, shows that they are widely distinct, and most resemble each other in the enormous length of the spur which is more or less distinctly twisted in both cases. *A. Kotschy* is most marked in this respect, but individuals of *A. caudatum* vary. A plant in the East Indian house at Kew exhibits an open spiral twist of one turn, while the figure in the *Botanical Magazine*, t. 4370, shows an irregular and but ill-defined twisting, as did the plant exhibited at Kensington Oct. 11. The figure in the *Botanical Register*, t. 1844, has a straight spur or almost so. *A. caudatum* is further characterised by a remarkable twist of the pedicel which it has in common with *A. eburneum*, which has the effect of making the flower lie on its back with the labellum uppermost. *A. Kotschy* does not appear to possess this, but has the labellum anterior, with yellowish-white fragrant flowers and very broad leaves, whereas, on the other hand, the leaves of *A. caudatum* do not exceed an inch in width, and the acuminate sepals and petals, together with the spur, are of a peculiar pale olive-brown. The labellum is pure white, suddenly and remarkably prolonged at the apex into a subulate greenish point. In all these characters it will be seen that the two species are remarkably distinct, and in no way to be confused one with another notwithstanding the similarity in the spurs. *J. F.*

CYRTOPERA REGNIERI.

The *Orchidophile* for October has a coloured plate of this Cochinchinese Orchid, introduced by M. Alexander Regnier. The flowers are produced at the same time as the lanceolate plicate leaves, and are borne on a raceme springing from the base of the stem. The individual flowers are about 2 inches across. The segments are oblong-lanceolate, pale primrose, the lip 3-lobed, the side lobes erect, the front lobe longest, white, with a yellow blotch.

LIPARIS ELEGANS.

A PLANT which has probably never been seen alive before in this country, and which up to the present moment is all confusion in the books, may now be seen flowering at Kew. Elegant it certainly is, but not very striking, a character possessed in common with the bulk of the genus. The flowers are numerous and borne in erect racemes, the colour being pale greenish-white with a deep reddish-orange lip. It was sent from Penang, by Mr. Curtis. The genus has recently been monographed by Mr. Ridley, of the British Museum, in the *Journal of the Linnean Society*. It is there correctly pointed out that *L. elegans*, Lindl., is a mixture, though the material was not sufficient to clear the matter up.

Curtis' plant has now solved the difficulty. Lindley's type sheet consists of one piece of the true plant (the only good flower being admirably drawn on the sheet), a flowering piece of *L. longipes*, Lindl., and several fruits of a third species. The description is compounded of the three, but as that of the flower, on which Lindley relied for its distinctness, is taken from this species, his name may be retained, with the character amended. Lindley's plant was sent from Penang by General Porter. Maingay, who also collected the plant, has written on his ticket, "Found growing on stones near the waterfall, Penang;" and, as recorded above, our present plant is from the same spot. The following description is taken from the living plant:—Pseudobulbs ovate, somewhat compressed, with one to three leaves. Leaves lanceolate-linear, acute, narrowed at the base, 3–8 inches long. Scape erect, 1–1½ foot high, terete; racemes 6–10 inches long. Flowers numerous, about six to the inch when expanded. Bracts subulate, acute, a quarter of an inch long. Sepals and petals pale whitish-green, subobuse, one-eighth of an inch long, the former linear-oblong, the latter narrowly linear. Lip deep reddish-orange, cuneate-oblong, retuse, and minutely denticulate above, one-sixth inch long. Column slender, with a pair of minute wings above. Fruit erect, pyriform, with six distinct ribs, a quarter of an inch long. The fruits on Lindley's type sheet are pendulous, and more than twice as large, but I do not know what it can belong to. The plant belongs to the section *Coriifolia*, and to the group *Densiflora*. It may stand next to *L. vestita*, Rchb. f., the one other species of this group with a retuse apex to the lip. *R. A. Rolfe*.

TRESCO.

TRESCO is not so rich in native flora as the two larger islands, St. Mary's and St. Martin's, but it contains naturalised plants, e.g., *Mesembryanthemum edule*, in greater numbers. Among the common wild flowers are the Horned Poppy, Sea Holly, Tree Mallow, *Euphorbia paralias*; *Lavatera sylvestris* and *Acanthus mollis* have also been found. Curious enough, the Nile Lily might perhaps be put down as a garden escape. *Agave americana* and the New Zealand *Veronica* are to be seen in most of the cottagers' gardens. The cultivated fields are divided from each other by hedges of *Tamarisk*, "vastly pretty" in its flowering stage, and *Escallonia macrantha*; *Myoporum laetum* has been employed as a hedge plant with great success. In a former number I mentioned the somewhat curious fact of the Ling and Gorse being about the same height in a very wind-swept part. The blaze of colour when both are in flower together, as they are throughout August, is equal to that of any mainland ribbon border.

In the Abbey gardens there is always something fresh to interest, no matter how often one may tread its beloved alleys and *cul-de-sacs*. An *Agave americana*, the flower-scape of which was only beginning to burst from durance vilest (at least, mortals would call twenty years captivity so) on Whit Sunday, is now 27 feet high, and will probably grow yet another 3 feet. The horizontal flower-stalks number over forty. As Whit Sunday was the 13th of June, and we measured the scape on September 11, it must have been growing at the rate of 2 feet per week. *Dasylirion acrotrichum* has not flowered here as yet, though this desirable result cannot be far off if the size of the plants be any index. *Paya chilensis* and *Fourcroya longeva* can be seen in flower every year.

Flowering plants are scattered often in a charmingly ingenious manner. Mr. Vallance must be a "pawky chiel" to have at his command so many surprises. His taste in bedding-out is technic enough when he chooses, however, e.g., the *Dracena* flower garden, and his bed of *Portulacac*s with a procumbent *Erythrina crista-galli* in the centre thereof. What is called the Hop-circle could be copied in other gardens to their gain. It consists of concentric circles of Bay, Hops, and Fuchsias, one of each in the order named. The Hops are trained in festoons along iron and wire-work. The Fuchsia hedge is about 3 feet high, very dense, and covered with bloom. A path divides the circle into semicircles. On the one side the vacant spaces are filled with *Dahlia*s, which in Scilly are left out through the year; on the other are divers flowering plants and a fine *Aralia papyrifera*, which a tall *Dahlia imperialis* hides close up to, much to the satisfaction of both, apparently. Only those who know the Hop as a

trailing plant, and the beauty of the old-time species of Fuchsia could cordially realise any word painting that would adequately limn this fair garden within a garden. The rockwork, on which the Abbey stands, is brightest when the *Crassulas* and *Pelargoniums* are in their heyday. Still, there is always something in bloom every month. The most attractive plant now, perhaps (September), is *Arctotis grandiflora*; this is the *Arctotis* Mr. Harpur-Crewe was so fond of, and tried to induce others to grow. An unusual form of vegetation is to be seen growing amongst the rocks in the shape of the *Equisetum-like* foliage of a rather tall *Casuarina*. Close by this *Casuarina* is a *Dracena Draco*, decidedly dwarf for his years. The *Eucalypti* grow well enough in Scilly, but when they get above protection immediately become wind-scorched. A large tree has been, unfortunately, almost killed by exposing it to the winds. In Portugal *Eucalypti* are planted as screens against the winds from seaward, but the young plants and saplings there are reared in exposed places, and hardly ever staked, as any friction is highly detrimental to them. The same fate that fell upon the great *Eucalypt*, which Baddely's *Thorough Guide* mendaciously states to be the second tallest in Europe, also awaited an ambitious *Araucaria Bidwilli*; the headless tree is now enclosed in a rough casing of tubular form, over which *Mitlenbeckia complexa* has spread in a rampant fashion. This climber is the most luxuriant of all the alien weeds that have obtained a footing in these gardens. Our illustration, fig. 112, shows how well the Tree Ferns, *Dicksonia*, thrive in the garden when protected from the fierce wind, *Vagabondo*.

TREES AND SHRUBS.

SPIRÆA THUNBERGII.

THE usual flowering time of this graceful shrub is spring, when the plant is leafless. Where planted in the background on the rockery at Kew it flowers annually and profusely, but the same plant flowering in the second week of October, while the leaves are still fresh and green, seems a rather unusual phenomenon. The fascicles of flowers are by no means numerous, but their presence is sufficiently significant to be noted. The beauty of the plant would be greatly enhanced if the foliage accompanied the flowers in spring, but the naked or leafless character of the plant at that season seems to be constant in its native habitats, judging from the *Flora Japonica*, i. 69, where an uncoloured figure is given, consisting of a leafy flowerless branch, and a flowering leafless one. It is widely distributed throughout Japan, in the valleys, and on the slopes of mountains and rocks. The native name, *Juki Janagi*, signifies white Willow—a comparison by no means inappropriate, owing to the slender, twiggy, and Willow-like habit of the plant. No record seems to have been made of its introduction to Britain in gardening books. I have known it for ten or twelve years. *J. F.*

CEDARS OF LEBANON RIPENING SEED.

We have several large Cedar trees here, which have this season ripened seed in quantity. The cones burst early in April, and the seeds are scattered about in all directions. A great many of them, after laying on the turf a few days, I found to have pushed forth a shoot, over an inch long, in search of earth. I picked up several, and had them potted in 3-inch pots, and have now twenty nice little plants, some of them 5 inches high. *H. Markham, Mercworth Castle, Maidstone.*

FORESTRY.

NOTES FROM THE COLONIAL EXHIBITION.

TO the British forester the Canadian court is of particular interest, not only from the number of woods exhibited that have been found valuable as timber producers, and perfectly well suited for culture in this country, but as demonstrating in a practical manner many of the uses to which they are applied. Amongst these we took particular note of *Thuja gigantea*—indeed, we were delighted to see the timber of a tree that we have so often recommended for extensive planting in this country so clean, firm, and easily worked. A large specimen of some 21 feet in girth was exhibited, this being taken from a tree 250 feet

high, as well as numerous boards and polished sections of the same wood. Professor Macoun, of Ottawa, tells me that this specimen may be considered as about the largest, but that the average dimensions reached by this stately fast-growing tree are but little less. The larger trees, he likewise stated, were apt to be hollow, and that not infrequently several stems issued from the same root, and that along the outskirts of the forests it was no uncommon thing to find the tips of such branches as came in contact with the ground taking root and throwing up stout stems much in the same way as the common Spruce does in this country. Rather damp, alluvial deposit suits this tree best; indeed, the Professor told me that it was almost unknown in the dry central plateau, but plentiful along the coast and lower parts of the rivers. As a substitute for the Larch in this country *Thuja gigantea* is fast coming to the front, it being of the easiest culture, extremely hardy, not at all liable to lose its leader even during the most severe storms, and a rapid timber producer. Here we have planted it very extensively, and with the best possible results.

Pinus Strobus, of which a large plank is exhibited, is considered the most valuable in a commercial sense of any of the Canadian Pines. The wood as shown here is remarkably clean and free from knots, light in proportion to its bulk, easily worked, and takes a fine polish. It is likewise remarkably durable, not at all apt to become twisted or bent, and is said to be more readily stained and to take paint better than almost any other wood in the section to which it belongs.

Here then we have in one of the most valuable timber producing trees of North America, a Pine that is well adapted for culture in this country, a statement that is readily enough substantiated by the great size to which the tree has attained in various parts of our country. At Gwydyr Castle I not long ago measured one of several specimens that were growing in a rocky woodland and in by no means the best of soil, and found the girth at breast-height to be 9 feet 5 inches. None of the trees were less than 80 feet in height, with clean, perfectly straight stems, which were destitute of branches for nearly half their length. Various other examples of fast growth in this Pine might be adduced, which shows clearly that it is perfectly well adapted for culture in our soil and climate, and which, coupled with the fact of its being such a valuable timber producer, should be a warning to intending planters not to pass over so promising a tree in making their selections. Of *Abies Menziesii*—another tree that is quite at home in our island—there is a plank of huge size, it being fully 20 feet long, 3½ feet broad, and 6 inches thick. The wood seemed white and clear, and from its large size it must be valuable in the making of furniture, boxes, &c. *Pinus monticola*, of which a plank 18 feet long, by 3 feet 10 inches wide, and 3 inches thick, is exhibited, pleased us eminently, for its clean, well packed wood betokens strength and lasting qualities in a very marked degree. Being unpolished we were not able to form a good opinion as to how it would work under the tools of the carpenter, but a little experiment that we took the liberty of making, satisfied us that in this particular respect it was far from deficient. The wood we were told is highly valued, but as the tree is scarce and grows in almost inaccessible situations, it is but seldom that the chance of converting the timber is offered. In this country *P. monticola* does very well, but as yet no trial of its wood has been taken in hand.

Sorry indeed were we to know that our favourite *Abies*, *A. grandis*, is not highly spoken of, the wood being rather brittle and easily destroyed—quite the reverse of what we anticipated from specimens that have been cut up and manufactured on this estate. *Larix americana*, or rather the wood of that tree, pleased us well, indeed in colour, texture, and appearance when dressed up, it much reminded us of our commonly grown tree. In its native country the wood is highly valued, being in request for boat building, house-building, and shingles. Specimens of 60 to 80 feet, and a couple of feet in diameter, are commonly met with. It is not much grown in this country—a pity, for such an ornamental and valuable timber-producing tree would certainly be an acquisition.

Pseudo-Tsuga Douglasii is, however, perhaps, the monarch of all trees, and amusing was it to see how attractive to even the ordinary onlooker was a big slab of the wood, some 16 feet high, and 8 inches thick, that had been taken from a 300 feet high specimen that girthed no less than 25 feet. The bark was not nearly so rough as we expected, the thickness

nowhere exceeding 3 or 4 inches. A section from the same tree lying hard by was 18 inches thick, and 18 feet in girth, and showed well the graining of the wood, and large annual growths. How well this tree is adapted for extensive cultivation in this country, we have only to refer those who may feel interested to back numbers of the *Gardener's Chronicle*.

Adjoining this mammoth specimen is a very clean and large plank of the yellow Cypress, *Chamaecyparis nuthkaensis*, a tree that, although but little known in commerce, is, we were told, of great value, the wood being fine-grained and remarkably durable. From the plank exhibited we were forcibly struck with the very clean yellowish-tinted wood—a wood that we should be inclined to employ largely in the making of furniture. Immediately in front of this plank is a number of samples of thinly cut planks of Bird's-eye Maple and white Birch, these being almost as thin as sheets of brown paper. The former wood is much used in its native country for furniture-making, and as it does not warp, at least to any great extent, is employed in the making of out-buildings, portions of the offices in connection with the Canadian department being made of this wood. *A. D. Webster*.

(To be continued.)

The Flower Garden.

HARDY SUBJECTS.

CARNATIONS and Picoetes yet unlifted should be potted up at once. Sandy loam is the best composition to use for them. Examine it carefully to see it is free from wireworm, which is very injurious to these plants. Although these subjects are perfectly hardy they are all the better for receiving the protection of a pit or frame. Let the pots be plunged to their rims in coal-ashes, guard against damp and give abundance of air, supplying water when absolutely necessary, to prevent flagging. The potting of all *Calceolarias*, summer flowering *Chrysanthemums*, *Violas*, *Pentstemons*, *Phloxes*, &c., should now be completed as the season is now over for successful rooting, although if the winter should prove an open one all these subjects will succeed perfectly.

SHRUBS.

The trimming of shrubs may now be taken in hand, but it is not good practice to thin them out much until the winter is past. If they are too freely thinned out at this early period and a hard winter follow the will most likely suffer severely. Where new shrub beds are in contemplation the sooner the plants are obtained from the nursery the better. Let the soil be trenched to the depth of 18 inches; if it be good a foot more will be all the better. Let the bottom be loosened up with a pick for another foot, but do not bring this subsoil to the top. This will secure ample drainage, but where subsoil is hard and retentive the beds had better be elevated a foot above the general level of the surface. No plants will thrive in water-logged beds. This is easily observed by the smallness of the leaves and their sickly colour. The sooner *Roses* are ordered from the growers the better, as those who come first have the first pick. Where fresh beds are to be made the soil will require to be trenched to the depth of 2 or 3 feet, a liberal quantity of fresh loam, charred rubbish, and well decayed cow or pig manure, to the depth of 1 foot, should be well mixed along with the top spit in order to secure fine blooms. Existing beds which it is deemed unnecessary to disturb may receive a mulch of well secured manure and a sprinkling of soil over all will secure a neat orderly appearance. *William M. Baillie, Luton Ho.*

PLANTS AND THEIR CULTURE.

FERNERY.

REMOVE such shadings as remain, for from this time forward all Ferns will be benefited by having as much light as possible; and the glass should be washed inside and out. The plants themselves should be carefully looked over for thrips, and be either dipped or sponge them at once if affected. The amount of water at the roots may be gradually reduced so as to bring them to a state of comparative rest; this applies to the general stock and specimens, but not to those that are required to supply cut fronds or for furnishing. Batches of *Adiantum cuneatum*, *A. gracillimum*, and *A. formosum*, which have been affording fronds for the above purposes should be laid on their sides to rest for a time. Start those plants which have just begun to move, they will come in useful later in the year. All *Gymnogrammas* and *Cheilanthes* ought to

be removed at once into the warmest, lightest, and driest part of the house; be careful not to over-water or syringe them, and remember that drip is very injurious. Any fronds which show decay should be cut off.

FILMY FERNS.

Any of the tender varieties, such as *Hymenophyllum vitatum*, *H. elasticum*, *Trichomanes alatum*, *T. auriculatum*, *T. maximum*, *T. spicatum*, or *T. olivaceum*, should be removed to a warmer place than the Filmy house proper for a few months. A lot of the varieties will make nice growths now; damp the floor of the house, dew or water them overhead but once a day, to induce a season of rest, so that by midwinter they can be left several weeks without water if standing in a cool house, proper to grow them in.

ROSE HOUSE.

The first plants which were placed in this house will now in some cases be coming nicely into bloom, and affording pretty materials for button-holes or sprays, and indoor decoration. If the pots have got well filled with roots, once a week liquid manure may be given freely, that is, at alternate waterings; plants that get starved at the roots being generally those most subject to mildew. Keep the plants well syringed, and if greenfly should make its appearance syringe them with tobacco-water which has been made the day before so as to allow the impurities to settle. This should be applied as soon as the open or half-open blooms are cut in the morning, then there is no sacrifice of bloom or bud by discoloration. A few *Maréchal Niels* can now be introduced, but all shy bloomers or delicate growers should be kept in the cool pit for a time longer. Hybrid perpetual *Roses* which have been forced previously and kept in pots should now be plunged up to the rim in ashes or cocoa-fibre; the others that are required for the spring supply must now be potted up. At one time I used to grow my *Roses* in pots one season and force them the next, but now I pick out those plants with the ripest wood, and plunge them in ashes up to the rim on a large hotbed of manure and leaves at about 80° bottom-heat. This causes active root-action, and the pots get well filled with roots by Christmas. As the plants are now in the open air, the plants go to rest, thus saving a season of labour with results that are equal. The following kinds force the best, viz. *Alfred Colomb*, *Anna Alexieff*, *Baroness Rothschild*, *Baronne Haussmann*, *Boule de Nègre*, *Charles Lefebvre*, *Countess of Oxford*, *Dr. Andry*, *Duke of Connaught*, *Duke of Edinburgh*, *Félicité de Lesseps*, *Fisher Holmes*, *John Hopper*, *La Duchesse de Morny*, *La France*, *Madame Charles Wood*, *Marie Baumann*, *Senateur Vaisse*, *Géorgie Jacquemont*, *Olga Marie*, *Victor Verdier*, *Sir Garnet Wolseley*, and *Louis Van Houtte*. *A. Evans, Lythe Hill.*

FRUITS UNDER GLASS.

PEACH AND NECTARINE TREES.

No time should be lost in preparing the trees in the early and second house for forcing. The first step to be taken in this direction is to wash the glass and woodwork with warm water, and the other parts with hot lime, into which a few handfuls of flowers of sulphur should be stirred before being used. This done, cut out as much of the old wood as can be dispensed with, as well as superfluous and extra strong shoots of the current year's growth, and some of those that are left should be shortened back to a wood-bud where necessary to secure balance of growth. This object should never be lost sight of in pruning trees of any description. Then the trees—unless they have been perfectly free from blight during the past season—should be washed with a soft brush and a solution consisting of 4 oz. of soft-soap dissolved in a gallon of warm water, with two handfuls of sulphur well mixed. This should be applied to every part of the tree, care being taken not to damage the fruit-buds. The shoots should be thinned out to about 5 inches apart, and these should be trained at an equal angle on either side of the tree, and should not be tied too tightly to the wires, otherwise they will not have room to grow. This done, prick over the surface of the border with a steel fork, remove the loose soil, and replace it with a mixture consisting of three parts of sound loam and one of time-rubble and wood-ashes, following this with 2 inches thick of horse-droppings or short manure, and a good soaking of tepid water. If Peaches are required in May next, the house should be kept close towards the end of the ensuing month, and the trees be syringed two or three times a day with water a few degrees warmer than the temperature of the house according to the temperature of the weather, and only use the heating apparatus to prevent the temperature from falling below 40°. Trees in late and cold houses should in due time be attended to in the manner indicated. *H. W. Ward, Longford Castle.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Nov. 1	Sale of Dutch Bulbs, and 10,000 Lillium auratum, at Protheroe & Morris' Rooms. Sale of Fruit Trees, at the Osborn Nursery, Hampton, by Protheroe & Morris. Sale of Dutch and Belgian Bulbs, at Stevens' Rooms. Chrysanthemum Show of the Ealing, Acton, and Hanwell Horticultural Society. Chrysanthemum Show of the London Corn Exchange.
TUESDAY, Nov. 2	Sale of Nursery Stock, at Holland's Nursery, Groombridge, by Protheroe & Morris (two days). Annual Sale of Nursery Stock and Herbaceous Plants, at Wares's Nursery, Tottenham, by Protheroe & Morris. Sale of Roses, &c., at the City Auction Rooms, by Protheroe & Morris. Show of Chrysanthemums, &c., at Havant (two days). Sale of Dutch and Belgian Bulbs, at Stevens' Rooms.
WEDNESDAY, Nov. 3	Sale of Plants and Lilies, at Protheroe & Morris' Rooms. Clearance Sale of Greenhouse Plants, at the Melbourne Nursery, Anerley, by Protheroe & Morris. Chrysanthemum Show at Twickenham (two days). Sale of good Lillium auratum, from Japan, at Stevens' Rooms. Sale of Imported Orchids, at Stevens' Rooms.
THURSDAY, Nov. 4	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Sale of Nursery Stock, at Maidstone, by Protheroe & Morris. Sale of Nursery Stock, at Sutton, Surrey, by Protheroe & Morris. Chrysanthemum Show at the Crystal Palace (two days). Sale of Established Orchids, at Protheroe & Morris' Rooms.
FRIDAY, Nov. 5	Sale of Nursery Stock, at Lee's Nursery, Hounslow, by Protheroe & Morris. Sale of Dutch and Belgian Bulbs, at Stevens' Rooms.
SATURDAY, Nov. 6	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.

WE have often had occasion to allude to the GHENT SCHOOL OF HORTICULTURE, presided over by Professor KICKX, the Professor of Botany in, and Rector of the University of that city. In the absence of any such institution in this country many of our young countrymen have availed themselves of the opportunity of procuring in the old Flemish city a practical training in their art, together with instructions in the principles of science, on the successful application of which, directly or indirectly, substantial progress alike of the individual and of horticulture in general depends.

That institution is, as we have said, presided over by the Professor of Botany, and among his colleagues are names known wherever horticulture is known—RODIGAS, VAN HULLE, BURVENICH, and PYNAERT. Those who think that an ounce of practice is better worth than a pound of theory will be reassured by reading the names of these four gentlemen, happily compared by the late Dr. LUCAS, the pomologist, to a four-leaved Shamrock. We have not on this occasion to concern ourselves with the working of this school, nor with the details of the public work for the promotion of horticulture effected by these gentlemen with the potent assistance of the learned and genial Count OSWALD DE KERCHOVE. Our task to-day is different. We have to call attention to the way in which horticulture has been honoured in Belgium in the person of one of its most indefatigable promoters; and when we have told our story, we shall leave it to our readers to wonder why it is that horticulture in this country does not receive the same public recognition that it does in other countries. Fancy the Vice-Chancellor presiding in Oxford on a similar occasion! That EDWARD PYNAERT should be the recipient of honours and flattering testimonials is no subject of wonder to those who have the privilege of his acquaintance. His indefatigable labours, his zeal, his transparent honesty of purpose, his ready wit and inexhaustible good nature, associated with his other excellent qualities of head and heart, are certain to win the suffrages of all to whom they are known. That this is so was shown by the "Manifestation" in his honour in Ghent on Sunday last. In the concert-room of the Casino—a building well known to the frequenters of those "Quinquennials" which are attended by the horticulturists of all nations—a large company assembled to do honour to M. PYNAERT. The occasion was the twenty-sixth anniversary

of his entry into his professional work connected with the State School of Horticulture. Professor KICKX, the Rector of the University, presided—Count DE KERCHOVE, the President of the Society of Agriculture, under whose auspices the Quinquennials are held, the Director of the Ministry of Agriculture, and of course a large number of representatives of societies and of colleagues and friends, were present; while Madame PYNAERT and the ladies of her family were concealed amid the Ferns and Palms behind the bust of "our" king. It is not for us to criticise the arrangement, but we may at least express an opinion that the *fête* would have been rendered even more complete had Madame PYNAERT not been hidden away behind the shrubs. Surely she had the right to share her husband's triumph, and receive the congratulations of their friends. We cannot enter into details as to this celebration. They fill six columns of the *Ghent Journal*. They were moulded on the same lines as those which were followed in the similar celebration in honour of Professor RODIGAS, and noted by us at the time.

We were not able to take time by the forelock, and announce the successful occurrence of this celebration some weeks beforehand, as one of our American contemporaries, gifted, as it seems, with foresight, did. But, in truth, it is easy to imagine the course of events, and the enthusiasm of the guests. What we in this country cannot realise is the State recognition of M. PYNAERT's services. The Rector of the University, in proposing the "usual loyal and patriotic toasts," took occasion to say that the King was desirous of associating himself with the "Manifestation," and of giving it official sanction. Professor KICKX was, therefore, charged in the King's name to present to M. PYNAERT the Civil Medal of the First Class, not only as a recompense for his great services, but also as a precious encouragement for the future.

Following the Presidential introduction, M. BURVENICH gave at great length a detailed account of the career of the hero of the day, from his school-days, his training under VAN HOUTTE, his work as a journeyman in Munich, in Paris, at Belœil, as Head Gardener to the Prince DE LIGNE, and subsequently as Professor in the Ghent School of Horticulture. M. BURVENICH alluded to his colleague's literary work, his books, his valuable editorial work in connection with the Horticultural Press. Then came a deputation of pupils from the School of Horticulture to offer their tribute, and more, and yet more colleagues rose to "demander la parole," till M. PYNAERT himself, anxious not to omit the names of any individual or society which had done him homage on this occasion, was compelled to have recourse to a written document, and to make his tongue render, at second-hand, what his pen had written. For so accomplished a speaker this would seem to have been a mistake, but when a man is overwhelmed with testimonials such as were showered upon M. PYNAERT, the readiest speaker might find himself at fault. All four of the leaflets of the "four-leaved Shamrock," that flourishes so well at Ghent, have now been honoured in this way, each after twenty-five years of service. They have worked together so well that veritably one must multiply by four to estimate the result of their services to Belgian horticulture, and, through it, to that of the world.

—THE JARDIN DES PLANTES.—We have received from the Director, Professor MAXIME CORNU, a list of stove and greenhouse plants which may be had by way of exchange on application to the Director, 27, Rue Cuvier, Paris.

—OLYMPIA, KENSINGTON.—Mr. HERBERT GLADSTONE has contributed an article on the all-

important subject of "National Physical Education," to the book which is to be published in December next, in connection with the opening of "Olympia," the new National Agricultural Hall at Kensington.

—FOOD REFORM.—Our fruit growing friends may like to know that the Vegetarian Society has arranged for a special *table d'hôte* dinner and fruit conference to be held on November 5, at 303, Strand, the Queen Victoria Restaurant. Select exhibits of dessert Apples and Pears will be shown, suited to provide a supply for the winter season.

—HIGHGATE, FINCHLEY, AND HORNSEY CHRYSANTHEMUM SOCIETY.—We are informed by Mr. H. BARNABY, 49, Southwood Lane, Highgate, N., the Hon. Sec. of the Society, that the autumn flower show and second exhibition of Chrysanthemums, fruit and vegetables, &c., will be held in Northfield Hall, Highgate, on November 3 and 4. A large number of classes are provided, and the money offered in prizes is about £100.

—POTTERY AT LIVERPOOL INTERNATIONAL EXHIBITION.—We notice that the Executive Council of the Liverpool International Exhibition have awarded to Mr. JOHN MATTHEWS, Weston-super-Mare, a Silver Medal for terra cotta vases, &c. The exhibit attracted much attention at Liverpool, and was universally admired.

—THE LIVERPOOL SHIPPERIES EXHIBITION.—Mr. JOSEPH WITHERSPON, Red Rose Vineries, Chester-le-Street, received a Silver Medal for his horizontal tubular hot-water boiler, "Red Rose," and was also awarded the Bronze Medal of the Royal Horticultural Society's Provincial Show at Liverpool in July last.

—"DER PRAKTIISCHE GARTENFREUND."—This is the title of a new horticultural journal to be published weekly in Berlin at 4s. a year. Its contents are varied and practical, and print and paper are good—better than in our penny gardening journals.

—"LINDENIA."—The last number contains coloured figures of—

Catasium Burgerothi, t. 57.—An extraordinary white-flowered species, described from a sketch only. The flowers are in racemes, each flower being about $3\frac{1}{2}$ –4 inches across. We shall await with eagerness the flowering of this remarkable plant.

Odontoglossum luteo-purpureum, t. 58.—A grand species, discovered by LINDEN in the woods of Quidind, New Granada, and characterised by racemes of large five-rayed flowers, the segments ovate-anceolate, heavily blotched with chocolate-brown, and with an oblong rounded white lip with a central brown blotch. It is one of the finest cool Orchids.

Pilumnus nobilis, t. 59.—A lovely species with smooth elongate oval pseudobulbs, oblong retuse leaves, and racemes of large white flowers, proceeding from the base of the pseudobulbs. Each flower measures $4\frac{1}{2}$ inches in longest diameter, the segments linear lanceolate, the lip stalked, broadly obovate, pure white, with a yellow blotch in the throat. The plant was originally discovered in Venezuela by LINDEN.

Vanda uvavis Lindeni, t. 60.—A fine variety of a lovely Orchid with white flowers spotted with reddish-violet and deep violet coloured lip. The raceme of flowers is pendulous, and the petals bent backward, while in V. tricolor the raceme is erect and the petals in the same plane as the sepals.

—THE "ORCHID ALBUM."—In the last number the plants figured are—

Cattleya Trianae Dodsoni, t. 249.—A very beautiful variety, sold by auction for 15s guineas at the same time that C. T. Osmani was bought for 21s guineas by Mr. B. S. WILLIAMS, C. T. var. *Dodsoni* has flowers 8–9 inches across, with pure white sepals and petals, the lip deep violet-crimson, slightly margined with pale pink, the throat orange-yellow. It blossoms in winter.

Sobralia xantholeuca, t. A magnificent flower, 6 inches across in widest diameter, with broadly ovate-lanceolate segments, and a lip with a convolute base and flat crumpled disc, all the parts being of a primrose colour, with the exception of a blotch of orange and a few similarly coloured streaks in the throat of the lip. For a fine photograph of this

species we are indebted to Mr. POWELL, in whose collection at Drinkstone Park, Bury, it flowered lately.

Odontoglossum Cervantesi decorum, t. 251.—The flowers of this species are borne in long clusters; each measures about 3 inches across, with broadly ovate acute segments, white, with concentric rows of small linear reddish-violet streaks, and with an ovate lip crisped at the edge, white, marked with red stripes. A cool Orchid. Native of Mexico.

Dendrobium Williamianum, t. 252.—A New Guinea species, with terminal many-flowered racemes, each flower about 2½ inches across, sepals oblong-acute, petals broadly ovate, both white; lip ovate acute, concave, deep rich violet coloured.

— LONCHOCARPUS BARTERI.—Travellers tell us in glowing terms of the magnificence of the tropical

comprises a variety of beautiful and interesting plants hardly to be obtained, if at all, in the ordinary way of trade. At the same time, we sympathise with the Director in his feeling that it is not the proper work of a botanic garden, to enter into the arena of trade and compete with legitimate traders.

— A POTATO CONFERENCE.—We observe from an unsigned circular which is being distributed that it is proposed to hold a Conference on the Potato, together with an exhibition of varieties of the tuber. The exhibition will consist of four sections:—1. A historic and scientific collection, to include early works on botany in which the Potato is figured; maps showing the European knowledge of the New World 300 years ago, and the proximity of Potato-growing districts to the ports most frequented; early

up with a headache and a jumble; but go out into the fields and hedges and collect examples of leaves, flowers, fruit, &c., and learn the names of all their forms and varieties with the aid of your book, and you will find the process healthful and delightful. So far from terms being a weary burden on your mind, if you learn them in this way and learn them thoroughly, they will be as household words. In studying the elementary structure of plants do the same with your microscope. Get examples, as far as possible, of every form of cell and tissue, make sections of various stems and roots, and familiarise yourselves by actual experiment with all the details of this branch of the subject."

— WHORTLEBERRY WINE.—The British Consul General at Frankfort-on-Maine, reporting on the trade

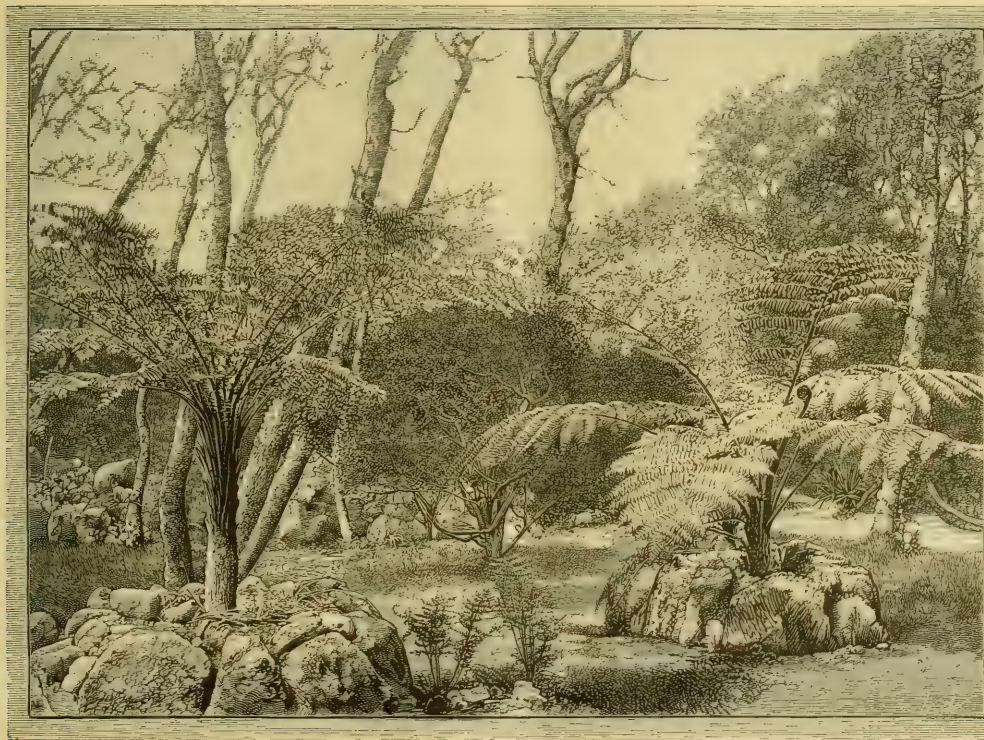


FIG. 112.—TREE FERNS AT TRESCO ABBEY, SCILLY. (SEE P. 558.)

climbing plants, but as often as not they have to cut the tree down to get at the rich flower-clusters. At Kew they manage things differently; the creepers find their way to the top of the Palm-stove, and the visitors find their way after them by means of a spiral stair, and so manage to realise a little of the splendour described by travellers. The sight of the foliage of the huge Palms thus looked down upon is one of the most impressive sights that can be imagined for those who appreciate plants; but just now there is another attraction in the shape of this climber, which is producing its loose clusters of pale violet Pear-shaped flowers with freedom.

— CAPE BULBS.—We have received from the Cape Town Botanic Garden a list of bulbs cultivated for export. These bulbs should be ordered now, and will be delivered from January till March. Messrs. SILBERRAD & SONS, 25, Savage Gardens, Crutched Friars, London, act as forwarding agents. The list

books on travel and voyages in which references to the Potato occur; works and papers in which attempts to define the different species are made; illustrations of the species and varieties; contemporary references to the voyages of HAWKINS, DRAKE, GRENVILLE, and RALPH. 2. Illustrations of Potato disease, and works on the subject. 3. Methods for storing and preserving Potatoes, and for using diseased Potatoes, &c. 4. A display of tubers of the various varieties grown.

— BOTANY.—In an address to students of pharmacy Mr. MARTIN gave the following excellent advice, which is as applicable in its way to young gardeners as to pharmaceutical students:—"In this subject make your reading as much as possible subservient to practical work; that is to say, the study of actual specimens, whether in the field or by the aid of the microscope. Sit down and read and try to remember all the definitions and terms, and you rise

of that town, says:—"Among the different unfermented wines, Whortleberry wine has been produced largely of late for export. A house in Frankfort has made efforts in this direction for years, and by the co-operation of some medical authorities, has at last succeeded in producing a wine from the berry."

— AMOUNT OF QUININE IN CINCHONA TREES.—The late Mr. HOWARD found that the amount of quinine varied largely in trees of the same species growing in the same locality. High-class barks should alone be cultivated.

— "RUMPUMPUS" HAT.—In a report on the trade of Ningpo for 1885 it is stated that the Rush hats which were so popular in this country a few years since are again coming into prominence, after having abruptly dropped in 1882 to a very low figure. The demand for these hats in foreign markets had been brisk, and there was a prospect of the trade

increasing still more. As the raw material can be grown in poor soil, and does not require much attention on the part of the grower, the only limit to the expansion of the trade being the needs of the market.

— **HOPS IN INDIA.**—An attempt has been made to grow the Hop on the Nilgherries, and a beginning has been made by raising a stock of plants from cuttings supplied by the manager of the Nilgherries Brewery to Mr. LAWSON, who, however, fears that the climate of these hills is not likely to suit the plant. The Government is very much interested in this experiment, which, if successful, will prove of great advantage to the ryots of the Nilgherrie hills, for breweries have now been opened there, which import their Hops from England at a heavy cost. If, therefore, the plant can be successfully grown, it will open up a new source of income to the people, who are sure to take to its extensive cultivation when they learn that the produce of their fields will be bought up by the owners of the breweries.

— **INTERNATIONAL EXHIBITION, LIVERPOOL.**—Messrs. F. A. DICKSON & SONS, the Queen's Seedsmen, Chester, have been awarded by the jurors the committee's Gold Medal for their excellent exhibit of trees and shrubs. The collection is of such a character as well to merit the distinction thus conferred. The specimens of the choicer Coniferae, and of some of the more effective evergreens and deciduous plants which were used with such good effect in the general arrangement and in the special decorative designs were perfect of their kind, shapely plants, of fine colour and well grown; the Coniferae were such as could rarely be surpassed.

AUTUMN LEAVES FOR BOUQUETS.—That these admit of considerable use in bouquets, garlands, sprays, &c., an inspection of Mr. Maurice Young's flower-stall, near "Old London," at the Colonial Exhibition, will amply prove. Various varieties of the Maple (conspicuous being *Acer saccharinum*), Virginian Creepers of sorts, *Rhus Cotinus*, and other Sumachs, the foliage of the Tulip tree, Champion and other deciduous Oaks, are amongst the most familiar examples.

— **THE MIDDLE TEMPLE.**—The Chrysanthemums in the garden of this part of the Temple are no longer one of the pleasant autumn sights of the town, and we miss the little narrow house that held them, nestling somewhat inconspicuously under the walls of the Temple dining room. For some inscrutable reason their cultivation remains in abeyance, whilst those of the Inner Temple, under the management of Mr. NEWTON, remain to refresh the eyes of the Londoners with their gorgeous colours and quaint forms. Every one would hail with satisfaction Mr. WRIGHT's reappearance in the friendly rivalry.

— **SPOGEL SEEDS.**—A correspondent sends us a sample of a small seed the size of and something of the shape of Linseed, but with a greyish colour and a well marked longitudinal scar or hilum, by which the seed was attached to the placenta; this suggested either *Primulacæ* or *Plantaginacæ* as the source of the seed, and then came to the remembrance that *Ispaghul* seeds are used in India to make a mucilaginous drink. These seeds it appears are now imported largely from Bombay to Liverpool, but for what purpose is not known. *Ispaghul* seeds are the produce of *Plantago* *Ispaghul*.

— **BRADFORD SCHOOL OF SCIENCE AND ART.**—Bradford is not going to be behind Manchester, the programme of whose exhibition we mentioned last week. The labours and philanthropy of Sir TITUS SALT are widely known. To more effectually commemorate them the "Salt" schools originally given by Sir TITUS SALT to the town, and wherein science and art as applied to manufactures are taught, are to be rebuilt on a larger scale, as a memorial to the late Baronet. The schools are very complete, with libraries, laboratories, studios, workshops, and all necessary appliances. The opening of the new school is to be celebrated by an exhibition of manufactures and works of art. Class 10 includes vegetable substances used in manufactures, while horticultural and agricultural implements find place in class 17 of the programme. Eight acres of garden are to be provided, the furnishing of which will be done by Messrs. FISHER, of Sheffield.

— **NATIONAL CHRYSANTHEMUM SOCIETY.**—A meeting of the above Society took place at the Royal Aquarium on Wednesday last, when a goodly number of subjects were staged, and several new flowers obtained certificates, the names of which and further particulars as to the meeting will be published in our columns next week.

— **THE EMBANKMENT TREES.**—We note with satisfaction that the tree pruner, with his knife and saw, has ceased from troubling; and if he should continue in the same favourable turn of mind these unlucky trees, which by years of maiming and amputation resemble those turned out by the industrious toy makers of Thuringia, may in a few more years assume their naturally handsome form. At present they are growing well, and in a few seasons will give ample shade to pedestrians on the hot dusty Embankment. But prudent thinning must not be much longer delayed.

— **FLORAL DEVICES.**—Our American cousins are usually considered a go-ahead people, but in the matter of floral devices they seem to be where we were fifty years ago or more. One of the latest novelties is a bell made of flowers, with handle and clapper complete. This is the sort of thing our May Day sweeps are now abandoning. Beauty of appropriateness is, after all, about the highest form of beauty.

— **HAIRY OR GLABROUS.**—In some plants and under some circumstances the presence of or the absence of hairs on the leaves furnishes a ready means of discrimination between one plant and another. That this is not always the case is shown in the instance of the little known but beautiful *Gryelia* *Sutherlandii*, which has some of its leaves covered with hairs, others destitute of such investment. We owe to the kindness of the authorities at Kew the communication of leaves, showing both states, and of one shoot on which some of the leaves are hairy, others quite glabrous. In an old plant in the Chelsea Botanic Garden this condition was observed many years ago, but we are quite unable to supply a satisfactory reason for it.

— **BRITISH WINES.**—Our forefathers made wine in this country—why should not we? The answer, we suppose, is that it is hardly worth while, now that we can get better wine from abroad at equal cost. It was different in the old times of the French wars, when trade was anything but free, and ecclesiastics brought with them Vine-dressers, and added the sugar our relatively sunless climate denies. Then vineyards flourished in Kent and elsewhere, as they might do now. The British wine makers now have to contend in competition with their fellows in the colonies of Australia, the Cape of Good Hope, Cyprus, &c. Undeterred by this, the veteran Mr. FENN, who has devoted a long lifetime to the amelioration of the Potato, and a shorter one to the fabrication of British wine, exhibited a number of samples on Tuesday last at the Royal Horticultural Society. It was a bold thing to do, and some who were on the tasting committee evidently were not inclined to award a First-class Certificate. For our own part, after having tasted during the summer various productions from our colonies, we feel bound to admit that Mr. FENN's productions were considerably better than the worst of the Australian or Cape wines, and we are disposed to think that if more care had been exercised in bringing the wines under the notice of the committee, less prejudice would have been felt.

— **PUBLICATION RECEIVED.**—*Report of the Agricultural Resources of Mauritius.* BY JOHN HORNE, F.L.S., Director of Forests and Gardens. (Government Office.)

— **GARDENING APPOINTMENTS.**—Mr. H. REYNOLDS, late Plant Foreman at Upper Grove House Gardens, Roehampton, has been appointed Head Gardener to R. KERSEHAW, Esq., Crownsett Park, Halifax, Yorkshire.—Mr. W. WILLIAMS has been appointed to succeed Mr. WRIGHT (under whom he has been Foreman four years) as Gardener to W. H. GREENFEL, Esq., Taplow Court, Maidenhead, Berks.—Mr. J. SANDERS, late Foreman of Broadlands, Romsey, Hants, has been appointed Head Gardener to H. S. STANLEY, Esq., Paultons, Romsey, Hants.

Notices of Books.

Lectures on the Physiology of Plants. By S. H. VINES, M.A., D.Sc., &c. (Cambridge: University Press.)

This is a book which has been awaited with eager expectation. In spite of the fact that in this country we can boast of Brown, of Hales, of Priestley, of Knight, of Robert Brown, all foremost names in the history of the vegetable physiology of the past, all men who have laid, and laid truly, the foundations of the science—in spite of these exemplars the study of vegetable physiology in this country has fallen into comparative neglect. Nowhere has this unfortunate state of things been more frequently pointed out and deplored than in these columns—a fact we may the more readily mention, now that the pendulum is swaying so markedly in the direction of physiology and physiological anatomy to the detriment of morphology and classification. Till lately we have been indebted for our knowledge of modern vegetable physiology almost exclusively to German sources. A prevalent defect in German publications is, however, observable in their method. Accurate in research and labourious in detail, German authors are often deficient in system, and fail to arrange their material in orderly, coherent sequence. Respect for the law of priority, and regard for the nomenclature of their predecessors are too often conspicuous by their absence. The result is seen in an influx of terms whose novelty lies rather in themselves than in the phenomena or in the facts they are supposed to denote, while in other cases they are calculated to mislead by giving the impression of knowledge where little or none exists.

A good English treatise, thoroughly abreast of the advanced science of the day, has long been a desideratum, and hence the impatience with which Dr. VINES' book has been awaited. Nearly ten years have been expended in its preparation. Ill health and official duties have, however, much interfered with the progress of the book. The title aptly describes its nature. It cannot be looked on as a complete treatise on the physiology of plants. It is simply an expansion of the author's lectures on the subject, and its merits and demerits must be judged by this standard.

Starting with the structure and properties of the cell-wall and those of its contents the author treats in succession of the absorption of water and gases, of the movements of water in plants, of transpiration, nutrition, including the changes which food substances undergo in the plant by "metabolism." Then follow chapters on growth, sensation or irritability, and, lastly, reproduction.

The chapters which in consulting this volume have left the most favourable impression upon us are those on metabolism. The general facts and phenomena relating to the nature of plant food and of the means whereby it enters into the plant are fairly well known and fairly well explained in the text-books, but the changes which those substances undergo in the plant itself under the influence of light and other conditions are far less well known. The chemist tells us what is the nature of the food, the physicist tells us how it enters the plant; again, the chemist tells us the result of the final cremation in his laboratory, but the intermediate processes which are all-important to the life of the plant, and which in consequence are the very thing the cultivator wants specially to know, are not nearly so well known nor so well treated of. It is in this department we expected most from Dr. VINES—let us hasten to say that our expectation has been fulfilled, and we may point to pp. 158–160, 325–330 as containing in small compass an admirable summary of existing knowledge discussed in fuller detail in preceding pages. In other sections the book is more a record of what so-and-so (the said so-and-so being usually a German) has done, or what he thinks, than a regular connected history of the life-processes. This, under the circumstances, is more or less unavoidable, but we should have preferred Dr. VINES to have subjected his stores to some process of metabolism, and to have relegated the record of the sources whence he derived his information to the ends of the chapters. In these situations, indeed, there is generally given a list of books and memoirs, which of itself would be sufficient as a record of authorities, or as an indication to the student of the books where he might find fuller

information. With reference to these bibliographical references, we may mention a matter, small in itself, but one the omission of which is calculated to occasion the student some unnecessary loss of time—we allude to the omission of any citation of pages. Thus we find a reference, "Payer; *Comptes Rendus*, xviii., 1844," and throughout it seems to be the exception to quote a page. In the chapters on Irritability we find a flood of neologisms, for which, however, the author is not personally responsible. Nothing can be said about these when necessity or convenience demand their usage; the objections creep in when such terms are taken as explanatory, as they are very likely to be by careless students; thus the now familiar "geotropism," "heliotropism," we know from experience, are often used by students as explanations rather than mere descriptions of observed phenomena. "Negative geotropism" is worse still, and suggestive of the adage, *ex nihilo nihil fit*. The real explanation is the disproportionate growth of one portion of the plant as compared with another—a disproportion brought about by various agencies, light, heat, moisture, &c. Some of these new terms remind us forcibly of M. Jourdain's discovery that he had been unconsciously making use of prose all his life; for instance, every one, we imagine, who has seen weeds growing in a flowing stream must be familiar with their appearance; but now we are told that organs grown under the condition of "rhotropism" place themselves so that their long axes lie in the direction of the current—a sufficiently obvious fact, explained as follows—"The force of a current of water exercises a directive influence, in fact it induces 'heterauxesis' (disproportionate growth), and so gives rise to curvatures of plant organs." We very greatly fear that some of these terms will convey to students in other departments of science the impression that botanists know much more about these phenomena than they really do, and when they are undeceived, their opinion of the botanists will not be enhanced.

The chapter on reproduction, containing a summary of the comparative morphology of the reproductive organs of plants, and of their action, is one of the best features of the book, but even here clearness is rather diminished than promoted by the terms introduced to indicate variations in the time or stage of growth at which the formation of spores, true buds, or eggs respectively takes place, or does not take place as the case may be.

Grafting, hybridisation, and bud-variation—matters of great importance to cultivators—are here passed over very briefly, but of this we have no right to complain, as the book does not profess to be a complete treatise. For a similar reason, that the book does not profess to be a history, we need not demur to the omission of reference to the work of Griffith, Thwaites, Berkeley, Daubeney, Henslow, Bennett, Dickson, Dyer, MacNab, and other English workers in vegetable physiology, though the omission might lead to the inference that less has been done in this country than is actually the case. The work is fitly concluded with a copious and well arranged index, and we may, in conclusion, thank Dr. Vines for having supplied a pressing want, and for having done so in such a manner as, in a large measure, to remove the stigma under which English vegetable physiology has for the last twenty or thirty years been labouring—that of having no high-class text-book specially treating of vegetable physiology.

THE BULB GARDEN.

THE WHITE TRUMPET DAFFODILS.

MR. HARTLAND's letter at p. 533 tempts me to make a suggestion in the *Gardeners' Chronicle* on this group. I made the suggestion in a contemporary, that the vexed question of the nomenclature should be settled in the gardens of the Royal Horticultural Society at Chiswick. After writing the note referred to, I happened to call upon Mr. Peter Barr, at 12, King Street, Covent Garden; he then and there told me that this was the best way to settle all disputed questions, and he was even now ready to send a collection of the "White Trumpets" to Chiswick, if others who have written and talked a good deal about them would do the same. It also appears to have been decided at one of the meetings of the Narcissus Committee, that all growers of this type should be invited to send bulbs to Chiswick for comparison. Further the Hon. Secretary to the committee had, it

is stated, made an effort to get growers to send bulbs there. It is perhaps too late to ask amateurs to take up their bulbs now from the open ground, but arrangements could be made to do so next year, as has also been suggested by others. Mr. D. E. Wemyss, of Torrie House, Dunfermline, grows a large collection of this type, and offers to send to Chiswick next year. Mr. Barr will also send a very complete collection. Will Mr. Hartland and others also do so? *J. Douglas.*

NARCISSUS ELEGANS VAR.

A pretty little Daffodil of unusual interest is now flowering in the Royal Gardens at Kew. Its affinity is undoubtedly that of *N. elegans*, but it answers to none of the varieties of that species described by Herbert in his *Amaryllidaceae*, and it is not mentioned by Mr. Burbridge in the *Narcissus, its History and Culture*. So far as the cup or corona goes—which is a very rudimentary one—it comes nearest to *N. obsolatus*, but in Herbert's figure the segments are represented as being nearly obovate, with a short abrupt point. In the variety in question, however, the segments are linear pointed, longer than *N. obsolatus*, and having the merest apology for a cup at their base, hardly discernible at all until the segments have reflexed, which they usually do when the flowers are beginning to fade. In all other respects it answers to *N. elegans*. It was introduced from Algiers. *B.*

THE ORANGE COCCUS PARASITE.

THE article published in the number of the *Gardeners' Chronicle* on July 17 last gives an account (p. 77) of the great extent to which the Orange is cultivated in San Francisco for commercial purposes, whilst the treatise on Orange insects, by Mr. W. H. Ashmead, of Jacksonville, Florida, U.S.A., shows that in the Southern States the cultivation of this fruit has very greatly increased of late years, as we also know is the case in various parts of Australia. In our article above referred to it is stated that "the Orange trees in San Francisco are suffering 'immense damage' from the 'white scale'; some of the oldest Orange orchards in the country are being topped and pruned to such an extent that they will not bear any fruit for several years. In some cases the trees are being cut down. No cheap effectual remedy has as yet been discovered to destroy the insect: it is stated, however, that another insect has appeared which preys on the white scale, and is not injurious to the Orange tree." This statement is not sufficiently precise to allow us to determine the latter insect, or the species of scale or Coccus which is so injurious to the Orange, as it is unfortunately happens that there are quite a number of species which are attached to that fruit tree.

In the report published by Messrs. Comstock, Riley, and Hubbard "on destroying Coccidæ on Oranges," published in 1881; in Mr. Fraser S. Crawford's Paper on the "Round Orange Scale in Australia," read before the South Australian Gardeners' Improvement Society, on May 6, 1882, published at the Survey-General's Office, Adelaide; and especially in Mr. Comstock's Report on Orange and Lemon "Scales" for 1883, about twenty species of Coccidæ are enumerated, which attack these fruit trees, and which are referred to the genera *Aspidiotus*, *Chionaspis*, *Parlatoria*, *Mytilaspis*, *Ceroplastes*, *Dactylopius*, *Icerya*, *Lecanium*, and *Chrysomphalus*. These numerous genera and species of Coccidæ are infested and destroyed by various minute hymenopterous insects belonging to the immense family Chalcididæ, and sub-families *Apelbinæ* (including the interesting little genus which, years ago, the writer hereof published under the name of *Coccophagus*), *Encyrtinæ*, as well as the still more minute insects of the genera *Anaphis* and *Myrmica* in the family *Myrmicidæ*. These little creatures, notwithstanding their exceedingly small size, are fearful enemies of the Coccidæ, within whose bodies they find their abundant subsistence, leaving only the empty shell or scale.

We have been indebted to James W. Gooch, Esq., of Windsor, for specimens illustrating the history of a species of *Mytilaspis*, which is parasitic on the St. Michael's Oranges, often occurring on the outside of the fruit itself (as is the habit of some of the other species which infest both Lemons and Oranges).

The upper figure of our woodcut (fig. 113, p. 565) represents the female *Mytilaspis* (the species of which we are unable to determine for want of specimens not

embedded in Canada Balsam for microscopical examination), highly magnified, showing the very minute pair of antennæ (more strongly magnified in fig. 2) being slender and filiform, with a long terminal joint; the hind part of the body is dilated and oval, with the sides of the segments produced on each side into a small point, the extremity of the body rounded and finely serrated. The skin of the female Coccid is very thin, and allows the enclosed parasite to be distinctly visible, the head of the parasite being turned towards the posterior extremity of its prey. In the specimen sent by our correspondent, the parasite had assumed the pupa state, the wings being small and rudimentary, the pointed extremity of each being formed of the very elongated hairs with which the margins of the wings are furnished. Fig. 3a represents one of the rudimentary fore-wings, and *b* one of the smaller hind wings, and *c* one of the middle feet laid at rest on the underside of the body. Fig. 4 represents one of the parasites of the Coccus fully developed, the body is oval and flattened (injured?) by insertion in the Canada Balsam slide) with the wings veinless, except the basal portion of the front margin of the anterior pair: each of these fore-wings is fringed with about fifty very long and slender hairs. The antennæ (fig. 5) are inserted below the front upper margin of the head, and are composed of eight joints, of which the basal one is the longest, the second shorter and oval, the third, fourth, and fifth small and more slender, and the sixth, seventh, and eighth longer and thicker than the rest. This structure indicates the specimen sent to be a female. The legs are slender, with five-jointed tarsi (fig. 6), the middle legs not exhibiting the formation for leaping displayed in the middle legs of the Encyrtidæ. The natural size of this little creature is represented in the small crossed lines in the middle of fig. 7. The general colour of the insect is pale buff or fulvous, but its immersion in Canada Balsam has probably altered its natural colour. Until more complete materials occur for systematic identification we can only suggest the name of *M. Michalis* for this parasite of the Orange Coccus. *I. O. Westwood.*

HOME CORRESPONDENCE.

Spiranthes Romanzoviana.—In the *Gardeners' Chronicle* of Sept. 11 Mr. A. D. Webster quotes from a letter from Mr. Gumbleton, facts as to the ploughing up of a field in which grew *Spiranthes Romanzoviana*, and pathetically alludes to the probability of its proximate extinction. In succeeding issues M. Naudin comes to its rescue with advice for protection and preservation, apparently overlooking the fact that Mr. Gumbleton's correspondent had not been able to find it to preserve. Mr. Webster is again more hopeful, and cheerfully alludes to its probable re-appearance. Finally, Mr. Burbridge indorses these hopes, and announces his intention of equipping an expedition next season to stay the eviction, and, if necessary, to reinstate the evicted one, thereby showing that even an Englishman after a short residence in Ireland adopts the popular programme. It may interest him to hear that news comes from a reliable source that an expedition for a similar purpose is being planned not far from Newburgh, the great obstacle to which is the railway tariff, and an objection strongly characteristic of Irish "jaries" to carry "fares" long distances at low rates during the tourist season. My object in troubling you is to send you the enclosed copy of a most interesting letter, in which the same doubts and fears are shown to have agitated the minds of lovers of British plants nearly half a century ago, and yet we find that *Spiranthes Romanzoviana* was found during recent years in or about the same locality, thereby proving how "racy of the soil" its disposition must be, as, though paying no rent, and frequently evicted, each succeeding year it manages somehow to reinstate itself. Now that so much attention has been drawn to it we may reasonably hope that it will henceforward be left in undisturbed occupation. May it always be as successful in eluding collectors as in the case of Mr. Gumbleton's agent, *W. Moore*.

"Dear Sir,—I am extremely sorry I was not aware of your desire to get the 'rarity of rarities,' as Professor Lindley, of the Horticultural Society, London, calls the *Neottia gemmipara*, earlier in the season, as they are now sent you a couple of specimens alive and growing in their soil. I happen to have a few badly preserved dried specimens, and I lose no time in sending it to you. There is yet one of these lovely plants in full bloom which I really do not wish to disturb, as they are now becoming extremely scarce in consequence of the field where I found them in plentifully, and which was their

principal habitat, has been dug up and actually burned, so as to make it fit to put Potatoes in. This has given me great disappointment, as I would have gladly paid more rent than the field was worth in order to afford me the gratification of giving these plants to those interested in the science. Professor Lindley, in his letter, calls it *Spiranthes gemmipara*. Will you kindly let me know if he is right? Mr. Babington, of Cambridge University, who visited me at the place, says you. Next year (*D. V.*) I hope to be able to send you some excellent living specimens. Pardon great hurry.—Yours respectfully, P. A. A., Castletown, August 30, 1844."

—Some time ago doubts were expressed as to whether or not the North American *Spiranthes Romanzoffiana* and the Cork plant of the same name were identical. For my own part, I am now fully convinced that they are one and the same, as a number of herbarium specimens shown to me by Professor Macoun, and collected by him on the Rocky Mountains, as well as drawings of the plant in flower, clear away much of the overhanging mist. To settle the question, however, in the most satisfactory manner, living specimens of the Orchid are to be sent from their native habitat, and may be planted alongside the Cork plants in my garden, so that the differences, if any exist, will then be readily enough detected. The Professor informed me that this pretty Orchid is fairly abundant in many of the upland bogs and valleys, and that he has frequently met with it along the banks of mountain streams, not actually in the dampest soil, but always where an abundance of moisture is present. To any person interested in the plants of North America, Canada in particular, a look over the herbarium specimens just now exhibited in the Canada section of the Colonial Exhibition will well repay the time expended; while an examination of the beautiful coloured drawings of Orchids hung close to the entrance to the Albert Hall is quite a treat to the lover of these quaintly curious flowers. The long-lost *Cypripedium* has again been discovered by Professor Macoun, and the illustration and colouring, which I was told was faithfully rendered by the artist, makes one wish that it was more plentiful. A. D. Webster.

Chrysanthemums at Harlesden Park.—If the splendid head of bloom now to be seen in Mr. E. Sanderson's house at Harlesden Park, Willesden, can be taken as a criterion of the state of things generally among those who grow the exhibition, then we may anticipate a very fine exhibition of blooms when the November contests come on. For a great number of years Mr. Sanderson, who is the President of the National Chrysanthemum Society, has held his own in the contests inaugurated by his own society, growing flowers famous for their superb quality though not quite so large in size as those of some other growers. This season, as he intends to compete in the class for 45 blooms in 24 varieties at the Royal Aquarium show next month, he has grown large flowers, but they are remarkably fine, full, with broad petals and rich colours. But they are early enough, and whether the earlier blooms will keep until November 10 is a matter that will depend to a large extent upon the character of the weather. Damp is the enemy most to be guarded against, and Mr. Sanderson puts on a little fire-heat, at the same time giving free ventilation. Altogether there are about 175 plants in a house 20 by 12 feet, many of them in 16-petalled pots, 24-size. They consist only of incurved varieties, about 48 being grown; no Japanese, pompon, or reflexed type finds a place here. The plants are mainly from cuttings struck by Mr. Sanderson; he takes these off as soon as the plants have done blooming, and roots them in a little heat. They are ready for a good start in early spring. Here may be seen a wonderful growth, all the plants of single stems looking like young saplings, and in such foliage—large, rich olive-coloured leaves testing to high-class culture. What strikes the visitor in the plants generally is the massiveness and breadth of petal, and in this respect Mr. Sanderson is in the front rank of cultivators. Just now the plants are being treated to a mild stimulant, made of sheep's dung and soot diluted with water. Nothing seems to give greater pleasure to the President of the National Chrysanthemum Society than to show his flowers to any one interested in them; he readily imparts information, and in the course of conversation lets fall many hints—learned by observation and a ripe experience—that if treasured up cannot fail to be of service to any learner willing to sit at the feet of this floricultural Gamaliel. R. D.

Anemones from Seed sown 1st April last.—The flowers sent show how a garden can be lighted up by them in October. In sunshine or lamplight the blossoms will open out wide indoors, and although small now they will increase in size with the approach of spring, when they measure between 4 and 5 inches across. *St. Brigid*. [The blossoms, where bright and free from blemish, would be an ornament to any garden at this time of year. By sowing the seed in shallow drills, partly filled with light, very sandy soil, the

seed being rubbed and mixed together with silver-sand before sowing, plants are readily raised with but little care. A warm site should be chosen. Eo.]

Grafted Grapes.—Herewith I send a bunch of Gros Maroc, the produce of a Vine under my care which I grafted upon Foster's Seedling as a stock. I think you will find there no lack of colour in the sample sent; and what is more (if my taste does not deceive me), the flavour, too, is beyond the average for the kind. The bunch sent has been ripe these two months, and has kept, I consider, in good condition. Another case of grafted Grapes came under my notice this summer whilst judging at a country show. In this instance it was Black Alicante grafted upon Black Hamburg; the flavour of the Alicante was, in the opinion of my brother judge and myself, much improved thereby. *Vitis*.

After what so experienced a man as "T. L." Oakley Court, Windsor, has said (p. 502), I hardly care to follow, but I think were he to see my grafted black Grapes on white Grape stocks he would be satisfied. Having three years since a Muscat of Alexandria Vine which did not finish its fruit to my satisfaction, I decided to graft a Gros Colmar on it, and only last week Mr. Gilbert of Buryghall had a doubt as to this graft being Gros Colmar or so black. The size of berries is good, and the crop heavy. So much for this first experiment in grafting. Now I have at least a dozen good grafted canes of Gros Colmar on Muscat, and shall put one on Golden Queen and on Foster's Seedling next year. Another success that I can register is by putting Gros Maroc on Buckland Sweetwater, and this has good results—very good indeed; the fruit now hanging is very fine, and the flavour is very much improved thereby, at the same time the growth is very robust. Alicante grafted on Buckland Sweetwater is good in colour, but the berries are small; it is not an overcrop, as one cane carried only four small bunches. My experience now tells me that the Muscat of Alexandria stock for Gros Colmar is very suitable, and I have proved that such a good crop cannot be got from Gros Colmar, and I have thirty Vines on own roots, therefore I ought to know. The flavour also is better, although as these are grown in higher heat than are those on their own roots, this may, or rather will favour the flavour. I expect something superior from grafted Golden Queen, as it grows so strong here. My best Gros Colmar are now on Muscat, and these are so fine that they are those I would put up for exhibition were I showing. Size of bunch is very much larger on Vines so grafted. Last year (1885) grafts are very strong. I only had an odd bunch on this time, and they are so very black that it would please me to see a house full of them as good. Can any of your readers tell me where a good crop of black Gros Colmar is to be seen? *Stephen Castle, West Lynn.*

Another New Grape.—A well-known firm of nurserymen has announced another new Grape; this time it is a white Gros Colmar, which is said to be a late variety. I am sure it would interest more gardeners than the present scribe to know something of its history. Has it ever been exhibited at any of our horticultural exhibitions? Has it ever been before any of our Horticultural Associations or Fruit or Floral Committees? If so, with what results? J. C. G.

Gynerium jubatum.—In reply to your correspondent, Mr. Noble's, question on p. 536 of your last issue, I beg to inform him that there is undoubtedly a most distinct and beautiful form of the Pampas-grass bearing the name of *Gynerium jubatum*, which I believe to be indigenous to Chimborazo, whence it was sent to Europe by the late botanical collector, B. Rezel, some dozen years ago. I received my plant of this variety about the year 1876 or 1877, from M. Lemoine, of Nancy, and during the comparatively mild winters of '78 and '79 it escaped almost any injury from frost, and grew rapidly into a fine strong tuft, flowering in the course of the last year no less than three times—in June, August, and October. The form of the inflorescence is quite distinct from that of any of the other varieties of the family that are known to me, the florets falling evenly on all sides of the stem, and they are of a silky texture and light purple shade of colour. The severe winter of 1880-1881 almost killed my plant, reducing it to a single stem; it has, however, since recovered itself, and is now again a strong tuft. Its stems are unfortunately very tall and of weak texture, so that they are easily broken by high wind. Your correspondent's plant cannot be true to name. W. E. Gumbelton.

Scarlet and Crimson Lilies.—Why is it the extremely showy and beautiful species of *Lilium*, possessing scarlet and crimson flowers, are not more generally grown? In collections we meet with the dingy martagons and the brighter tigrinum, Thunbergianum, &c., but very rarely with the finely effective

showy scarlets. Probably one reason is to be found in the fact that the best and brightest scarlet-flowered species are early bloomers, and as they thus bloom before the Lily grounds in nurseries are worth showing, are generally unseen, and therefore do not command so ready a sale as do others, because they are not more generally known. The best of the scarlet and crimson Lilies have beside the merit of being perfectly hardy border plants, with one particular merit attached, that the several varieties commence blooming early and may be had in bloom, several varieties in succession, during the months of May, June, and July, to say the least. They comprise *Lilium Philadelphicum*, *ponponium verum*, which flowers in the month of May; *Lilium tenuifolium*, the fine-leaved Siberian species; and a dwarf glittering scarlet, which flowers in the month of June; *Lilium chalcodonicum*, a tall variety, growing up to 4 feet, or double the height of the last, having smaller, beautifully reflexed flowers, which expand during the month of July. Planted four or five bulbs together, they produce distinct clumps when in bloom; it is difficult to imagine showier objects for addition to mixed herbaceous borders. Owing to the dwarf stature of *L. tenuifolium*, and its narrow leaves, it is important to plant it nearer to the front of any such border than either of the two others. I would add a word here in favour of the Tiger Lilies, or the two varieties named *L. tigrinum* flore-pleno and *L. splendens*, both of which succeed admirably in any ordinary outdoor border, and where a moderate amount of sunshine exists. William Earley.

Market Prices.—The subject started by Mr. Collins is one which has important horticultural associations, but its ramifications are so wide that in attempting to discuss it we may soon involve miles away from the origin of the matter, because its range is practically boundless. But Mr. Collins discusses the matter from the unfortunate No. 1 standpoint. His idea of prosperity is found in the producers' interests, and he has no regard for those of the consumer. Still farther his range of vision on the matter of trade is bounded by his own particular vocation and the probable effects of restricted trade through the imposition of taxes on imported commodities. He thinks nothing of our vast manufacturing trade so far as dependent upon foreign orders; of our carrying trade, and especially of the mercantile marine, so largely dependent upon that; of our vast seaports whose interests depend upon foreign trade; or of millions of people who exist upon our foreign trade. All that—and its range is illimitable—is put aside altogether in the narrow and restricted thought which makes up a restrictionist's notions of national prosperity. Why when he talks about our expending vast sums abroad on the purchase of goods others can create or produce for us, he forgets that we are not to be so, but acting in accordance with the first law of Nature, self-preservation, which demands that we shall purchase for the satisfying of our wants in the cheapest and best markets. If we can raise these things better, or even as good or as cheaply at home, then we should do so, and the spirit of enterprise found in the nation will cause it to be done. If it is not done we may take it for granted that it does not pay, and that it is better for us to purchase abroad. But then those from whom we purchase find themselves in exactly the same position, and if they do not require our garden produce at least they want our ores and manufactures. One pitiable picture of foreign workmen as fat and flourishing whilst our own are here at home in poverty and wretchedness, is exemplified all the world over, where people of other nations make the same complaint of the incursions of the English and Scotch especially. We employ foreign workmen, as our shipbuilders, Lascars, simply because too many of our people, through lack of proper education, are too ignorant, and these imported foreign workmen are not, or else, as too often to our humiliation is the case, our workmen are too drunken and lazy. If our workmen were as technically well educated and trained, and as steady and reliable as the foreigners, we could dispense with the services of the latter. The metaphor employed, that we as a nation are a great trading firm, is a very good one so far as it goes, but as a trading firm with its main office at a profit, and its branches in many nations, as we are to trade largely not with ourselves, that is absurd, as no firm can exist by trading with itself. We must have customers, and we must reciprocally purchase of our customers of their commodities, if we are to create a prosperous and increasing trade. The more we can raise at home on our own national estate the more we shall have to exchange for the productions of other nations or firms. We sell at a profit, they sell to us at a profit, and add to the trading firm with its main office at a profit, and its branches in many nations, as we are to trade largely not with ourselves, that is absurd, as no firm can exist by trading with itself. 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every one would find, if attempted to be put into practice, that they would break down in every direction. *A. D.*

Fruit Trees upon Cultivated Ground, &c.—During the season now drawing to a close I have seen in several instances how very much better Apple and Pear trees have cropped upon cultivated ground than have others grown on grasslands, or in what are more properly known as orchards. Beyond this I have particularly noted trees, even when grown in orchards, especially Apples, have produced crops in keeping with their particular healthfulness even where many trees of the same sort grew together. Whatever, therefore, may have been the actual cause of Apple blossom failing so generally as it did this year certain is it that the vigorous health of individual trees tended to avert or to neutralise the cause in great degree. Certain distinct sorts certainly showed these peculiarities more than others. As an illustration, five finely headed, thrifty young trees, about fifteen years old, of Dumolton's Seedling grow in the orchard here. One of these trees, situated, it is surmised, in somewhat deeper soil than the others, is by comparison very green and vigorous of leaf. This tree gave a couple of bushels of fine Apples, whereas neither of the other four produced half a peck of fruit. Again, a sixth tree of the same sort, the smallest of

applied. There are other means to fertility, easily applied, but seldom thought of—artificial manures, and, failing other materials, I would advise all to give their trees some such assistance about the month of April, if but in the form of sprinklings over the turf during showery weather. Depend upon it, all aids are amply repaid by more and finer fruits. *William Earley, Ilford.*

Reports of Societies.

ROYAL HORTICULTURAL.

CANADIAN FRUIT.

A special meeting of the Fruit Committee of the Royal Horticultural Society was held at South Kensington on Wednesday, October 20, to examine the fresh consignment of Canadian fruits arranged in the conservatory. Mr. T. Rivers presided, and there were present Messrs. J. Lee, S. Hibberd, J. Woodbridge, R. D. Blackmore, P. Crowley, J. Willard, Norman, Warren, A. Dean, and A. F. Barron, Secretary; some of the members of the Pear Congress Committee being included.

inferior to ours in flavour some of a more russetty nature were excellent. King of the Pippins, from Nova Scotia, was good in form and quality—about like our best samples. Gravenstein, from two localities, very fine richly marked samples, were rather diverse in flavour, but both soft and excellent. St. Lawrence, richly striped; and Fameuse, deeply coloured, like the Quarrenden, were fairly good.

The committee then inspected the whole of the fruits staged, of which there were over 2000 dishes, covering two broad tables the entire length of the conservatory, and finally passed a hearty Vote of Thanks to the Commissioners of the Dominion of Canada and the various exhibitors for the splendid show of fruits made, and whilst expressing warm admiration for the fine form and rich colouring found in the fruits reserved judgment upon the special merits of kinds, especially as many had been gathered before they were mature so as to enable them to be exhibited here prior to the close of the Colonial Exhibition.

The following collections of fruits constituted this remarkable and interesting display:—The Montreal Horticultural Society had a large collection, mostly of Apples. The West Riding Agricultural Society of Ontario, Apples, Pears, and numerous lots of Grapes of outdoor growth. The finest collection of these latter fruits came from Quebec, comprising some 150 dishes of white and black kinds, many foxy—a general characteristic of Canadian colour kinds, some black as Sloes, while the white Grapes were rather green. It would be impossible to give a *résumé* of the kinds shown, but tasting showed that none materially excelled in flavour or sweetness our own best outdoor Grapes. This collection also included Apricots, many Pears, and about 300 dishes of Apples.

From British Columbia, on the Pacific side of the Dominion, came some 200 dishes, showing great size, in fact the largest average size in the show.

A very large and exceedingly interesting collection of well grown Pears and Apples came from the Bay of Quinte Agricultural Society. Mr. Dempsey was a large exhibitor here, and afforded the committee much useful information respecting the growth of fruits in the Dominion. All trees are of standard form, planted thinly; in some cases the soil beneath is cultivated, in others it is pasture. Clay soils give size, but the richest colour is found on uplands well open to the sun and where naturally well drained.

A fine lot of some 500 dishes of Apples came from Nova Scotia, and some 150 dishes from New Brunswick. These two latter districts seemed to give the warmest colour. Of kinds in fine colour were Emperor Alexander, intensely rich, and very fine; Wealthy, medium-sized, exceedingly handsome, and red as Beetroot; Duchess of Edinburgh, superbly striped, and beautiful; Watercore, like Hoary Morning; Black Detroit, intensely coloured; Adams' Pearmain, very richly marked; Kentish Filbasket, very fine; King of Tomkins County, Cayuga Red Streak, Wellington, Maiden's Blush, and others too numerous to mention, but all very beautiful. Good samples of Vicar of Winkfield, Bourc, Clairgeau, White Doyenné, Duchesse d'Angoulême, and other Pears, were shown, but these, as a rule, were put in the shade by the rich colour of the Apples. From the Dominion came also a very interesting collection of farm roots, with huge Pumpkins, corn cobs ripe and green, and in considerable variety; Potatoes of the true American type, large, long, and coarse in appearance; Yellow Danvers, and Red Welshers Onions, fair samples; Capsicums among which were huge red ones, as big as Nantes Carrots; gigantic black Aubergines, really good handsome red Tomatos, Livingstone's Favourite, grown literally anyhow on the ground without stopping or training, and selling in Canada at 1s. 6d. per bushel, sample equal to our handsomest; Carrots, Parsnips, and other kinds.

THE POTATO, VEGETABLE, AND CHRYSANTHEMUM SHOW.

October 26 and 27.—At the closing important exhibition of the season the Society must be congratulated on having brought together, to delight the eyes of the many visitors to the Colindries, one of the best shows of the kind seen at Kensington. If we may generalise from the fine examples of kitchen garden produce put up on this occasion, we should say that vegetable growing is now much better understood by the rank and file of the craft than it has hitherto been. The lessons taught all classes by the public exhibitions in London and the counties is bearing fruit, and gardeners and amateurs alike set about their work with some more certain knowledge, based on scientific research, than was formerly considered to be necessary. We cannot credit farmyard manure, as being the only agent that has aided the soil in perfecting such fine Leeks, Celery, Carrots, Onions, Potatoes, &c., for we know that the various forms of artificially made manures have become the constant aid, easily applicable and

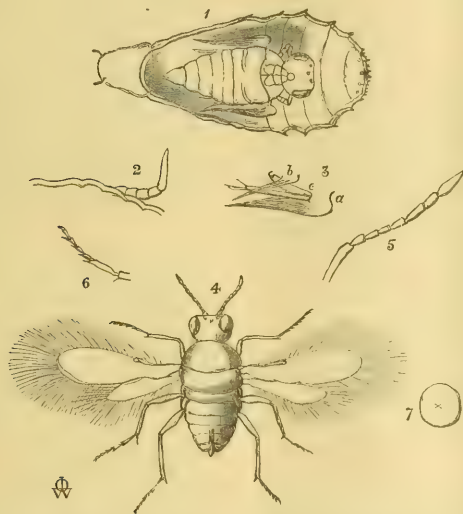


FIG. 113.—ORANGE COCCUS. (FOR REFERENCES SEE TEXT, P. 563.)

all, which I found when I took the orchard had been terribly injured by American blight, grows within a vegetable ground enclosure. This tree had to be propped up owing to the quantity of fruit it contained. In like manner Hawthorthens of various sizes and ages produced crops good, bad, or indifferent, in perfect accordance with the health of the current year's foliage and vigour of the trees; and the same may be said concerning Blenheim Orange, Emperor Alexander, &c. Bearing this in mind, and judging by the experience of the past, I cannot but believe that the capacity for bearing invariably is with the trees on the best cultivated land. Is it to be wondered at, therefore, that dwarf cordon bushes, standards, &c., generally produce more regular and better crops than do those of orchard trees? If we push this consideration to its legitimate limits, and ask how Currants, Gooseberries, Raspberries, &c., would succeed grown in grass sward with only the natural unimproved subsoil for the roots to roam in, we arrive at the conclusion that fruit trees already existing in grass orchards are not favourably placed for fruiting well. To improve trees in such places manurings and mulchings should be liberal, however, and extend rather beyond the limits of the roots, judging these by the spread of the crown. These dressings will be of benefit at whatever season applied, though preference should be given to the month of February. Ashes of any kind, particularly wood ashes, are beneficial to all fruit trees, and, considering how abundant they are, it is a matter of wonder they are not oftener

Some seedling Apples, Pears, and Grapes were submitted to the committee, but no Certificates were awarded, the exhibits being dealt with simply by marks. The full number was given to a very handsome Apple of fair medium size, resembling very fine Nanny Apples, from Mr. Dempsey, of Ontario; its colour was rich, and flesh so excellent as to merit the highest award. It is named Trenton Seedling. A similar award was made to Mr. Fitzgerald, of London, Ontario, for a very handsome seedling kind, of beautiful rich colour, and having soft brisk flavoured flesh. Mr. Hendrew, Ontario, showed a variety much like Wellington, somewhat speckled, but it received only two marks; and the same award was made to Mr. W. Scott, Lambeth, Ontario, for a striped Apple, much like Duchess of Oldenburg, but lacking in quality; it is an exceedingly showy kind. A complete award was made to Mr. Dempsey for his Dempsey Seedling, from Williams' Bon Chrétien × Duchesse d'Angoulême—a fine Duchesse-like fruit, but rather larger, and having a briske flavour. Canadian fruits of the Duchesse were tasted for comparison to the credit of Mr. Dempsey's excellent seedling. A couple of white seedling Grapes were shown to the committee, the best, like Royal Muscadine, was named Emerald, and was considered superior in flavour to any other of the Canadian Grapes shown. This was raised by Professor Saunders, London, Ontario. No award was, however, made in this case. Samples of Ribston Pippin were tasted, and whilst the richest coloured fruits were

very portable, of the ordinary grower as well as of the would-be exhibitor.

Some very remarkable specimens of Onions were shown, whose excellence is as much due to early winter or rather late autumn sowing under protection, and subsequent transplantation into rich ground in spring, as to careful selection and hybridising.

In the floral division, groups of Chrysanthemums formed the main feature with a few cut blooms of the same flower, and some small contributions of a miscellaneous character.

Floral Committee.

Present: G. F. Wilson, Esq., in the chair; and H. Bennett, W. Wilks, W. Bealby, G. Duffield, J. Hudson, H. Herbst, T. Baines, W. H. Low, W. Holmes, Hugh Low, H. Ballantine, J. Douglas, J. O'Brien, E. Hill, C. Noble, H. Cannell, A. F. Lendy, A. Perry, M. T. Masters.

Messrs. H. Cannell & Sons, Swanley, were awarded a Bronze Medal for two boxes of cut blooms, arranged in fashion, consisting of Japanese, Anemone-flowered, and pompons Chrysanthemums, among the latter being Mdle. Elise Durand, a pretty quilled-like pink flower of very regular form. A good double white-flowered tuberous Begonia, with a compact habit of growth and very useful Gardenia-like white flowers, was unanimously declared by those who observed it to be a most useful variety.

Mr. R. Dean, Bedford, showed cut blooms of seedling Primroses and Polyanthuses—very grateful at this season. Mr. Stevens showed a seedling Japanese Chrysanthemum of a rich orange-yellow colour, the petals flat, and the centre of the flower convoluted—a fine thing.

Mr. B. S. Williams showed some of his autumn-flowering Amaryllis, viz., solandriolia, with the leaf of A. reticulata, but larger—the flowers pale pink, with stripes of a deeper tinge; Pioneer, a tall spike, surmounted with a crown of flowers; and the latter being Mrs. Garfield, Mrs. W. Lee, Mrs. Garfield, Pirlotti, a flower of deep purplish-rose, with reticulations and bands of white.

Mr. J. C. Cowley, gr. to F. G. Tautz, Esq., Studley House, Goldhawk Road, Hammersmith, showed a small established plant of Odontoglossum Bephaicoides, bearing seven of its small flowers of white with golden-brown markings; and a nice piece of Dendrobium superbum, carrying a spike of unopened flowers, and one of fully expanded flowers, ten in number, of a deep blue-purple colour.

Messrs. Paul & Son, The Old Nurseries, Cheshunt, showed a new single-flowered pillar Rose; it is white in colour, differing but little from the common Brier, although it is said to be a hybrid perpetual. Some bushfuls of Erica fawciana, a hardy variety; bushy, compact, and bearing rose-purple bells, came from Cheshunt.

Messrs. W. Cutbush & Son, Highgate, exhibited some hampers filled with numerous varieties of Perennia mucronata, full of berries and healthy of foliage.

Mr. H. B. J. Cannell & Sons, Nursery, Upper Edmonton, showed Pteris tremula var. grandiceps, a variety with tufted and slit pinnae—as a variety, worthy of a place in collections.

Messrs. Hugh Low & Co., Clapton, showed a plant of the yet rare Wanda rosea, a large plant of six to eight with many pseudobulbs, and but one bloom; the petals are white and narrow, sepals greenish-white, also narrow, the prominent feature being the lip, which is large and almost quadrangular, and striped and veined with purple on a white ground colour.

Mr. T. Ware, Hale Farm, Tottenham, showed Colchicum speciosum, Sternbergia lutea, Saxifraga Fortunei—this latter very densely flowered, and apparently a very useful plant for the cool-house at this period of the year. Mr. Watson, Higham Hill, Walthamstow, showed Chrysanthemum Golden Luxembourg, a free-flowering yellow pompon.

Mr. H. Tomkins, gr. to R. H. Measures, Esq., Cambridge Lodge, Camberwell, showed Cattleya bicolor marginata.

Mr. Parks, gr. to H. M. Pollett, Esq., Farnside, Bickley, showed a two-flowered plant of Cattleya Eldorado var. virginialis, a white form with a yellow staining in the throat; also Chrysanthemum Carew Underwood, which obtained a First-class Certificate of the National Chrysanthemum Society, October 13 last; it is an orange-yellow sport from Lady Rose.

G. F. Wilson, Esq., Weybridge, showed Primula Reid, a small weak specimen, but with rare merit in its companion pure white flowers; when strong and of a good size this will be much admired. A Botanical Certificate was awarded.

Mr. Beckett, gr. to H. H. Gibbs, Esq., Aldenham Park, Elstree, showed Bouvardia Hogarth, and some plants of a fine pink-coloured sport from it named Blushing Bride; it is a pretty addition to this class of yellow flowers.

Herr Max von Alb, Botanic Garden, Munich, showed a large plant of Anthurium Martianum, having broad entire leaves which, together with the grooved footstalk, measure 4 feet in length.

Mr. D. Kemp, gr. to C. R. S. Dickens, Esq., Coolhurst, Hornham, showed some fine well-flowered shoots of Bignonia Chamberlainii, with primrose-coloured flowers.

Messrs. J. Veitch & Sons, Chelsea, showed several new Chrysanthemums, of which Buttercup (Salter), a bright yellow Japanese variety with reflecting petals, was considered the best; W. Clarke is a salmon-coloured Japanese, and Alfred Chantrier is a large sulphur-yellow. Rhododendron jasminiflorum cinnamum is a plant of the greenhouse section, with bright coral-red flowers.

Amsonia pinnata, in good condition, was again brought from the Chelsea establishment. Shoots of the very large fruited Crataegus tartarica came from the Coombe Wood Nursery; the foliage is large and robust, and the bright crimson berries are as large as Blackheath Cherries; a grand addition to our Thorns, and one which will be figured in our columns shortly.

Mr. E. Molynce, gr. to Swannore, Bishop's Waltham, showed Chrysanthemum Marie Louise, a sport from Bouquet Fait, a white and mauve Japanese; and the variety Le Triomphe.

Mr. George Putney, showed three seedling Chrysanthemums; Mr. R. Owen, nurseries, Maidenhead, showed Chrysanthemum cinnamum in white and yellow; collection of cut bloom of tuberous Begonias, large and fine; Cactus Dahlia marginata, of dark crimson; and blooms of various sections of Chrysanthemums.

R. H. Measures, Esq., showed a group of Chrysanthemum plants, composed mostly of white Japanese varieties and Mrs. G. Rundie.

Messrs. J. Carter & Co., 237 and 238, High Holborn, London, showed a collection of their English-grown Tobacco in a partially dry condition, and were awarded the first prize of the Fankshill Medal for the same.

Messrs. Hooper & Co., Covent Garden, showed a small interesting collection of Tree or winter-flowering Carnations; the best flowers—we cannot speak of the habits of the plants—we were Madame Morel, Louise Chretien, Piqueur, F. Raspaill, and Dr. Raymond. Other kinds, well known, were present in the collection. A Bronze Medal was awarded.

COMPETING CLASSES (OPEN): CHRYSANTHEMUMS.

For the best groups.—1st, Mr. N. Davis, nurseryman, Camberwell, a fairly well made up group, containing considerable variety but not of the same quality, which in the eyes of many might have been better; 2d, Mr. Stevens, Putney, as good a lot, but the Japanese formed the major proportion of it; 3d, Mr. Townsend, Providence Nursery, Putney, nice plants, but a smaller group than the others.

For the best twenty-four cut blooms (open).—1st, Mr. Ridout, gr. to T. B. Haywood, Esq., Woodhatch Lodge, Reigate, a stand of smooth, even, well chosen varieties, not overgrown, consisting of Phoebe, La Triomphe, Lakme, Madame Sevin, Bouquet Fait, J. Laing, Criterion, Madame R. Kestelater, Dr. Macary, Mons. Freeman, Comte de Gerniny; 2d, Mr. Cole, Wo-olside, Bristol, in whose collection the finest blooms were Comte de Gerniny, M. Plancheron, a fine pink flower; Val d'Andorre, and Margaret de Marrousch, a rich tinge of red; 3d, Mr. J. M. Linton, Linton Gardens, Maidstone, large flowers, but a little rough; F. A. Davis was a good bloom. In this competition there were in all fourteen entries.

FIRST-CLASS CERTIFICATES.

To Mr. G. Stevens, for Chrysanthemum W. Stevens. To C. R. S. Dickens, Esq., for Bignonia Chamberlainii.

To Messrs. J. Veitch & Sons, for Rhododendron jasminiflorum cinnamum.

To Messrs. J. Veitch & Sons, for Crataegus tartarica. To Messrs. H. Cannell & Sons, for Chrysanthemum Madame E. Durand.

To Messrs. Laing & Co., for Chrysanthemum Madame E. Durand.

To Mr. R. Owen, for Chrysanthemum Madame E. Durand.

To Mr. R. Owen, for Chrysanthemum Flambeau Toulousain.

To Mr. F. Davis, for Chrysanthemum Madame E. Durand.

To H. M. Pollett, Esq., for Cattleya Eldorado var. virginialis.

BOTANICAL CERTIFICATE.

To G. F. Wilson, Esq., for Primula Reid.

Fruit Committee.

Present: T. Francis Rivers, Esq., in the chair; and Messrs. J. Saltmarsh, A. W. Seale, J. Roberts, J. Woodbridge, W. Denny, G. T. Miles, J. Elam, C. Silverlock, C. Ross, G. Goldsmith, H. J. Veitch, G. Bunyard, R. D. Blackmore, and T. B. Haywood.

The subjects submitted to the committee on Tuesday last were not very numerous, and several of those shown were not worthy of special comment; at the same time, however, one or two exhibits were of an entirely opposite quality.

Messrs. J. Veitch & Sons, Chelsea, S.W., contributed an Apple tree in a pot, the variety—a new one—being called Prince Bismarck. The fruit shown were from both indoor and outdoor trees, and in shape somewhat resembled Stirling Castle, but rather flatter and considerably larger. The tree shown bore several very fine fruits, and was presented a very attractive appearance. The committee desired to see the fruit again, and from an outdoor tree.

From Mr. W. Roupell, Harvey Lodge, Roupell Park, came two good exhibits, consisting of Apple the Melon and Muscat of Alexandria Grapes. The Apple was represented by three trees in pots, which, however, had been grown in the open, and were potted for exhibition purposes. The trees were laden with fruit, although a few had fallen off in transit. This variety forms good bush trees on the Paradise stock, and is said to be a very superior Apple. The fruits are very good, and are of some, and those shown very clean and sound. It is claimed for this variety that it is a late bloomer, and if so it would be a useful one, as on that account it would escape the spring frosts. A Cultural Commendation was

awarded for this, in conjunction with the Grapes, which were of excellent finish and quality, being also very rich in flavour.

Mr. W. D. Kemp, gr. to R. Serase Dickens, Esq., Colehurst, exhibited a very good dish of Apple Holland-bay; the fruits were highly coloured, large, and clean. A Vote of Thanks was awarded.

A similar recognition was granted to Mr. W. Divers, Ketton Hall Gardens, for fruits of Peach Salway, from trees grown in a cool-house. The fruits were of a rich golden-yellow colour, touched with red on one side—very pretty fruit.

Messrs. Rivers & Sons, Sawbridge, sent some specimens of Plum Wydale. This is an oval-shaped purple-coloured fruit, of medium size, and is a very late variety. We agree with the committee that "this Plum should be more generally known, as it thinks it is a valuable cooking Plum."

Mr. A. Dean, Bedford, Hounslow, contributed some bunches of Grapes, Black Alicante and Madresfield Court, which had been ripened in the open. A good colour had been taken on, but the berries were somewhat small.

Messrs. J. Backhouse & Sons, York, contributed a dish of their Peach Backhouse Beauty. This is a nice looking Pear, but it was unfortunately not in a fit condition for the committee to decide on its merits. The committee asked to see the Pear again.

Mr. Robert Fenn, Woodstock, Oxfordshire, showed a large number of wines made from Grapes grown in England (see p. 552).

From the Society's gardens at Chiswick came a collection of American Grapes grown in a cool-house with Chasselas Rose, which was also shown. The following were the varieties exhibited:—Red: Jefferson. White: Washington, Duchess, Eldorado, Lady Washington, and Ferdinand de Lesseps. Black: Strawberry and Brighton. There is a very peculiar flavour in these Grapes, somewhat resembling that of the Hautbois or Alpine Strawberry, and that of some varieties of Gooseberry. One drawback to some of these Grapes is the sliminess of the flesh.

Mr. Fenn showed tubers the result of crossing Solanum Fendleri with Potato Sir C. Douglas, a new variety of Mr. Fenn's raising. The tubers, which seemed to be those of the second year from seedling, were purple and white, and of a very good shape. Mr. Fenn showed some Purple Blush, the first cross effected by the raiser and obtained by crossing Reid, x Fenn's Regent and a black kidney Potato—an interesting historical illustration.

Messrs. J. Carter & Co. showed Lilliputian Potatoes, very small, the largest 2½ inches in length, and half an inch in short diameter. It is said to retain its character after three years' trial.

VEGETABLES: POTATOS.

The exhibition of Potatos was a very extensive one, and on the whole good, though there was a lack of that refinement we have seen in previous years. Still the noble tuber was well represented, though one could not but acknowledge that the white kidney class was not so well represented as usual. It was interesting to note that the two Banbury growers—Mr. J. Hughes, gr. to Colonel Cartwright, Eydon Hall, Byfield; and Mr. E. S. Williams, The Glebe, Banbury—were 1st and 2d almost all through the classes, the chief honours resting with Mr. Hughes.

Twelve distinct varieties.—In this class there were twelve collections, Mr. Hughes being 1st, with a nice class, even if not consisting of white round varieties:—First and Best, London Hero, M.P., and Sutton's Seedling; white kidneys: Snowdrop and Chancellor; coloured rounds: Adirondack, Reading Russet, and Purple Perfection; coloured kidneys: Early Purple, Mr. Bresse, and Prizefighter. 2d, Mr. E. S. Williams, with the following:—White round: Abundance, Blanchard, in its white form; Schoolmaster, and Sutton's Favourite; white kidney: Reading Giant, Fidler's Prolific, and Edgemoor Seedling; coloured rounds: Reading Russet and The Dean; coloured kidneys: Early Purple and Crimson Beauty. Equal 3d, Mr. W. Ellington, West Row, Mildenhall; and Mr. W. Kerr, Dargavel, Dumfries.

Six varieties.—In this class there were twenty-one competitors, and here Mr. Hughes was again 1st with London Hero, Chancellor, Sutton's Seedling, Reading Giant, Snowdrop, and Fidler's Prolific. Mr. E. S. Williams, with Sutton's Favourite, Abundance, Snowdrop, Blanchard, Reading Russet, and Mr. Bresse; 3d, Mr. C. W. Howard, Bridge, Canterbury, who had a very fine dish of The Dean. The competition was so good in each of the foregoing classes, that six prizes at least should be offered in each.

SPECIAL PRIZES FOR POTATOS.

Then followed a number of special prizes, offered by some of the leading seed-houses and others, as follows:—By Messrs. James Carter & Co., 238, Holborn, W.C., for the best four dishes of Potatos, to comprise Ashpot Field, Sukirri, Village Blacksmith, and Cotevay's the last a long black Potato, thin, ugly, and practically useless. Mr. J. Gilbert, Brookland, Freshwater, Isle of Wight, was 1st; Mr. P. A. Beckett, Cole Hatch Farm, Amersham, 2d; Mr. C. J. Waite, gr. to the Hon. W. P. Talbot, Glenelg, Epsom, 3d; and Mr. W. Jacob, Pound Street, Petworth, 4th. The quality of the tubers shown in this class was generally poor.

Mr. C. Fidler, Potato grower, Friar Street, Reading, offered special prizes for nine dishes, to include Reading Giant, Snowdrop, and General Gordon. Mr. E. S. Williams sent out by Mr. Fidler. Here Mr. E. S. Williams was 1st, having fine tubers of London Hero, Abundance, Snow Queen, General Gordon, white rounds; Reading Giant and Chancellor, white kidneys; Adirondack and Read-

ing Russet, coloured rounds; and Edgemoor Purple, coloured kidney. 2d, Mr. J. Hughes, with Snow Queen General Gordon, and London Hero, white rounds; Snowdrop, Chancery, and Reading Giant, white Bressa; Vicar of Laleham, Reading Russet, and Mr. Bressa. 3d, Mr. G. Allen, gr. to Sir Francis Burdett, Bart., Ramsbury Manor, Hungerford; 4th, Mr. W. Kerr. There were six competitors in this class.

Also for six dishes, to include General Gordon, Perfection, and Bountiful; and for last dish, two distributed by Mr. Fidler. Mr. J. Hughes was 1st with London Hero, Sutton's Perfection, Snowdrop, Reading Giant, Reading Russet, and Crimson Beauty. 2d, Mr. E. S. Wills, with Fidler's Perfection, Abundance, Reading Giant, Reading Russet, Vicar of Laleham, and Mr. Beauty (Wills); 3d, a handsome looking kidney, mottled with dark purple—handsome and promising. 3d, Mr. C. Ross, gr. to G. B. Eyre, Esq., Welford Park, Newbury; 4th, Mr. G. Allen. There were five competitors in this class.

Also for three dishes, to include General Gordon, Perfection, and Bountiful; and for last dish, two distributed by Mr. Hughes 2d, and Mr. G. Allen 3d. These were the only competitors.

Messrs. Sutton & Sons, seedsmen, Reading, offered prizes for the best dish of Sutton's Seedling and one of Sutton's Abundance; and for last dish, two distributed by Mr. Hughes being offered; Mr. Hughes being a good 2d, and Mr. E. Chipping, Periwinkle Mill, Milton, Sittingbourne, 3d. There were nine competitors.

They also offered prizes for nine varieties, selected from twenty-one varieties that have been put into commerce. Five prizes were offered; and there were eleven competitors. Mr. Hughes was 1st with Favourite, Abundance, Lady Truscott, Early Regent, Sutton's Seedling, Woodstock Kidney, Reading Russet, Prizetaker, and Reading Ruby—a very fine lot, indeed; 2d, Mr. E. S. Wills, with Favourite, Sutton's Seedling, First and Best, Early Regent, Abundance, Woodstock Kidney, Reading Russet, Prizetaker, and Reading Ruby; 3d, Mr. E. Chipping; 4th, Mr. G. Allen.

NON-COMPETING EXHIBITS.

Messrs. Sutton & Sons showed, not for competition, an extensive and thoroughly representative collection of Potatoes, arranged in groups, in all some 140 dishes; the groups including varieties sent out by Messrs. Sutton & Sons; the best English varieties for exhibition, the best for flavour, also seedlings not yet in commerce and shown under number. This was a highly meritorious exhibit. A Silver-gilt Medal was awarded.

From the gardens of the Royal Horticultural Society came a collection of about fifty dishes of choice varieties traced during the past season.

Messrs. Charles Lee & Son, nurserymen, Hammer-smith, had a small collection of seedling and named varieties.

Mr. Robert Fenn, The Cottage Farm, Sulhamstead, had a collection of twenty-seven dishes for garden culture, including his earliest and latest varieties—a very interesting lot indeed.

Mr. C. Fidler, Potato grower, Reading, had a very fine representative collection also, and composed of some hundred dishes, shown in the best form.

Messrs. James Carter & Co. had a capital collection of about thirty dishes, and a box of their Liliputian varieties—toy Potatoes, that will, no doubt, be of great value in some undiscovered Liliput, but we fear they will be of but small service to the present day. Awards were made to most of the foregoing collections.

CELERY.

The finest six heads came from Mr. W. Pope, gr. to Earl Camarvon, Highclere Castle Gardens, Newbury, in a competition of twenty-five lots, all of which were good. The variety securing the 1st prize was Wingrove's Aylesbury Prize Red, and the samples shown fully sustained its reputation. Major Clark's Red, shown by Mr. Timbs, Tyler's Gate, Amersham, was awarded the prize; and Mr. G. H. Richards, gr. to Lord Normanton, Somerley, Ringwood, gained the 3d place with Standard Bear.

PARSNIPS.

The competition in this class was even greater than that in the preceding one, there being twenty-seven exhibitors, and it is almost unnecessary to say some magnificent roots were shown. Mr. W. Meads, gr. to Mr. W. Barrington, Bickley Park, Chislehurst, was awarded the premier prize for fine samples of Sutton's Student, which were clean and very solid. Mr. Palmer, gr. to W. F. Dick, Esq., Thames Ditton House, Thames Ditton, obtained the 2d, with good roots of Elcombe's Improved; and Mr. G. Bloxham, gr. to Sir F. Duncan, was secured the 3d, with very creditable samples of Maltese.

CARROTS.

Mr. J. Neighbour, Bickley Park Gardens, Chislehurst, staged Sutton's New Intermediate, and secured the highest award. They have good clean roots, worthy of the award. Mr. W. Robins, gr. to E. D. Lee, Esq., Heartwell House, Aylesbury, came 2d, with samples of the same variety, but very little inferior to those of the 1st prize lot. Mr. J. Baker, Bampton, Oxfordshire, was 3d. There were thirty-six competitors in this class, being the highest of any. A very grand show of Carrots was made by all the competing lots taken together, indeed we did not notice any that were not worthy samples.

TURNIPS.

A display of these as we do not often see was made by thirty-five exhibitors. Mr. J. May, gr. to Captain Le Blanc, Northfleet, Burrell, received the 1st prize for a splendid dish of Snowball; the roots were sound and thoroughly solid, although large. Mr. E. S.

Wills, gr. to R. A. Cartwright, Esq., Edgemoor, Banbury, followed closely upon Mr. May, with a dish of Early Six weeks. Mr. G. Bloxham, with Early Snowball, was placed 3d; it was a very good lot also.

ONIONS.

The 1st prize was awarded to Mr. W. Finlay, gr. to Lord Sondes, Lees Court, Faversham, for a dish of bulbs far outdistancing his twenty-five fellow-competitors; one bulb was of great size. The variety, a cross between the white Spanish and Portugal, was called Shedwick Onion. It is quite new, and Mr. Deverill has purchased the stock. The 2d was taken by Mr. G. Neal, Bampton, Oxon, for very fair examples of Deverill's Anglo White Spanish. Mr. S. Haines, gr. to Earl Radnor, Coleshill House, Highworth, was 3d, with Wroxton, also one of Deverill's Onions.

BRUSSELS SPROUTS.

Mr. Finlay also received the 1st prize here for a good dish of Wroxton. The justice of this award was self-evident. Mr. R. Lye, Symondton Court Gardens, Newbury, was 2d, with good examples of Aigburth; these were very solid and large. Mr. W. Pope was 3d. There were twenty-seven exhibitors in this class.

BETS.

Out of thirty-two lots shown, that of Mr. J. Neighbour received, and justly, the 1st prize. The roots were very clean, solid, and large, greatly resembling Frampton's Exhibition Bet. Mr. C. J. Waite, gr. to Colonel Talbot, Gleanhurst, Esher, was 2d, with very good samples of Fragnell's Exhibition Bet. The 3d prize was awarded to Mr. S. Haines, for good roots of Pine-apple, which, unfortunately, had no top to speak of.

CAULIFLOWERS.

Mr. A. Miller, gr. to W. H. Long, Esq., M.P., Road Ashton Park, Trowbridge, staged the finest lot here. The variety was Autumn Giant; these heads were very solid, compact, and very white. There were other heads larger but not so good. Mr. G. T. Miles, gr. to Lord Carrington, Wycombe Abbey, High Wycombe, was 2d, with heads hardly inferior to the 1st prize lot. Mr. W. Meads was awarded the 3d prize for good heads, which, however, were rather old. There were twenty-eight exhibitors in this class.

LEAKS.

Mr. G. T. Miles was the leading exhibitor here, showing a very fine lot, very thick, and conveniently long. The variety was The Lyon; also good, but rather smaller, were those staged by Mr. C. Ross, gr. to G. B. Eyre, Esq., Welford Park, Newbury, Ayton Castle Giant. Mr. W. Meads was 2d, with heads hardly inferior to the 1st prize lot. Mr. C. J. Waite, with good bulbs of Sutton's Prizetaker, a variety of a longer growth than the other two mentioned. There were eighteen exhibitors.

TOMATOES.

Mr. R. Farrance, Chadwell Heath, Essex, staged the finest dish of Trophy Selected, a very good lot, the fruits being very clean, sound, and large. The 2d prize was awarded to Mr. F. Hughes, gr. to J. Smith, Esq., Wallington, for a good dish of Reading Perfection; and Mr. W. Meads made a close 3d, with very well grown fruits. Mr. C. J. Waite, there were also eighteen lots staged for competition.

COLLECTIONS.

One of the finest displays of collections of vegetables was that brought forward by the prizes offered for competition. There were nineteen separate collections, all of good quality, and the exhibitors showed on the whole the staged vegetables fully worthy of such recognitions. The most successful exhibitor was Mr. G. T. Miles, whose collection of eight kinds attracted general attention. The following vegetables comprised this lot:—Celery: Leicester Red; Brussels Sprouts: Imported; Tomato: Stamford; Cauliflower: Veitch's Autumn Giant; Onion: Caves Pinesfield; Carrot: Sutton's New Intermediate; Leek: The Lyon; Potato: Chancery. Mr. J. Neighbour was 2d, with also a very fine lot, consisting of:—Pea: Ne Plus Ultra; Broccoli: Prizetaker's Exhibition; Broccoli: Sutton's Michaelmas White; Carrot: Sutton's New Red Intermediate; Mushrooms; Potato: Vicar of Laleham; Onion: White Globe; and Tomato: Reading Perfection. The 3d prize was awarded to Mr. S. Haines, whose finest items were:—Cauliflower: Autumn Giant; Parsnip: Student; Leek: The Lyon.

SPECIAL PRIZES.—MR. DEVERILL'S.

For a collection of Onions of six each of the following varieties:—Deverill's Rousham Park Hero, Deverill's Anglo White Spanish, Deverill's Main Crop, and Finlay's The Wroxton. There were seven exhibitors, and, in a keen competition, Mr. H. Wingrove, gr. to R. W. Byass, Esq., Rousham, Steeple Aston, Oxon, was awarded the 1st prize, for a most creditable lot, of handsome appearance and great worth. The good 2d was made up by the collection of Mr. J. Bunney, Danny Hassocks, Sussex; Mr. T. Doherty, gr. to Lord North, Wroxton Abbey, Banbury, and Mr. E. S. Wills were respectively 3d and 4th, both exhibitor's collections being very good in all respects.

SUTTON & SONS: CELERY.

For the best three sticks of Sutton's White Gem there were fifteen competitors, Mr. G. H. Richards showing the best, and receiving the highest award; his sticks were of first-rate quality, but he was closely followed by Mr. C. J. Waite, who was 2d. Mr. J. Neighbour, Sutton, and by Mr. C. J. Waite, who were respectively 3d and 3d.

BET.

For Sutton's Dark Red there were two more exhibitors than for Celery, viz., seventeen. Mr. J. C. Waite was the force here with highly creditable roots; Mr. J. Hughes was 2d, also with very good roots; and Mr. G. T. Miles was 3d.

CARROTS.

This class brought a great number of competitors, as many as twenty-nine lots entering the competition, which seems to have been expected, as four prizes were offered in the schedule. The prizes were offered for New Red Intermediate, which, judging from the samples staged, is a very good variety for exhibition purposes. Mr. Neighbour was 1st, Mr. W. Robins a close 2d, and Mr. G. H. Richards was 3d, while 4th was awarded to Mr. J. Baker, all being very close on each other.

LEAKS.

Prizetaker was the variety, and a dozen lots were staged, making a good show; Mr. C. J. Waite, Mr. G. T. Miles, and Mr. J. Spottiswoode, Queen's Park, Brighton, gaining the prizes in the order of their names.

PARSNIPS.

Mr. R. Lye had the best dish of Student Parsnip among twenty-one lots staged, and was followed by Mr. H. Richards and Mr. S. Haines, who were 2d and 3d respectively. The 1st prize lot was specially fine, and fully merited the award.

MISCELLANEOUS.

From Mr. Deverill, Banbury, came an extensive and interesting collection of various vegetables, comprising several of his specialties. Among others were Onions, Anglo White Spanish, Rousham Park Hero, Improved Wroxton, Main Crop, &c.; Carrots: Wroxton Sprout, the Middleton Favourite, Ne Plus Ultra Bean, Early Scarlet Horn Carrot, and Wingrove's Prize Red Celery. We have spoken minutely of all these before, consequently we merely mention them now.

Mr. A. Miller staged a collection of Onions comprised of the above-mentioned varieties.

EXETER APPLE AND PEAR SHOW.

This exhibition took place on October 21 and 22, and was held in the Fore Street Market as usual. The building had been so transformed by drapery, evergreens, &c., that no one could imagine they were parading a busy provision market, so elegantly and tastefully had the decorations been carried out. Plans for the decoration of the fruit-tables were kindly lent by Messrs. Veitch & Son and Messrs. Lucombe, Pince & Co., both of Exeter. The number of entries was more numerous than on any previous occasion, as many as fifty late entries being refused. The different counties of Devon, Kent, Cornwall, Hereford, Somerset, and Dorset, were represented by some ninety exhibitors, their produce being a better average as regards size and quality of the fruit than last year, but deficient in colour. The Kent fruit took the lead in most of the open classes; Hereford, taking up a better position than last year, carried off many second honours, while the home county, which excelled last year, was obliged to be content with third place. Devonshire has suffered much from excessive drought during the past year, which accounts for the lack of size of fruit, but the absence of colour seems general with it. The English grown fruit was supplemented by a collection of Canadian fruit sent by Mr. Starr, some of remarkable size and colour, the flavour of some varieties excelling English fruit, at the present time being quite one month ahead by its degree of ripeness, but there is no doubt our English grown fruit is the best, having a longer period for ripening.

Pears were fair on the whole, and the various classes strongly contested, many kinds being much smaller than usually shown, owing, no doubt, to the immense crops everywhere this past season.

Since the commencement of the annual exhibitions, now in their third year, the exhibits have steadily improved in selection and cleanliness. Apples were of a more uniform size than last year, showing a better average, though many varieties were exhibited last year much finer, and the colour was grand. The newer varieties of merit have, by the aid of this and kindred societies, found their way into almost every collection staged, which indicates that some good and useful work is being done; and no doubt much more will be done by this Society, conducted as it is by a very energetic secretary and treasurer, ably assisted by a good practical committee.

APPLES.

Twenty-four dishes, distinct,—Messrs. Bunyard, of Maidstone, Kent, were awarded 1st, for an excellent collection, of large size and clean fruit, of the following varieties:—Gloster Mundi, Beauty of Bath, Reine des Reines, Reine des Reines, Pott's Seedling, Lord Suffield, Tower of Glamis, Stirling Castle, New Hawthornden, Ecklinville, Alexander, very fine, and highly coloured; Peasegood's Nonsuch, Warner's King, Stone's, Tibbet's Pearmain, Lady Henniker, Cox's Pomona, Gospatric, Salmarsch's Queen, Golden Noble, Lord Derby, Melon Apple, Cellini, and Lane's Prince

Albert. 2d, Mr. Watkins, Pomona Farm, Withington, Hereford, also with a very clean lot, his best being Striped Seedling, green and red Costard's, Mère de Ménage, Blenheim Orange, Yorkshire Beauty, Duchess of Oldenburg, Winter Nonsuch, &c. 3d, Mr. C. Slater, Heavitree, Exeter, who followed closely.

Twelve dishes, distinct.—Again Messrs. Bunyard came to the front with a splendid lot—Lord Derby, Warner's King, Stone's, Salmars's Green, and Alexander being especially fine. Mr. Watkins followed closely with good fruit. 3d, Mr. H. Berwick, Sidmouth Nurseries.

Twelve dishes, dessert.—1st, Messrs. Bunyard, whose collection comprised the following: Cox's Orange Pippin, Melon Apple, Lady Henniker, Herefordshire Crimson Queening, Ribston Pippin, Worcester Pearmain, King of the Pippins, Wealthy, Blenheim Orange, Colonel Vaughan, Washington, and Cellini; this latter is generally considered a culinary Apple. 2d, Mr. C. Slater, whose collection was excellent also; 3d, Mr. J. Scott, Merriott.

Twelve culinary, distinct.—1st, Messrs. Bunyard, with several dishes, the best being Sirling Castle, Stone's Gloria Mundi, Lord Derby, Beauty of Kent, Salmars's Queen, Warner's King, New Hawthornden, Cox's Pomona, Ecklinville, Alexander, and Lane's Prince Albert; 2d, Mr. J. Watkins; 3d, Mr. D. C. Powell, Powderham, Kenton, Exeter.

Nine dishes, dessert, distinct (prizes offered by Messrs. Bunyard).—1st, Mr. C. Slater, in whose collection were staged some capital fruit—Red-ribbed Greening, a handsome and good flavoured variety, a Devonshire variety, Royal Somerset, Blenheim Orange, Cox's Orange Pippin, Cornish Aromatic, and Gilliflower, Ribston, King of the Pippins, and Court Pendu-plat. 2d, Mr. H. Berwick.

Twelve varieties cider fruit, distinct.—1st, Mr. E. P. Uglow; 2d, Mr. Garland, gr. to Sir T. D. Acland; 3d, Mr. B. Salter.

Eighteen dishes, distinct (for private growers).—1st, Mr. G. Brooks, gr. to A. Vaughan Lee, Esq., Dillingham Park, Ilminster, whose best dishes were Alexander, Beauty of Wilts, Peasegood's Nonsuch, Royal Somerset, Royal Russet, Cellini, Alfriston, Cox's Orange Pippin, Mère de Ménage, Lady Henniker, and Warner's King; 2d, Mr. Garland, whose Blenheim Orange, Cox's Pomona, and Mère de Ménage were good; 3d, Mr. W. Slee, gr. to E. V. Hawkins, Esq., Edgerton Park.

Nine dishes, dessert, distinct.—1st, Mr. G. Brooks, whose collections included several unknown varieties very similar to each other; 2d, Mr. Garland, who staged well, his best being Alexander Russel, Blenheim Orange, fine colour; King of the Pippins.

Nine, culinary.—1st, Mr. A. Truman, Countess Weir, Topham, with some excellent fruit of Dumelow's Seedling, very fine; Gloria Mundi, Alfriston, Warner's King, Blenheim Orange, Ecklinville, Golden Noble, Flower of Kent, Hollow Core, and Beauty of Wilts; 2d, Mr. A. C. Williams, gr. to W. C. Sim, Esq., Clyst St. George.

Nine dishes, distinct.—1st, Mr. J. Baker, gr. to Mrs. Kowe, Lafronda, Exeter; 2d, Mr. J. Blythe, Ide; 3d, Mr. P. Slade, gr. to W. H. Cocks, Esq., Broadclyst.

SINGLE DISHES.

One dish of Apples, by Devonshire cottagers.—Twenty-five competitors. 1st, Mr. J. Hitchcot, Sowton, with Blenheim Orange; 2d, Mr. W. Gibbings, Topham, with Warner's King, very fine; 3d, Mr. S. Steer.

Single dish, best flavour.—1st, Miss Matthews, Crediton, with Cox's Orange Pippin; 2d, Messrs. Bunyard, same variety.

Heaviest dish.—1st, Mr. W. Blackmore, with Warner's King, the heaviest fruit weighing 1 lb. 6 oz. and 5 drms.; Messrs. Bunyard being 2d, with the same variety; and Mr. J. Powlesland, gr. to C. J. Luscombe, Esq., Hill's Court, 3d.

Alfriston.—1st, Mr. G. May, Topham.

Blenheim Orange.—Twenty-eight competitors. 1st, Mr. J. Beer, Culmpton.

Golden Noble.—Seven competitors. 1st, Mr. D. C. Powell.

Lord Suffield.—Twelve competitors. 1st, Messrs. Bunyard.

Old Hawthornden.—Six competitors. 1st, Mr. J. Fryer, who staged Dumelow's Seedling, and overlooked by the judges.

Warner's King.—Twelve competitors. 1st, Mr. W. Blackmore.

Dumelow's Seedling.—Twenty-one competitors. 1st, Mr. A. Truman.

Any other culinary.—Thirty-one competitors. 1st, Mr. G. Brooks, with a fine dish of Peasegood's Nonsuch; 2d, Mr. R. Salway, gr. to C. R. Collins, Hele, with Alexander.

Cornish Gilliflower.—Twenty competitors. 1st, Mr. W. R. Baker, gr. to Rev. P. L. D. Acland.

Court Pendu-plat.—Nine competitors. 1st, Mr. C. Slater.

Cox's Orange Pippin.—Twenty-four competitors. 1st, Messrs. Bunyard.

Cravenstein.—Seven competitors. 1st, Mr. J. Stenner.

King of the Pippins.—Seventeen competitors. 1st, Messrs. Bunyard.

Margil.—Nine competitors. 1st, Mr. J. Mogridge, gr. to Mrs. Ord, Topham.

Mère de Ménage.—Four competitors. 1st, Mr. J. Searle, Crediton.

Ribston Pippin.—Thirty competitors. 1st, Messrs. Bunyard.

Any other dessert.—Forty-three competitors. 1st, B. C. Gidley, Esq., Town Clerk, Exeter, with Gidley's Pearmain, one of his own raising; 2d, Mr. J. Hall, Bridge Mills, Culmpton, with Adam's Pearmain.

PEARS.

Twelve dishes, distinct.—Eight competitors. Here again Messrs. Bunyard took the lead, showing remarkably well. The varieties consisted of Beurré Clairgeau, Beurré Diel, Durondeau, Catillac, Beurré Bachelier, Pitmaston Duchess, Doyenné du Comice, Marie Louise d'Uccle, Louise Bonne de Jersey, Beurré Superfin, Beurré d'Ecilly, and Grosse Calabasse. Mr. Garland was a good 2d, having Pitmaston Duchess, fine; Beurré Bose, Bon Curé, and Winter Nelis, extra good. 3d, Mr. C. Slater.

Six dishes, distinct.—Seventeen competitors. 1st, Mr. R. Salter, gr. to J. Carver, Esq., Chilton Polden, with Maréchal de la Cour, Beurré Rance, Louise Bonne de Jersey, Doyenné du Comice, Pitmaston Duchess, and Marie Louise, all of them excellent; 2d, Mr. Garland; 3d, Mr. H. Berwick.

Three dishes, dessert.—Nineteen competitors. 1st, Mr. D. C. Powell with Beurré Clairgeau, highly coloured; Marie Louise, and Muirfowl's Egg; 2d, Mr. G. Morrinder, gr. to F. Bradshaw, Esq., Lifton Park.

Three dishes, culinary.—Seven competitors. The fruit in these classes were small compared with former years. The 1st prize fell to Mr. A. C. Williams, with Uvedale's St. Germain, Catillac, and Bellissime d'Hiver; 2d, Mr. W. S. Lee.

SINGLE DISHES.

Catillac.—Eleven competitors. 1st, Mr. J. Ham, Broadcreech, with fruit from the wall—clean and highly coloured.

Uvedale's St. Germain.—Twelve competitors. 1st, Mr. G. Brooks.

Any other variety, culinary.—Nine competitors. 1st, Mr. Truman, with Black Worcester—fine.

Beurré Diel.—Seventeen competitors. 1st, Mr. Geeson, gr. to Lord Haldon, with very fine fruit.

Doyenné du Comice.—Six competitors. 1st, Mr. G. Brooks.

Beurré Beurré.—Nine competitors. 1st, Mr. J. Searle, with a large sized and clean dish.

Glou Morceau.—Seven competitors. 1st, Mr. R. Smith, gr. to Lady Fletcher, Yalding.

Josephine de Malines.—Eight competitors. 1st, Mr. A. C. Williams.

Knight's Monarch.—Four competitors. 1st, Mr. A. C. Williams.

Louise Bonne de Jersey.—Eighteen competitors. Too late for this variety to show well. 1st, Mr. Garland; large fruit.

Marie Louise.—Twenty-two competitors. A fine lot of fruit in many cases were staged. 1st, Mr. R. Smith.

Pitmaston Duchess.—Ten competitors. The specimens exhibited in this class were not so fine as usual. 1st, Mr. A. C. Williams.

Winter Nelis.—Twelve competitors. 1st, Mr. R. Smith.

Any other dessert.—Forty-one competitors. 1st, Messrs. Bunyard, with Beurré Clairgeau.

MISCELLANEOUS.

Quince.—1st, Mr. Slater.

Twelve Tomatoes.—1st, Mr. Truman, with Stamfordian; very fine.

Medlars.—1st, Rev. B. W. T. Wrey, with the Dutch variety.

Messrs. Veitch & Sons, of Exeter, staged a fine collection of Apples and Pears, comprising nearly 100 varieties of Apples and forty of Pears. The principal varieties among Apples were: Sandringham (new), Loddington, Lane's Prince Albert, Golden Noble, Bauman's Red Reinette, Schoolmaster, Claygate Pearmain, Fearn's, Hollandbury, &c. The same firm staged a miscellaneous collection of other fruits, such as Filberts, Cob-nuts, Walnuts, Spanish Chestnuts, English green Almonds, &c.

Messrs. Lucombe, Pince & Co. also put up fine collections with a similar number of dishes of both Apples and Pears in excellent condition. They had among Pears, Van Mons Léon le Clerc, Vicar of Winkfield, Uvedale's, St. Germain, and Gillogil, very fine. Of Apples, Tibbet's Pearmain, a fine hand-some exhibition Apple; Blenheim Orange, Lord Paulet's Pearmain, Cox's Pomona, Brabant Belle-fleur, and Alexander Russel, very good. The firm also exhibited a collection of Tobaccos grown by them at their Exeter Nurseries.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, OCTOBER 27, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.		HYGROMETRIC DEVIATIONS FROM GLASHER'S TABLE 5th Edition.		WIND.	RAINFALL.
	Mean Reading from 5 a.m. to 9 a.m.	Departure from 32° Fahr. at 5 a.m.	Highest.	Lowest.	Range.	Mean for Day.	Direction.	
Oct. 21.	30.73	+0.09	54.0	45.0	9.0	48.7	S.E.	0.00
22.	30.81	+0.09	54.0	45.0	9.0	48.7	S.E.	0.00
23.	30.86	+0.17	54.0	45.0	9.0	48.7	S.E.	0.08
24.	30.84	+0.33	54.0	45.0	9.0	48.7	E.N.E.	0.04
25.	30.94	+0.34	54.0	45.0	9.0	48.7	N.E.	0.00
26.	30.96	+0.30	54.0	45.0	9.0	48.7	N.E.	0.00
27.	30.91	-0.01	54.0	45.0	9.0	48.7	N.E.	0.13
Mean.	30.88	+0.16	54.0	45.0	9.0	48.7	S.E.	0.03

Oct. 21.—Thick mist in morning, fine but dull all day.
22.—Fine and bright.
23.—Wet; dull overcast day throughout.
24.—Morning fine, and cold; generally overcast from noon.
25.—Slight rain in early morning; overcast all day.
26.—Overcast throughout, with strong wind.
27.—Wet and overcast all day.

LONDON: Atmospheric Pressure.—During the week ending October 23d, the reading of the barometer at the level of the sea increased from 28.81 inches at the beginning of the week, to 29.71 inches by 1 P.M. on the 20th, decreased to 29.67 inches by the afternoon of the same day, increased to 30 inches by the morning of the 22d, decreased to 29.97 inches by 5 P.M. on the same day, and was 30.10 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.67 inches, being 0.24 inch higher than last week, and 0.21 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 59° on the 19th and 20th; the highest on the 17th was 53.3°. The mean of the seven high day temperatures was 55° 6.

The lowest in the week was 38° on the 22d; the lowest on the 17th and 20th, was 47°. The mean of the seven low night temperatures was 43° 4.

The greatest range of temperature in one day was 16°; on the 18th and 22d, the smallest was 6°; on the 17th. The mean of the seven daily ranges was 12° 2.

The mean daily temperatures were, 48° 8 on the 17th, 47° 5 on the 18th, 51° 4 on the 19th, 52° 5 on the 20th, 48° 7 on the 21st, 46° 2 on the 22d, and 48° 7 on the 23d. These were below their averages on the 17th, 18th, 21st and 22d, by 1°, 2°, 2°, 0° 3, and 2° 5 respectively, and above on the 19th, 20th, and 23d by 1° 9, 3° 2, and 0° 4 respectively.

The mean temperature of the week was 49° 1, being 2° 2 lower than last week, and 0° 1 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 90° on the 22nd. The mean of the seven high readings was 68° 8.

Rain.—Rain fell on three days to the amount of 0.14 inch.

ENGLAND: Temperature.—During the week ending October 16th, the highest temperatures were 61° at Truro, 59° 8 at Bradford, and 50° at Blackheath; the highest at Newcastle was 53°, at Wolverhampton 53° 4, and at Sunderland 54°. The general mean was 56° 9.

The lowest in the week were at Truro, 32°, at Hull 33°, and at Wolverhampton 35°; the lowest at Newcastle was 44°, at Liverpool 43° 3, and at Preston 41°. The general mean was 37° 9.

The greatest ranges of temperature were at Truro 29°, at Hull 25°, and at Sheffield 22°; the least ranges were at Newcastle 90°, at Liverpool 13° 4, and at Sunderland 14°. The general mean was 19°.

The mean of the seven high day temperatures was highest at Truro 58°·3, at Plymouth 56°, and at Blackheath 55°·6; and lowest at Wolverhampton 51°·8, at Newcastle 52°·4, and at Sunderland 52°·7. The general mean was 54°·4.

The mean of the seven low night temperatures was highest at Newcastle 46°·8, at Sheffield and Preston 46°·1, and was lowest at Wolverhampton, 45°·1, at Plymouth 41°·8, and at Bristol, 42°·2. The general mean was 45°·4.

The mean daily range was greatest at Truro 14°·9, at Plymouth 14°·2, and at Bristol 12°·4; and least at Newcastle 5°·2, at Sunderland 6°·9, and at Liverpool 7°·6. The general mean was 10°.

The mean temperature was highest at Truro 49°·9, and at Sheffield and Preston 49°·3; and was lowest at Wolverhampton 44°·9, at Bristol 47°·4, and at Plymouth 47°·9. The general mean was 47°·9.

Rain.—The largest falls were 1·94 inch at Nottingham, 1·55 inch at Sheffield, and 1·23 inch at Liverpool; the smallest falls were 0·14 inch at Blackheath, 0·15 inch at Brighton, and 0·41 inch at Leeds. The general mean fall was 0·82 inch.

SCOTLAND: Temperature.—During the week ending October 23d, the highest temperature was 67° at Greenock; the highest at Aberdeen was 53°·5. The general mean was 55°·3.

The lowest temperature in the week was 30° at Perth; the lowest at Greenock and Leith was 37°. The general mean was 34°·1.

The mean temperature was highest at Aberdeen 48°·8; and lowest at Perth 46°. The general mean was 47°·6.

Rain.—The largest fall was 1·70 inch at Edinburgh, the smallest fall was 0·07 inch at Greenock. The general mean was 0·65 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

TO THE TRADE.—Members of the Trade will oblige by sending notes of matters of Trade interest. Short notes of daily experience are what are most useful.

CORRECTION.—In "Cattleya Measures" ("Orchid Notes," &c., p. 526) we erred last week in giving Mr. Salter as the gardener at The Woodlands instead of Mr. R. W. Fraser.

EGROT: G. P. Yes; certainly on Rye-grass.

FUNGUS: F. W., Sheffield. The fungus is named *Agaricus uruginosus*, from its verdigris-green colour. It is not uncommon, but is worthless, if not poisonous. Correspondents should not wrap up glutinous fungi in wool.

GRAPES SPLITTING, AND MILDEW IN MUSCATS: F. C. K. You have probably cut away too much of the lateral growths, or thinned the bunches very severely, and made matters worse by giving water at the roots in the evening instead of in the morning. The splitting may be occasioned by any of these, but your letter gives no clue and we burn the grapes, dewed berries, and smear the hot-water pipes, or other heating means, with lime, clay, and sulphur; and keep up a dryish atmosphere instead of a cool and moist one, which favours the development of mildew. Do not give ventilation by the front sashes of the vinery unless the weather should prove warm.

GROS COLMAR GRAPES: F. Witherspoon. The berries were very fine, but owing to the way in which they had been sent, most of them were smashed, and the bloom was entirely destroyed; but the flavour was excellent. We do not see how the "Red Rose" boiler could have influenced the quality of these Grapes, for good fruit can be grown by any other means of heating, or with none.

INSECTS: A. W. Your small bulbs of Cattleya Mossiae are attacked by the small hemipterous insect, *Isoomma Orchidearum* ("I. O. W." in *Gardener's Chronicle*, 1859, p. 1230), the small white larva of which does great injury to the interior. Both sexes of the little black fly are now (end of October) appearing in the perfect state. —*F. S.* Your Cattleya bulbs are producing the perfect little black flies (*Isoomma Orchidearum*), as described in the preceding reply. —*W. K. Aspinwall.* The green caterpillar which has destroyed your Tobacco plants is a different species from those which attack Cabbages, Gooseberries, and Beetroot. It produces a moth found in North America, figured by Abbott and Smith (*Insects of Georgia*, 2, p. 20) under the name of *Phaeneta Rheixia* (the Tobacco-bud worm moth). —*T. O. W.*

NAMES OF FRUITS: C. P. Specimen sent quite decayed.—*Alfred N. Jones*, 1, Beurre d'Amanlis; 2, Paradis d'Automne; 3, Knight's Monarch. *Apples:* 1, Duke of Devonshire; 2, Boston Russet; 3, Cox's Orange Pippin; 4, not recognised; 5, Warner's King; 6, *Burgundy*; 7, *Brandy*; 8, Noble; 9, Tower of Glamis; 10, Hambleton Deux-ans.—*Carter, Page & Co.*, 1, Mère de Ménage; 2, Red Autumn Calville. —*C. F. W.*, 1, Nonsuch; 2, Fearn's Pippin; 3, Louise Bonne of Jersey; 4, Haco's Incomparable; 5, Bergamotte d'Espérance; 6, Josephine de Malines. —*G. T. B.* Names not known.

NAMES OF PLANTS: Oxford. *Helianthemum vulgare*. —*Eutypa*, 1, 2, Bromeliads, of which we will give you the name next week, if possible. The other things arrived in such a condition that we cannot undertake to give them names. —*J. W. M.* Probably both *Syringa Emodi*. Why not send better specimens? Do you think it possible to name plants from withered leaves only, and without a particle of information? —*K. W. L.*, 1, *Thuja orientalis* var. *aurea*; 2, *Rhus typhina*; 3, *Abies Nordmanniana*; 4, *A. Pinsapo*; 5, *Larix*; 6, *Juniperus*? But the specimens are so poor that all these names are given with hesitation, and we cannot vouch for their absolute correctness. —*H. Y. R.* An *Ornithogalum*, of which we will endeavour to give you the name next week. —*W. A. M.* *Cotoneaster frigida*. —*Ross*. *Ornithogalum lacteum*, *Jacq.* —*J. H.* *Pitcairnia bromeliifolia*, or allied species. —*Col. Berkeley*, *Dendrobium Cambridgeanum*; the flowers are pale from its blooming out of season.

PINES PLANTED IN THE FONTINE MARSHES: H. S. Probably *Pinus halepensis*; *P. Pinæ*.

PLANTS IN GLAZED POTS.—W. We do not recommend them. The soil gets sodden and sour from want of sufficient evaporation and airing of the roots.

SEED OF GOLDEN MOHUR: H. V. The seeds are those of the Flamboyant (*Poinciana regia*), a leguminous tree of Madagascar. *F. R. J.*

SWEET WILLIAM DISEASED: E. W. F. The leaves are affected with *Puccinia dianthi*. Cut off all leaves showing signs of disease and burn them. Slight dusting with flowers of sulphur may kill it when not very prevalent.

TROPICAL PRODUCTS: H. C. Swan. In *The Tropical Agriculturist*, compiled by A. M. and J. Ferguson, Colombo, Ceylon, 1882–1883, many papers are to be found on Cacao, Cloves, Manioc (Cassava), Nutmegs, Peppers, and Aloes.

COMMUNICATIONS RECEIVED:—Wild Rose.—*W. H. R.* —*D. D.* —*D. W. C.* —*H. C. G. F.* —*P. P.* —*W. F.* —*A. Blomfield*. —*A. B. J.* —*D. H. R. E.* —*F. P.* —*W. W.* —*C. A.* —*W. J. G. W.*: we cannot enter into these boiler discussions. —*J. D. & Sons*. —*O. T.*: the *Ficus* has not come to hand. *S. H.* —*Hauge & Schmidt*.

Markets.

COVENT GARDEN, October 28.

LARGE supplies of Grapes still reaching us from the Channel Islands, keeping down the price of home-grown fruit. American Apples now coming in freely. *James Webber, Wholesale Apple Market.*

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	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	4 0-10	Peaches, per dozen	5 0-10
Figs, per dozen	0 9-10	Pears, per dozen	1 0-10
Grapes, per lb.	0 6-10	Pine-apples, Eng. lb.	3 0-4 0
Kent Cobs, 100 lb.	55 0-60 0	St. Michael, each 2	6 8-0
Lemons, per case	118 0-130 0	Plums, ½-sieve	0 9-10
Melons, each	1 0-2 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, per doz.	4 0-10	Mint, green, bunch	0 4-10
Auchers, each	0 3-10	Mushrooms, punnet	1 0-2 0
Beans, Kidney, lb.	0 8-10	Mustard and Cress, doz.	4 0-10
Beet, red, per dozen	1 0-2 0	Onions, per bushel	4 0-10
Brussels Sprouts, lb.	4 0-10	Parsley, dozen, bunch	3 0-10
Carrots, per bunch	0 6-10	Potatoes, per cwt.	4 0-5 0
Cauliflowers, per doz.	3 0-10	Kidney, per cwt	4 0-5 0
Celery, per bundle	1 6-20	Shallots, per pound	0 3-10
Cumcums, each	0 6-10	Spinach, per bushel	1 0-2 0
Endive, per dozen	1 0-20	Tomatoes, per lb.	0 9-10
Herbs, per bunch	0 4-10	Turnips, bunch	0 4-10
Leeks, per bunch	0 6-10	Veget. Mar., each	0 3-10
Lettuce, per dozen	1 0-1 6		

POTATOES:—Kent Regents, 8oz. to 9oz.: Schoolmasters, 7oz.; Beauty of Hebron, 9oz.; Champions, 4½z. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Asplenium Sieboldi, per dozen	6 0-10 0	Evergreens, in var., per dozen	6 0-10 0
Asters, per dozen	4 0-9 0	Ficus elastica, each	1 6-7 0
Begonias, per dozen	6 0-12 0	Ferns, in var., dozen	4 0-18 0
Bouvardias, per bu.	9 0-12 0	Foliage Plants, various, each	2 0-10 0
Chrysanth., per doz.	4 0-12 0	Lilies, in var., doz.	12 0-30 0
Cyperus, per dozen	4 0-12 0	Marguerite Daisy, per dozen	6 0-12 0
Diacaena terminalis, per dozen	30 0-60 0	Mignonette, per doz.	4 0-6 0
—viridis, per doz.	12 0-24 0	Myrtles, per dozen	6 0-12 0
Erica gracilis, doz.	12 0-18 0	Palms, in var., each	2 6-10 0
—hyemalis, doz.	18 0-24 0	Pelargoniums, scarlet, per doz.	3 0-6 0
—reginians, doz.	8 0-12 0		
Eunonymus, in var., per dozen	6 0-18 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, 12 blms.	4 0-6 0	Lilium longiflorum, 12 blooms	4 0-6 0
Asters, 12 bunch.	4 0-6 0	Marguerites, per 12 bunches	3 0-6 0
Azaleas, 12 sprays	0 9-1 6	Mignonette, 12 bun.	1 0-3 0
Bouvardias, per bu.	9 0-12 0	Pelargoniums, per 12 trusses	0 9-10 0
Camellias, 12 blooms	3 0-6 0	—scarlet, 12 trusses	3 0-6 0
Carnations, 12 blms.	1 0-3 0	Pyrethrums, 12 bun.	2 0-4 0
Chrysanth., 12 blms.	1 0-3 0	Roses, Tea, per doz.	0 7-10 0
—12 bunches	0 4-8 0	—red, per dozen	0 7-10 0
Dahlias, 12 bunches	3 0-6 0	—outdoor, 12 bun.	2 0-6 0
—bunches	2 0-4 0	Staphis, per 12 sprays	4 0-6 0
Eucharis, per dozen	4 0-6 0	Tuberose, 12 bun.	1 0-2 0
Fuchsia, 12 bun.	2 0-4 0	Tulips, 12 blms.	1 0-1 6
Gardenias, 12 blooms	2 6-4 0	Violets, 12 bunches	0 9-1 3
Gladioli, 12 sprays	1 0-2 0	—Ferne, French, per bunch	4 0-5 0
Heliotropes, 12 spr.	0 6-1 0		
Jasmine, white, bun.	0 6-9 0		
Lagerania, 12 bl.	1 0-2 0		
—white, 12 blooms	2 0-3 0		

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NARCISSUS, Phœasant-eye	30 0	3 6
DAFFODIL, double yellow	30 0	3 6
DAFFODIL, single Trumpet	25 0	3 0
CROCUS, fine mixed	12 6	1 6
CROCUS, golden-yellow	10 6	1 3
CROCUS, large blue	13 6	1 6
CROCUS, large white	14 6	1 9
CROCUS, large striped	14 6	1 9
IRIS, fine mixed Spanish	20 0	2 6
ORNITHOGALUM (Star of Bethlehem)	30 0	3 6
BLUE BELLS	30 0	3 6
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SNOWDROPS	21 0	2 6
WINTER ACONITES, yellow	21 0	2 6

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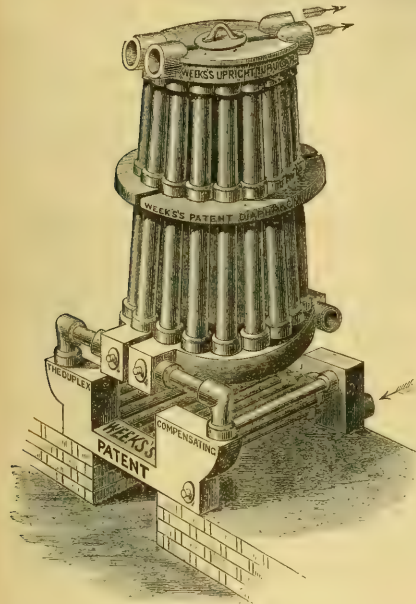
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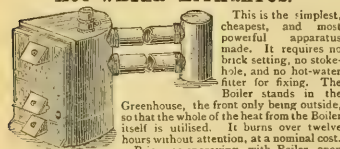
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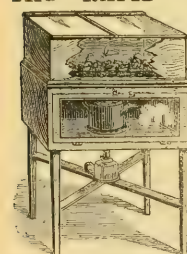
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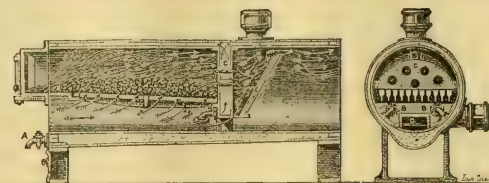
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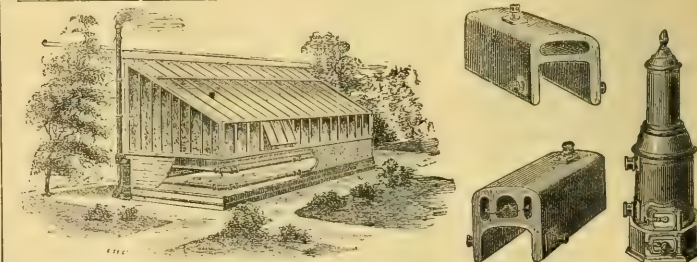
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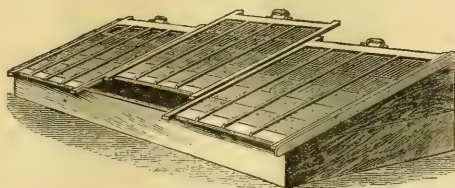
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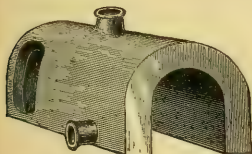
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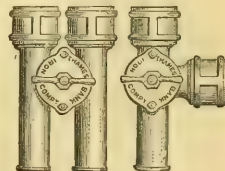
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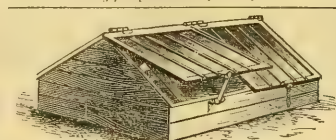
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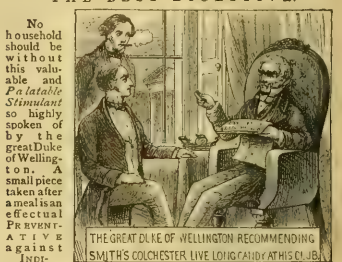
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A Gardener, of good address, with excellent references, well known among Gardeners, would represent a House doing business in that connection.—Particulars to L. L., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

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N.B.—The Nurseries are situated ¾ of a mile from Milford Station, and 1 mile from the new Godalming Station on the direct Portsmouth line.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, October 30, 1886. Agent for Manchester—JOHN HEYWOOD.

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Established 1841.

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IN AMERICA.

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ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.

NOTICE—COMINGINGS: Scientific, at 7 P.M., in the Lindley Library; Fruit and Floral, at 11 A.M., in the Conservatory, on TUESDAY NEXT, November 9.

KINGSTON AND SUBRITON
CHRYSANTHEMUM SOCIETY.

The TENTH ANNUAL EXHIBITION will be held in the Drill Hall, Kingston, on TUESDAY and WEDNESDAY, November 9 and 10, when, in addition to valuable Money Prizes, the Champion Challenge Vase, value 25 guineas, and two Cups, value 5 guineas, will be offered. Entries Close November 4. Schedules and further particulars of the Exhibition may be obtained from
T. JACKSON, Hon. Sec.
Fife Road, Kingston-on-Thames.

DEVIZES
CHRYSANTHEMUM SOCIETY.

A SHOW will be held in the Corn Exchange, Devizes, on TUESDAY, November 16, when, in addition to Valuable Money Prizes, the Challenge Cup and a Cup value 5 guineas, given by the Mayor for Twenty-four Blooms, will be offered. Schedules and further particulars of the Exhibition may be obtained from
THOS. KING, The Gardens, Devizes Castle.

TWICKENHAM HORTICULTURAL AND COTTAGE GARDEN SOCIETY.—The Autumn Exhibition of Chrysanthemums, Fruit, Flowers, &c., will be held in the Town Hall, Twickenham, on NOVEMBER 16 and 17. **MARTINDALE C. WARD, M.D., Treasurer.**
J. J. G. PUGH, Honorary Secretary.

COLCHESTER AND EAST ESSEX
CHRYSANTHEMUM SOCIETY.

SPECIAL PRIZE, value £100, offered by the Corporation of Colchester, at the Chrysanthemum Show, to be held on NOVEMBER 15. Particulars of **J. C. QUILTER, Secretary,**
5, Head Street, Colchester.

Dissolution of Partnership.

JOHN LAING AND CO., of the Stanstead Park and other Nurseries, SEASIDE and FLORENTIA, Forest Hill, S.E., have DISSOLVED PARTNERSHIP, as and from October 31, 1886. ALL DEBTS due and owing by the Firm will be RECEIVED AND PAID BY JOHN LAING, who will future carry on the business in conjunction with his two sons and with the assistance of all the Foremen and other Heads of the various Departments.

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Notice.

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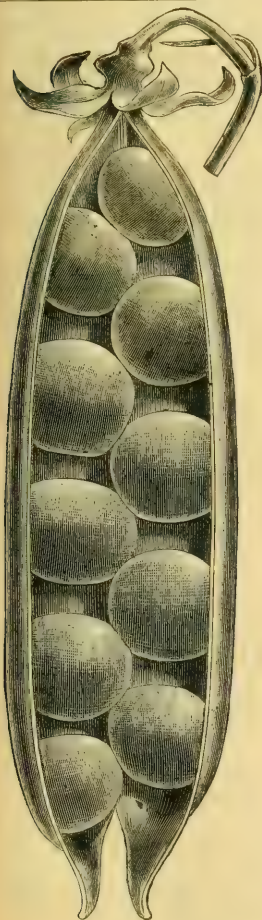
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LARGE YELLOW HOOP PETTICOAT, very beautiful	13	6	2	0
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EDWARD LEEDS, large, handsome, rich, uniform yellow petals and trumpet	30	0	5	6
MAJOR, uniform rich yellow petals and trumpet	15	0	2	6
OBVALLARIS (Tenby Daffodil), very early flowering, uniform yellow petals and trumpet	12	6	2	0
" " extra sized bulbs	17	6	3	6
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SPURIUS, rich full yellow petals and trumpet, large flowered	15	0	2	6
SPURIUS YELLOW KING (Ard Righ), large rich yellow petals and trumpet	40	0	6	6
BICOLOR HORSFIELDI, large and early; petals white, trumpet yellow	7	6		
" GRANDIS, the largest of the bicolors; petals white, trumpet yellow	11	6		
" " second sized roots	7	6		
CAMERICUS, sulphur-white petals, yellow trumpet	15	0	2	6
PRINCESSES, sulphur-white petals, very large yellow trumpet	12	6	2	0
" " second sized bulbs	10	6	1	6
PALLIDUS PRECOX, a great beauty; uniform pale yellow petals and trumpet	15	0	2	6
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CONCOLOR, petals and cup yellow, large flower	31	0	3	6
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" " second sized flowering bulbs	21	0	3	0
FRANK MILES, very large flower, yellow petals and cup	30	0	5	6
" " second sized flowering bulbs	21	0	3	0
FIGARO, yellow petals, large orange-stained cup	30	0	5	6
" " second sized flowering bulbs	15	0	2	6
FAIRY, yellow petals, cup elegantly edged orange	12	6	2	6
" " second sized flowering bulbs	6	6	1	6
GLOW, yellow petals, cup margined orange	10	6	1	6
SUNLIGHT, yellow petals, cup stained orange	7	6	1	3
" " second sized flowering bulbs	10	6	1	6
SULPHUREUS, sulphur petals, cup yellow	10	6	1	6
" " second sized flowering bulbs	7	6	1	3
ASTREA, sulphur petals, yellow cup	10	6	1	6
" " second sized flowering bulbs	7	6	1	3
JOHN BULL, sulphur petals, cup yellow, large and spreading	25	0	4	6
" " second sized flowering bulbs	15	0	2	6
LONGSHANKS, sulphur petals, large yellow cup	21	0	3	6
" " second sized roots	12	6	2	6
SANCHO, sulphur petals, yellow cup, tinged orange	12	6	1	6
" " second sized bulbs	7	6	1	3
ALBIDUS, sulphur-white petals, yellow cup	10	6	1	6
" " second sized bulbs	7	6	1	3
ANNIE BADEN, sulphur-white petals, elegant cup	25	0	4	6
" " second sized bulbs	12	6	2	6
CYNOSURE, primrose petals, long orange-stained cup	21	0	3	6
" " second sized bulbs	12	6	2	6
LORENZO, self primrose petals, yellow cup	21	0	3	6
" " second sized bulbs	10	6	1	6
STELLA, large white petals, large yellow cup	18	6	2	6
BARRI, GOLDEN MARY, yellow petals and cup	10	6	1	6
" " second sized bulbs	7	6	1	3
SULPHUREUS, primrose petals, yellow cup	5	6	1	0
" " second sized bulbs	15	0	2	6
ADA, sulphur-white petals, yellow cup	7	6	1	3
" " second sized bulbs	10	6	1	6
JOHN STEVENSON, sulphur-white petals, large spreading yellow cup	40	0	4	6
" " second sized bulbs	21	0	3	6

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LEEDS AMABILIS, large white petals, long white cup	40	0	7	6
" " second sized bulbs	21	0	3	6
DUCHESS OF BRABANT, white petals, canary cup	40	0	7	6
" " second sized bulbs	21	0	3	6

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HUME'S SULPHUR, a fine hybrid, sulphur-white petals, yellow cup	15	0	2	6
" " second sized bulbs	10	6	1	6
MACLEAVI, a miniature bicolor, white and yellow	15	0	2	6
" " second sized roots	10	6	1	6
ODORUS, large self, yellow, handsome Jonquil, with six lobed cup	6	0	1	6
" " second sized bulbs	5	6	1	0
RUGIOBUS, large self, yellow, handsome Jonquil, with straight cup	6	0	1	6
" " second sized roots	5	6	1	0
BUTTER AND EGGS, large double yellow, with orange nectary	6	6	1	0
" " second sized bulbs	4	6	0	9
EGGS AND BACON, large double white with orange nectary	12	6	2	6
" " second sized bulbs	7	6	1	3
CODLINS AND CREAM, large double white with sulphur nectary	35	0	5	6
" " second sized bulbs	21	0	3	6

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BURBIDGE'S early-flowering POETICUS, white petals, scarlet-stained cup	12	6	2	0
" " second sized bulbs	7	6	1	3
" " YELLOW POETICUS BOZ	21	0	3	6
" " second sized bulbs	15	0	2	6
" " early-flowering WHITE POETICUS DANDY	21	0	3	6
" " second sized bulbs	10	6	1	6
" " early-flowering WHITE POETICUS MARY, large suffused orange cup	25	0	4	6
" " second sized bulbs	12	6	2	6
" " early-flowering WHITE POETICUS ROBIN HOOD	25	0	4	6
" " second sized bulbs	12	6	2	6

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POET'S ANGUSTIFOLIUS, early-flowering Poet's Daffodil	8	6	1	6
" " second sized bulbs	10	6	1	6
" " ORNATUS, the broad-petalled Poet's early flowering Daffodil	12	6	2	0
" " second sized bulbs	8	6	1	6
POETICUS OF GARDENS, large white petals, orange rim cup	5	6	1	0
" " smaller roots	3	6	0	6
GARDENIA - FLOWERED DOUBLE WHITE DAFODIL	7	6	1	6
" " smaller bulbs	5	6	1	0
PRIMROSE PEARLESS DAFODIL, per 1000, 30s.	3	6	0	6
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" " second sized roots	10	6	1	6

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NARCISSUS, mixed border	25	0	3	0
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NARCISSUS, Pheasant-eye	30	0	3	6
DAFFODIL, double yellow	30	0	3	6
DAFFODILS, single Trumpet	25	0	3	0
CROCUS, fine mixed	12	6	1	6
CROCUS, golden-yellow	10	1	3	0
CROCUS, large blue	13	6	1	6
CROCUS, large white	14	6	1	9
CROCUS, large striped	14	6	1	9
IRIS, fine mixed Spanish	20	0	2	6
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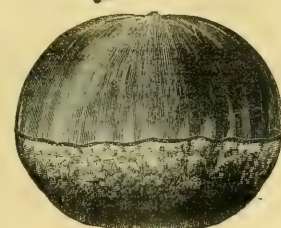
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Gardeners' Chronicle.

SATURDAY, NOVEMBER 6, 1886.

NEWBURY AND NEIGHBOURHOOD.

BERKSHIRE is noted for other things besides its breed of pigs. It contains many famous gardening establishments and places of historic interest. Local records tell us that few of the stately residences built by the merchant princes of Elizabethan days are more characteristic than Shaw House, Newbury. Built by Thomas Dolman, the friend and business associate of the famous "Jack of Newbury," and his son, Sir Thomas Dolman, it is said to have cost the enormous sum (for those days) of £10,000, being more than £1,000 in excess of that of Hatfield, one of the handsomest examples of the Elizabethan style. Shaw House exhibits many of the peculiar features of this most picturesque style. It is of red brick, with window casings and enrichments of stone.

The house stands at the end of a pleasantly winding avenue of Limes—a leafy grove—in the midst of gardens and terraces, demurely planted with Hollies, Yews, and other evergreens. The eastern front, which faces the avenue, is, however, by no means the most picturesque. The opposite front, which looks out upon one of the prettiest of lawns—a fine stretch of verdant sward, bounded by a little stream dotted with Water Lilies—is, for pictorial effect, much to be preferred. The house is built, after the fashion of the time, in the shape of the letter E. It is notable for having stood a siege by the Parliamentarians—the marks of the siege being still visible on the walls. The building seems, however, to have sustained slight damage from the besiegers, which is no doubt accounted for by the great strength of the outer walls, which are mainly 6 feet thick. The present lawn-tennis ground was pointed out as being the spot where took place one of the deadliest conflicts during the siege, and it is likely enough that the bones of many a combatant lie beneath the turf where now all the talk is of "service" and "vantage." Such is fame!

Turning to the garden proper, this is kept in good order, there being a nice range of glasshouses. Fuchsias are especially well cared for—much better, in fact, than we are accustomed to see them at metropolitan shows. In the establishment under notice, for instance, we saw good examples of culture—examples some to feet in height, from last years' cuttings, pyramidally trained, three especially noteworthy varieties being Pink Perfection, Flocon de Neige, and Crown Prince of Prussia. A fine strain of Cinerarias (Van Houtte's) bearing wonderfully healthy foliage, was noted. Mr. Davis, the gardener, informed us that though not bearing flowers so "shapely" as some of the strains now in cultivation, yet it is an exceedingly useful and showy selection.

A fernery planted quite in the natural style, and therefore very effective, is a feature, forming quite a cool retreat.

Orchids are being taken up, a collection just

received from India looking well, and promise attractions and interest when fully established. The autumn queen of flowers (Chrysanthemums), judging by the number of plants one saw in good health, finds a congenial home here. A mixed house, furnished with choice little plants—Crotons, Ferns, Palms, &c.—was very showy, *Adiantum Farleyense* being especially prominent.

Fruit and vegetables, as might be expected in such an establishment, were not neglected, the houses devoted to Peaches and Grapes having borne good crops. Amongst the latter the good old Black Hamburgh is deservedly held in esteem.

In an effectively planted outside mixed border we were pleased to see a mass, well flowered, of the now so seldom seen blue-flowered *Verbena venosa*—how effective when *en masse*, as here, and making a capital edging plant. A Fig planted on a wall outside was noteworthy as having borne a very full crop this year—the wall was quite clothed with its noble foliage—unfortunately we were unable to gather the name of the particular variety.

Quitting this interesting and historic spot a pleasant drive brings us to Welford Park, the residence of G. B. Eyre, Esq., and whereto one who is well known in the horticultural world—Mr. C. Ross—is director of affairs horticultural. The park contains many fine examples of tree growth, Silver Firs being especially noticeable; *A. Pinsapo*, a noble specimen, some 50 feet in height and well furnished. *Abies canadensis* (the Hemlock Spruce) was noted as coming very freely this year. A fine herd of deer gambolling about the park impart an air of picturesqueness and life to the place. The river Lambourne runs through a portion of the grounds. A pretty rustic bridge erected here is a favourite spot for trout fishing, permission being kindly given by Mr. Eyre occasionally to those anxious to engage in this quiet and interesting pastime.

Passing to the gardens, which are kept in admirable order, we notice in the plant-houses some good specimens of stove and greenhouse plants, Ferns being especially well done. *Platycerium alcione* was represented by a vigorous specimen, with a spread of fronds some 15 or 16 feet in circumference. Here, too, was the curious and somewhat new *Alocasia Sanderiana*, a bold and distinct foliage plant, very striking with its broad, sagittate, dark shining green leaves, over a foot in length. *A. metallica* and *A. Lowii* were also in good form.

Touching fruits, Apples have long been a speciality at Welford, and what a grand crop the hardy bush trees are producing this year! Stirling Castle was a picture of fruitfulness, the branches literally breaking down with the fine fruits. The same remarks also apply to Lane's Prince Albert, Ecklinville Seedling, Keswick Codlin, and a host of other fine sorts. The kitchen garden, where most of these Apples are grown, has been over 200 years in cultivation. The subsoil is gravelly; the trees are "top-dressed" about every two years with fresh loam and old manure.

Black Currants thrive admirably in what is known as the "Canal Garden"—planted some fifty-four years, and the bushes producing good crops annually—Mr. Ross attributing their well-doing to the cool bottom on which they are planted.

Pines—as the late exhibition at the Crystal Palace amply testified—are well done here. One or two little cultural points here may not be out of place. The soil in which the Pines are grown is very fibrous loam, with the greater part of the soil knocked out of it, and mixed with bones broken up; the bones are very old, having probably lain in the ground 100 years or more. The largest pots used are 12 inches; most of them are only 11 inches in diameter. The pit in which they are grown holds only forty-eight plants, but by keeping it filled up as

the fruit are cut, about seventy fruit are cut every year. On September 14 last was cut a noble fruit of Smooth Cayenne—probably the heaviest on record, its weight being 10 lb. 12 oz.

What might be called a phenomenon in the vegetable department was seen—this being amongst the Potatoes, where Mr. Ross has done some good work. A single seed out of the berry was sown in heat on March 19 last; the seedling was pricked out April 16; gradually hardened, and planted out May 20; lifted September 8, when it was found to have produced 135 tubers. Weight 3 lb. 11 oz. It may be mentioned that the Potato which produced this wonderful crop from seed this year was got from one of Mr. Ross' seedlings, named The Pet, a seedling of 1884, from Sim's Life guard.

In the same lot of seedlings, of which there are about sixty; three of them did not produce a single tuber, only great bunches of fibrous roots, one had only three small tubers, and the others would average about twenty tubers each, of all colours and shapes.

A few miles from here are some famous Raspberry grounds, in the village of Inkpen, within two miles of the Coombe Hills and the celebrated Inkpen Beacon. Inkpen was in bygone days a place of considerable prosperity. It boasted of pottery works, and it is also said that blanket mills once flourished there, but these are now "things of the past." Its present claim to distinction in the horticultural world is that it is the birthplace of a fine very free fruiting Raspberry, named Earl Beaconsfield, and raised by Mr. Faulkner in 1876, sent out two seasons ago. About 3 acres of sandy soil in the picturesque hollow off the high road are now covered with long rows—"battalions"—of the canes in vigorous health; and such canes—9 to 10 feet in height, and as thick as good sized walking sticks.

The crop this year has been a heavy one; the quantity of fruit may be estimated at many tons, about twenty people being engaged daily during the "picking season," when the fruit was transmitted to various populous centres.

A seedling Cob-nut, which also promises to be a good thing, was noted. It is large and of good flavour, and will, doubtless, be heard more of. B.

New Garden Plants.

MASDEVALLIA ASTUTA, n. sp.*

ONCE more a member of the Scabellaria group. This comes from Costa Rica, where it was collected by Mr. Carder, and grown by Messrs. Shuttleworth & Carder.

As a species it is the nearest neighbour of the nice *Masdevallia Gaskelliana*, but this has distinct acuminate leaves, different colours, and a very distinct lip. Then it recalls *Masdevallia erythrocheta*, a Costa Rican species of this affinity, but that has long, narrow, acuminate leaves, and both lip and column distinct, and the bodies of the sepals rounder.

Our plant has leaves nearly a span long, petiolate, oblong-acute, nearly an inch broad at its widest part. Peduncle of the same length. The sepals are most distinctly triangular, with brown tails, surpassing the length of the rest of the sepal at least twice, simply brown, and yellow at the apex and centre outside, ochre-coloured, with numerous brown blotches inside, hispid there all over. Petals rather blunt. Anterior

saccate part of the lip ascending at the top, toothed at the sides, with three longitudinal keels, and numerous small transverse bars outside the column, with a long beak. *H. G. Rehb. f.*

ODONTOGLOSSUM ASPERSUM VIOLACEUM, *Rehb. f.*

A very fine flower of this has appeared with Messrs. Shuttleworth & Carder. I am informed by Mr. Edward Shuttleworth that the petals and the lip were yellow when the flower first opened. They commenced to assume a mauve-purple colour the second day. I only had the flower after seven weeks, when it was said to have lost some of its brilliancy. I found it brilliant enough. It has the lip deep mauve-purple, with the callus light sulphur-coloured, with a few dark stripes on the inner surface. The petals have their disc or light ochre sulphur-coloured with a broad margin of light mauve-purple around. It is very interesting to see reappear nearly the same variety that flowered in March, 1881, at Sir Trevor Lawrence's wonderful emporium of Orchids. *H. G. Rehb. f.*

ERIA FORDII, *Rolfé, n. sp.*

A remarkable species of *Eria*, belonging to the small section *Xiphosia*, is now flowering at Kew, where it was received from Mr. C. Ford, Superintendent of the Hong Kong Botanic Garden. As it seems to be quite new I propose to name it after Mr. Ford, to whom Kew is indebted for numerous Orchids, both living and in a dried state. Hong Kong has already furnished two species of the genus, neither of them known from elsewhere, one of which belongs to the same section as our new plant, namely, *E. rosea*, Lindl. When Lindley described *E. rosea* in the *Botanical Register*, t. 978, he spoke of the strongly keeled sepals as distinguishing it from all others. Then Griffith described a new genus which he called *Xiphosia*, relying mainly on this very character, and calling his plant *X. carinatum*. Lindley, however, reduced it to a section of *Eria*, including four species, and remarking that it only differed from the section *Dendrolirium* by the glabrous (not woolly) flowers. Bentham amalgamated the two sections, doubtless owing to Lindley's statement, and the question now is whether the section can be retained. I would answer in the affirmative, as two of Lindley's four species differ in habit and in the total absence of keels, and only agree in having glabrous flowers. The section *Xiphosium*, then, excluding *E. scabriliguis* and *E. vittata*, Lindl., is characterised by a strongly triquetrous ovary and sharply keeled sepals. It contains three species—*E. carinata*, Gibson, from Khasia; *E. rosea*, Lindl., from Hong Kong; and the present species, which may be characterised as follows:—Pseudobulbs ovoid, slightly compressed, smooth, 2 inches long; leaf coriaceous, linear-lanceolate, acute, base attenuate, 8–9 by $\frac{1}{4}$ inches; racemes terminal on the young growths, 2–3 flowered, scarcely equaling the leaves; flowers equaling the bracts in length; bracts lanceolate, acute, sharply keeled above, less so towards the base, $\frac{1}{4}$ inch long, light green in colour; ovary sharply three-keeled, the two lateral ones narrowly winged and undulate; sepals lanceolate, acute, 1 inch long, concave inside, strongly keeled outside, the lateral pair being narrowly winged above, with about eight minute teeth near the apex; petals ovate-lanceolate, subacute; lip linear-oblong, obtuse, and apiculate, 10 by $\frac{1}{4}$ inches, with three blunt keels on the lower half, the central one extending almost to the apex, the lateral lobes small and rounded; column with two short wings above colour of sepals, petals, and column light yellowish-green, the sepals with a varnished appearance; lip deep dull yellow above, dull flesh-coloured below, with dull crimson veins on side lobes, and less distinctly so at base of central lobe. From *E. rosea*, Lindl., it is readily distinguished by the flowers being a third larger than in that species by the coloured and some other details, while *E. carinata*, Gibson, has narrower bracts, longer pseudobulbs, and differences in floral details, besides the different area. *R. A. Rolfé, Kew.*

JERUSALEM ARTICHOKE. — This season, as in most warm summers, a few specimens of this plant may be seen in bloom. If seed could be obtained it would be desirable to see if something could not be done to improve, or at least to select some improved form of this neglected vegetable. As it is one of the hardiest and most easily grown of plants this might readily be done.

* *Masdevallia (Gaskelliana) astuta*, n. sp. — Affinis *Masdevallia Gaskelliana*, folio spithameo petiolato ligulato acuto, dorso carinato; pedunculis subaequalibus unifloris; sepalis triangularibus hispidis, setis subduplo longioribus; tepalibus obtusis, labello epichilo oblongo, carinis longitudinalibus tero, trabeculis lateralibus pluribus divaricatis, limbo denticulato; columna dorso ligulata ligula apice retuso serrata. Flor. magnitudine illius *Masdevallia Gaskelliana*, extus brunneae, apice ac per costam ochraceae, intus brunneo guttatis stratiuata supra planum ochraceum. Labello, tepala et columna flavolea. Costa Rica. *H. G. Rehb. f.*

CORDYLINE AUSTRALIS.

THE fine specimen of this plant of which our illustration (fig. 114) gives a good idea, is growing at Erich Bank, Kilm, Greenock, the residence of Wm. F. Burnley, Esq. The specimen stands on the lawn immediately in front of the mansion. It was planted in 1865, and has now attained a height of 18 feet; the circumference at the base is 3 feet, the top is sur-

mild character of the climate, that planted against a south wall a strong healthy plant of *Lapageria rosea* flowers freely every year and makes fine growths.

LILIES.

In a note on our Lilies written in July (p. 19), I proposed adding a few particulars later in the season,

since 1881, one had eight and another seven flowers. This is a truly gorgeous Lily, with its broad spike of crimson, but after some days, while the flower seems still fresh, the crimson turns into a dull stale claret colour, and then most of the beauty is gone. The next finest of the family is *L. auratum platypetalum*, of which there appear to be two varieties, the one variety known as *L. auratum macranthum*, being low growing; the first *L. a. platypetalum* exhibited were



FIG. 114.—CORDYLINE AUSTRALIS AT ERICHT BANK, GREENOCK.

mounted with three strong crowns, and there are four offshoots on the stem, as will be seen from the woodcut. One of the crowns sent up a flower-stem last summer, and another promised to do so this season. It has had no protection whatever during the winter months, and although the west coast is known to have a milder climate than most parts of Scotland, Mr. Hepburn, the head gardener at Erich Bank, informs us that last winter 17° of frost were registered frequently. [See Hook. f. in *Gard. Chron.* 1860, and in *Bot. Mag.* tab. 5636.] It may be mentioned, as showing the usually

Lilies in the open may be considered over for the year, as only a few chance ones remain in flower. I will begin with what is usually considered the Queen of Lilies, *Lilium auratum*, though some good judges consider *L. speciosum rubrum* in its best form, and others *L. candidum simplex* to have at least equal right to the title. *L. auratum* has on the whole succeeded well with us this season, though some beds were more cut than usual by spring frosts. *L. auratum rubrovittatum* was finer than we ever had it before; among our few plants which have been in the open border

almost without spots, like *L. a. virginale*, but the species includes all varieties of colour up to pictum. Two small clumps of *L. a. macranthum*, were most beautiful, and were much admired; a petal from one of these measured 3½ inches in breadth. The bulbs should be planted wide enough apart to prevent their knocking against one another in high winds, ours were not so. Our two finest of the ordinary *L. auratum* both bloomed in the wood at the Weybridge Cottage garden; one seemed to dwarf all the flowers about it. One of the petals measured was 7½ inches

long, it was therefore 15 inches across the flower. In another bed one grew to 9½ feet in height, and yet was so well proportioned that it looked neither drawn up nor gawky.

L. pardalinum and *L. californicum* were cut by spring frosts in some beds and bloomed well in others a few yards off, where the frost-wind had not reached them.

L. speciosum rubrum and *L. album* were very fine, and so were *L. Leichtlinii* and *L. longiflorum albobmarginatum*, or, as I suppose it ought to be called, *L. longiflorum foliis albo marginatis*.

L. Scovizianum in good soil always does well.

L. Hansonii was moderately good.

L. Kramerii was fine and seeded freely.

L. giganteum bloomed well but was not very tall.

L. cordifolium, the Japanese dwarf form of *giganteum* (?), was cut down by spring frosts in our Wisley Wood, as it was not sheltered from the sun which came after them. In the orchard-house at Weybridge, in a pot, it had eight good flowers on a stem.

L. longiflorum, bloomed well in some places, best in shelter, but failed in others.

L. chalcidonicum, did not bloom well, but the bulbs were strong and healthy; they were in full sun, I have removed them into a sheltered place.

All the *L. Martagon*, bloom well, and *L. superbum*. The question as to the relative merits of full sun, of shade and shelter, in Lilies, especially *L. auratum*, crops up from time to time, in the different gardening papers; it is not an easy one to solve. *L. auratum* often blooms thoroughly well in complete shade and also in full sun. *Rhododendron* beds, as I have often before said, are the cosiest places to grow it in, and the question of the necessity of sun to ripen the bulbs is settled by my friend Mr. McIntosh's Lilies, which themselves or their children have thriven for more than a dozen years in the full shade of his *Rhododendrons*. I believe two great points to aim at are to prevent the bulbs getting too wet or the roots too dry, and especially to keep clear of many tree roots which dry the soil as well as exhaust it. *Rhododendrons* keep their roots, to themselves, and do not interfere with the Lilies unless indeed they are grown very strong and very close.

In our little field of *L. auratum* in full sun, though with some shelter from wind by hedges, many hundreds bloomed well, some not more than a foot high, with stems not thicker than tobacco-pipes, had two fine flowers, many had one. I have made no mention of Tiger Lilies; they always bloom well. I do not think the species without stem-bulbs, *L. tigrinum jucundum*, is sufficiently known and grown; it is a beautiful form for cutting. *George F. Wilson, Heatherbank, Wilsley.*

HIBBERD'S EMERALD IVY.

THE letter of "A. F. B." (p. 535) conveys to me the welcome intelligence that my favourite amongst the green Ivies is appreciated beyond the bounds of my own garden. Your correspondent declares—apparently with joy, certainly with truth—that it is "one of the best Ivies grown." I go beyond him, and say it is the best; but the difference raises a nice point that need not be fought out now. Permit me to thank "A. F. B." for the very first good word that has been spoken for my pet save by myself alone, and as I have never sold a plant I may with some propriety praise it. If "A. F. B." should ever quit the fertile grounds of Sarnia, and could call on me at Kew, I would satisfy him, first, that he has made a good guess of the affinity of Hibberd's Emerald Ivy with the Guernsey Ivy; I would next demonstrate that they are not identical, for I have both growing here within a few yards of each other, and my old pet is so much better than the new pet of "A. F. B." that it may turn his head to behold the difference; finally, I will explain to him the secret of the affinity, for Hibberd's Emerald is a seedling of the Guernsey wilding, differing from it in more rapid growth, a better habit of holding to the wall, and a more happy disposition in the trying climate of London. The Guernsey Ivy does not like London, but Hibberd's Emerald has known no other climate save by the way in which we obtain our knowledge—by travelling.

Now as to the proposed *Hedera Helix* var. *sarniensis*. The common form of *H. Helix*, as known to all men, is abundant in Guernsey; but the Emerald Ivy is distinct from it. Yes, this belongs to a group of large-leaved Ivies in which we find the Irish, the Algerian, and certain sub-varieties that haunt mari-

time localities from the Canaries to Ireland. The classification of these will depend on the habit of the botanist. He who goes upon the narrow-gauge will make a species of the group with perhaps the so-called "hibernica" for the centre, or he may make as many species as he can find distinct forms. The broad-gauge man will regard these rich and robust island and coast Ivies as forms of *Helix* that have had the advantages of warmth and humidity through long ages, and have grown fat by good living. Observation of the delicate gradations of characters in Ivies compels me to be a broad-gauge man, and therefore I regard *Helix* and "hibernica" as "stocks," "strains," or "varieties" of the same species. I do hope "A. F. B." will see his *sarniensis* and my Emerald growing together, for they are established, and show all their proper characters as determined by circumstances that are precisely the same for both. The journey from Sarnia to Kew is an expensive affair, but any enthusiast in Ivies may draw upon me when the character of my favourite is at stake. *Shirley Hibberd, Kew.*

BOTANICAL RAMBLES IN SOUTH CHINA.

THESE rambles were confined to the islands and the mainland adjacent to Hong Kong. The configuration of the land here is bold and striking—steep granite hills rise abruptly from the sea and recede in sharp serrated peaks or undulating curves till their outlines melt into the hazy distance, their aspect generally being dreary and uninviting in the extreme. It is only in the deep ravines and around the picturesque villages that vegetation assumes an arboreal form. The natives that eke out a miserable existence in the malarial valleys by cultivating Rice have denuded nearly all the accessible hills of everything that is useful as fuel. On a few of the lower hills *Pinus sinensis* is cultivated for firewood; the trees are seldom allowed to attain dimensions suitable for building purposes. Near the villages we frequently find fine specimens of *Ficus retusa*, with trunks from 12 to 15 feet in circumference. These trees seem to be sacred in the eyes of the Celestials; under their shade we saw rude altars laden with offerings to the gods. These offerings consist of fragrant "joss" sticks, tiny cups of "sam shu," a kind of spirit distilled from Rice, and battered patches of scarlet paper covered with the distracting combination of strokes and dots that represent the written language of China. We also find tall trees of *Bischofia javanica*, *Bombax malabarica*, *Melia Azedarach*, *Cinnamomum Burmanni*, *Celtis chinensis*, and a few fruit trees, such as the Litchee (*Nephelium Litchi*), the Longan (*Nephelium Longan*), the Chinese Mulberry (*Morus nigra*), and occasionally the Mango (*Mangifera indica*).

A CHINESE VILLAGE.

Of a Chinese village it may well be said that "distance lends enchantment to the view." At 500 yards' distance the rows of cottages with their curly roofs, their facings of scarlet paper on the door posts, their rural aspect, with squatting and posturing Celestials in the foreground, suggest comfort and pastoral simplicity, and blend consistently with the calm characteristics of oriental life. But a close view dispels the illusion and shakes the poetry completely out of the scene. Squalid and noisy urchins wrangle rudely round the door-steps, ancient dames and patriarchal sires, wrinkled, careworn, and hideous, exhibiting the ravages of time both on their shrunken faces and their scanty garments, squat and lounge around the unsavoury dwellings; ugly corpulent pigs and moulting poultry wallow in the mire, while many hungry curs—a few degrees removed from their progenitor the wolf—make the day hideous with their yapping, and warn the stranger to guard the tender parts of his calves with a botanical specimen of the Penang Lawyer. Open cesspools impregnate the air with an overpowering stench; still many of the villagers—particularly the young women and children—look so sleek and healthy that one would be disposed to think that the place was a veritable sanitarium. Wide stretches of Rice fields, sometimes terraced and irrigated with wonderful ingenuity, surround these quaint habitations. Here we see the ox toiling knee-deep through the plastic mud dragging a small top-like plough or a short long-toothed harrow. The jolly ploughman is usually a woman—to use a Hibernicism; this lady struts with bare muddy limbs behind the beast of burden grasping the plough with one hand and constantly jerking and flourishing a short rope, which is connected with the animal's nose-ring, with the other; at the same

time she expostulates loudly at the ox, and, I am sorry to say, malgoss the poor brute and his long line of ancestors in language that is hardly lady-like. Standing lazily in the stagnant pools by the wayside we see the ungainly water buffalo of China—a great barrel-bodied brute with immense horns, with hardly a hair on his dull slate-coloured hide. This animal exhibits great terror at the sight of a foreigner, whom he evidently regards as something uncanny. The Chinese, no doubt, consider this brute instinctively very creditable to the buffalo—do we not rejoice in the reputation of being "fan quai," i.e., foreign devils?

One of the industries common in these villages is bean-curd making. This is called "Taw-fu" and is made from the small yellow beans of *Dolichos soja* and its varieties. The beans are dried in a shallow concave iron pot; there is generally a range of perhaps a dozen of these pots set in brickwork with spaces underneath for the fire. The fuel used is dried grass. When the beans are dried they are smashed or ground; a certain quantity is then stirred up in water till a pale yellow liquid is formed; the pots are then filled with the liquid and heated with a grass fire. The bean curd maker feeds his fire very dexterously: he has a tongue made of Bamboo with which he picks up a bunch of grass and projects it rapidly into the space under the pot, withdraws it again, but leaves a small portion which has been burnt off the bunch to keep up the heat; the burning bunch is then projected into the next space, and so on till the bunch of grass is exhausted. He regulates the different fires so that one pot is ready before the other. The "curd," as it is erroneously called by foreigners, is the scum that forms on the top like the cream in a milk basin. When the particles cohere sufficiently he runs a knife around the sides and down the middle to detach the skin which has now formed a membranous layer on the top, he then lifts out the two separate pieces, gives them a twist, which forms them into a flexible strip of skin-like substance, and hangs them over a Bamboo pole to dry. Thousands of these strips may be seen hanging in the sun like yellow ribbons on a clothes line. This is the cheese of the Chinaman, and forms an article of diet amongst the poorer classes chiefly, and is said to be rather nutritious. [Highly so.]

THE VEGETATION.

But to return to the vegetation of the scene. By the sea shore we find the pretty little *Static chinensis* growing plentifully, where it is frequently submerged by the tide. In forcing our way inland the aggressive *Guilandina bonducella* contests the passage with its hook-shaped prickles. Then the thick hedges of *Pandanus odoratissimus* offer further resistance; when clear of these, the road, as roads go in China, is comparatively easy.

The weeds of the Rice fields are numerous but not very conspicuous; *Lobelia affinis* and *Sagittaria cordifolia* are the most striking. In swamps we find dense clumps of an aquatic Fern, *Acrostichum aureum*, and numerous cyperaceous plants. *Eleocharis* are sometimes extensively cultivated on the drier fields, notably the sweet Potato (*Batatas edulis*), *Colocasia odorata*, Onions, probably a variety of *Allium ascalonicum*, *Canavalia gladiata*, *Phaseolus* sp., *Lobis vulgaris*, *Hydrocotyle asiatica*, and a large variety of cucurbitaceous plants, such as *Momordica charantia*, *Citrullus vulgaris*, *Cucumis sativa*, *C. longu*, *C. Melo*, and its varieties. We also saw occasional patches of *Eleocharis tuberosa*, *Basella rubra*?, *Hibiscus esculentus*, *Dolichos soja*, *Convolvulus reptans*, *Arachis hypogaea*, and many forms of the Chili family, some of them very ornamental.

Away from the cultivated ground the dwarf indigenous vegetation becomes very interesting. *Gleichenia dichotoma* is everywhere abundant; this is the "bracken" of the East, spreading luxuriantly over the sheltered and exposed hills and valleys in the most persistent manner. The beautiful pink flowered rosaceous plant—*Rhodomyrtus tomentosa*—is also very plentiful, but is rarely found at a higher elevation than 1000 feet. The fruit of this plant has a very pleasant flavour, and when ripe is eagerly devoured by the Chinese urchins. Another very common plant, *Phyllanthus emblica*, bears round green fruit which has the taste and appearance of a green Gooseberry, and is also much eaten by the natives; some of the medical authorities in the colony are of opinion that this may in some cases be the cause of choleraic diarrhoea and other stomach complaints among the Chinese during the hot season.

On rocky banks by the side of streams, and even in the fierce sun, the graceful *Davallia tenuifolia* and the bold *Blechnum orientale* grow in profusion. *Adiantum flabellulatum*, *Pteris semipinnata*, *P. crenata*, *P. serrulata*, and *Cheilanthes tenuifolia* are equally common, but affect a drier situation. In places where the bushes are dense and the situation moist *Lygodium scandens* and *L. japonicum* cover the trees with irregular curtain-like folds of pendent fronds, and form objects of indescribable grace and beauty. Large bushes of *Melastoma macropoda* glowing with large deep lilac blossoms, take a prominent place among the shrubby plants, and the rambling *Rosa sinica* makes the wayside gay with snow-white Roses. *Clematis Meyeniana*, *C. crassifolia*, *Lettsomia speciosa*, and several species of *Convolvulus* climb up or hang over the steep banks.

In one or two favoured spots on the lower levels we occasionally find that the natives have spared a clump of trees at some distance away from the villages. Here I have seen fine specimens of *Liquidambar formosana*. This tree is said to be one of the sources of Rose Maloes, a substance reputed to be identical with the *Liquid Storax* of commerce. My coolies generally carried away leafy branches of this tree for medicinal purposes; they consider it good for poulticing boils and running sores. Here also the well-known Tallow-tree (*Stillingia sebifera*) grows to a considerable height, but I do not think the natives take the trouble to collect the seeds for the sake of the tallow with which they are covered; I have often questioned them on the subject, but none of them seemed to know anything about it. The seeds yield a large proportion of the so-called tallow; 100 lb. of seeds, it is said, will yield 28 lb. of tallow, irrespective of the oil, which is obtained by pressing the albumen. Growing up these trees we frequently find *Rhaphidophora Peepia*, a very handsome creeping Aroid, which at a distance resembles the Vanilla. In one of these little groves I came across two fine old plants of *Mucuna macrobotrys*, a curious Leguminous plant, with gigantic clusters of pale cream-coloured flowers. A single flower is sometimes over 3 inches long, and some of the clusters were 17 inches long and over a foot across the shoulder; they hang like bunches of Grapes. The description of the pods of this, given in Bentham's *Flora Hongkongensis*, is undoubtedly derived from imperfect material. The pods are described as being 5 inches long; but on these plants many of them were over 2 feet long, brown, smoothly pilose, reticulate and undulate, not obliquely winged, as in the case of *M. Championi*, which they are said to resemble. It had twined its strong stems round a number of the surrounding trees, and was spreading far and wide over the lofty branches. I feel sure that if this grand creeper could be induced to grow in the conservatories at home it would be greatly admired. *A. B. Westland, Botanic Garden, Hong Kong.*

(To be continued.)

TOBACCO CULTIVATION AND THE EXCISE.

MR. CHARLES SHARPE, of Sleaford, Lincolnshire, writes, in *Land and Water*, October 30:—

"Some in this country, myself among the number, have this season made experimental trials on a large scale, which fully demonstrate the possibility of producing in England, in quantity and quality equal to that produced by the majority of Tobacco-growing districts abroad, a good sound leaf, calculated for the manufacture of medium and high-class smoking Tobacco. The expenses of cultivating on a large scale cannot be accurately estimated at present, but it would appear to offer no difficulty in view of the return to be expected from the crop. From careful calculation of the result of my own crop this season, I estimate a good average yield would be—say, 1800 lb. to 2000 lb. per acre, worth 5d. to 7d. per pound (about 450 per acre), as experience and skill enabled us to secure better results from our labours. For some years we should have to feel our way, and the experiments to be made in the cultivation of the plant and the curing of the leaf would doubtless be productive of a considerable expenditure of time and money; then proper curing sheds would have to be erected, and other buildings as well—all of which would cost money and not be available for any other purpose. Now, if Tobacco cultivation is to be fostered and not driven out of this country, as has been the case with the cultivation of many other

crops, notably Chicory, Woad, and Flax, some consideration must be shown to the pioneers of this advance by the Government. The duty on Tobacco is very high, compared with the value of the leaf, and I would suggest that for the first four or five years all growers of Tobacco in the United Kingdom should not be interfered with by the Excise in any manner. This could not in that time seriously affect the revenue. If it did, or in any case, after the expiration of a time sufficient to solve the question, the matter might be considered, and a differential duty, as in the case of spirits, be imposed. An assurance of this kind from the Government as early as possible before the preparation of the land for next season's crop would cause a considerable impetus to this movement, as the cultivators would be free from the serious risk of growing a crop and erecting buildings for its preparation."

What the action of the Inland Revenue is likely to be remains uncertain. We should have thought the simplest plan would be to adopt some such plan as that under which the Malt Tax was levied, by licensing the curing places, and taxing the Tobacco when fit for consumption. This, however, will involve the removal of the present restriction upon the cultivation, under which the prohibitive duty of £300 an acre is levied. A report reaches us that an experimental crop, grown upon the Lincoln Corporation Sewage Farm, has been destroyed "by order of the Excise authorities," in consequence of the necessary permission not having been obtained.



The Rosery.

AUTUMN ROSE SHOWS.

In the very remarkable papers which "D. T. F." has lately contributed to the *Gardeners' Chronicle* he has, amongst other strange notions, advocated some kind of treatment of Roses by which they are to be brought into flower, not forced, but retarded in some inscrutable way, so that they may be had at any time. Well, it will be a new era in gardening, and I suppose we may look for green Gooseberries in July and Strawberries in August. I confess his remarks on this part of the subject are beyond my comprehension, and he also seems to have mystified my friend "T. W. G.," but there is one thing of which he seems to be quite ignorant; he says, that the National Rose Society would do well to expend its energies and money in encouraging such shows. Now, in the first place, the Society has not at present any money to "fly kites" with; and then, secondly, it has already tried it and found it to be a miserable failure. Some four or five years ago, when the great International Show at Manchester was held in the latter part of August (the 28th, I think), Mr. Findlay, burning with his usual desire to make all his shows attractive, was enabled to get his committee to assent to our going there, and giving us substantial help for carrying out the plan. Well, we did so; an excellent schedule was arranged, and exhibits were courted. What was the result? A few Northern exhibitors were enabled to show, and one of the reports now before me says, "the attempt to hold a Rose show so late in the year met with fully as much success as might have been anticipated." When a qualifying sentence like that is used we know (as "A. H. K. B.") says in one of his essays) pretty well what it means. I believe but one amateur exhibitor south of the Trent put in an appearance; and I do not think that any of the Southern growers for sale who exhibited were very much elated by the encomiums passed upon their Roses. But we do also see Roses in August at other places. I generally go into the West of England for one of the best provincial shows in the kingdom (Taunton). I did so this year, in the middle of August, which has been an exceptionally good season for autumn blooming. I saw

there stands exhibited by a few of our best growers, both amateur and professional, and I can only say that they were stands which in July would have been simply passed over, but which under the circumstances gained 1st and 2d prizes; many of them were utterly out of character, and it would have been impossible for any one to have recognised them. Still, you may get now and then in your Rose garden blooms that would not have disgraced a stand in July, but that is a very different thing to getting a box of twenty-four good ones, and until "D. T. F.'s" new patent is out I am afraid we must wait.

With regard to Tea Roses, I think the same writer has misunderstood my meaning with regard to the seedling Brier, and its effect on them. Formerly all dwarf Teas were grown on the Manetti, and for many of them it was too rampant, and started too early into growth; it thus forced the scion on with itself, the result being that they either succumbed to the early frosts or were overpowered by the stock. The introduction of the seedling Brier altered all that; it gave them a stock which was not so rampant as the Manetti, nor so early, and the result has been that many of the older varieties which were difficult to grow before are now comparatively easy to cultivate, but it is also to be noted that we have had introduced varieties of late years which seem to have a more vigorous constitution to start with, such Roses as *Etoile de Lyon*, *Madame Lambard*, *Innocente Pirola*, *Marie Van Houtte*, all have a constitution as vigorous as one could desire. In somewhat questioning my statement on this subject, "D. T. F." adduces *Lady Mary Fitzwilliam* as not bearing out my theory; but *Lady Mary Fitzwilliam* is not a Tea! I have several catalogues now before me; in some it is included amongst the hybrid perpetuals, in others amongst the hybrid Teas, but in not one of them is it included amongst the Teas; indeed, one can hardly understand how any one who had ever seen it growing could have thought it belonged to that class. It is of the same style of growth as *Baroness Rothschild*; and, although many people found it difficult to succeed with it, yet others, such as my friend, Mr. T. B. Haywood, of Reigate, gave it a better character. There is much capriciousness in Roses with regard to both climate and soil. We find the same in fruit. Take the Strawberry, for example. We see some variety lauded up to the skies; we try it, and find it to be a hideous failure. Let us not be inclined to dismiss the sort as a worthless one, but rather believe that our soil or climate does not suit it. How many varieties of Potatoes have I tried which have been recommended as a ball of flour which I have in my garden found to be close and waxy? Again I say, cast no doubt on the veracity and judgment of the person who has recommended it to you, but rather believe it was not at home; and so I am persuaded it is with Roses. How often have I heard rosarians talking together about different varieties. One praises a sort, "Oh! but," is the retort, "it is such a brute in growth." Immediately there is a cry out, "As vigorous as any Rose I have." I think that while there may be other causes for this, yet one is the idiosyncrasy of the variety in question. It may be thought that these are very insignificant things to take note when the wide range of horticulture is to be considered, but to many they are of interest, and anything that keeps alive the love of horticulture, and tends to close observation must not be considered trivial. In his communication in the *Gardeners' Chronicle* of October 23 "D. T. F." plunges deeper into the mire. I leave "T. W. G." to settle with him, as he is well capable of doing, but cannot forbear replying to his remarks at the end of his letter, where he exhibits the most astounding ignorance of a Society of which he is a member, and whose reports he receives every year. He surely ought to know better than to say that the Society holds two big shows because they pay, for, as a matter of fact, it never receives one penny from the exhibitors, however successful they may be. He asks, What do subscribers pay their subscription for? Well, I think that they get pretty full value in the tickets they receive, the form which the *quid pro quo* generally takes in all societies. He asks why information is not given in the *Rosarian's Year Book* as to mildew, orange fungus, &c.? Why, all the subjects which he mentions have been discussed in the *Year Book*. He himself took part in the discussion on mildew, and is, I see by the prospectus, to do the same this year for Orange fungus! The Society has published a "Catalogue of Exhibition and Garden Roses, and Hints on their

Culture," and has spread information on various subjects connected with the Rose. He talks sneeringly of the "phalanx of judges." Is he aware that no more than three judges are allocated to any class, and that the "phalanx" is necessary simply because the whole work must be got over in an hour's time? Had the Society the whole morning at their disposal there would be no occasion for a "phalanx"! and if "D. T. F." would only try Rose showing for a season, and keep an honest debtor and creditor account of prizes and expenses, he would, I think, soon find out that his idea of men making a single penny by the most successful exhibiting is a gross illusion.

Wild Rose.

TRADE NOTICES.

NEW GLOXINIAS.

ACCOMPANYING this I send you a number of photographs of my new improved large-flowering Gloxinias, of which I shall offer seeds and plants to the trade in the course of next season. I wish to call your attention especially to the Salpiglossis-like veined variety. I forward also electro of two beautiful flowers of the new Gloxinias (fig. 115). These flowers are the results of the fertilization of the erect-flowering types of *G. crassifolia* and *G. hybrida*, and unite the habit of *G. crassifolia* with the freedom of flowering and the richness of colour of *G. hybrida*. I should have preferred to have sent you at the time of flowering some blooms, so that you might have had a good idea of their beauty, if the transportation to so great a distance without injury were not so difficult of accomplishment. As the colouring and markings of the flowers can but faintly be shadowed forth in a photograph, I can refer to all the horticultural firms of this place that my statements as to the brilliancy of the novelty are true. *F. C. Heinemann, Erfurt.*

JOHN LAING & CO.

The partnership heretofore existing between Mr. John Laing and Mr. J. R. Box has been dissolved by mutual consent. The business will in future be carried on by Mr. Laing and his two sons under the former name of John Laing & Co.

MR. LAXTON.

We understand that Mr. Laxton has decided to sell off the whole of his stock of seedling fruits, Roses, &c., raised by him at Girtford. The seedling Peas and Potatoes—the results of hundreds of experiments—will be disposed of privately. Mr. Laxton has been so careful an experimenter, has achieved so high a degree of practical success, and also contributed so much to physiological knowledge, that we can but regret the cessation of his labours, though we shall not be surprised to hear that Mr. Laxton has a "hand" in similar proceedings at Llangollen, at any rate the "Hand" at that place is about to pass into his tenancy.

MR. TURNER'S NURSERY, SLOUGH.

Some years ago, when the late Mr. Turner took the large field lying between the old nursery and the Great Western Railway, he was fortunate enough to hit upon a space of 144 acres well adapted for fruit tree culture. A bed of deep fertile loam resting upon the gravel—land that grows Wheat to perfection—is just the soil to grow good fruit trees, and in it they make a clean vigorous growth without being too gross and sappy; plenty of fibrous roots are made, and trees are found to transplant well from it. At the present time the trees will repay investment. The land is not cultivated so highly as is done by some who grow fruit trees on a large scale; but the quality of the trees is all that planters can well desire. They appear to come into bearing quickly also, judging from the size of some of the bush trees that were bearing fruit freely, and not only freely, but of excellent quality also; and though it has been thought by some that the prevailing depression has operated to restrict the planting of trained trees, yet they appear to be in constant demand, if the extent to which they are grown at Slough may be taken as affording reliable evidence to that effect. The fruit, like the home nursery, is kept in excellent order, and the foreman of this department has been in Mr. Turner's employment for the space of forty years. The late Mr. Charles Turner was as keen and well informed a pomologist as he was a florist.

Bush Apples are worked on the Paradise stock,

and, as a matter of course, they become saleable stock much more quickly than trained trees which are grown on the Crab. There is a very fine lot of standard Apples on the Crab stock on clean, straight stems five to six years of age.

Bush or pyramid Pears are all on the Quince stock, and it takes something like five years to grow into good trees fit for planting to come into bearing at once. Standard Pears are on the Pear stock, and the stems to be grafted are allowed to grow for two years before this operation takes place, and they make good heads in another three years.

Of the various stone fruits there are large breadths, dwarf-trained Peaches, Nectarines, and Apricots being very fine, six-year old trees being well-finished, and if transplanted at once would bear fruit next year. Apricots are not so much in demand as formerly, because not so much planted; they are chiefly worked on the Mussel stock. The principal Plums are grown as dwarf-trained trees, or as standards.

Large stools of Figs for layering can be seen; the principal varieties worked are Lee's Perpetual or Brown Turkey, which is in great demand; Negro Largo, Castle Kennedy, Brunswick, Marseilles, &c. The layers are laid down in June and July, and they are rooted sufficient to come off in October. Cherries worked upon the wild Cherry stock are not in so large demand as trained trees as they used to be, and standards are numerous.

Bush fruits are a prime feature also, Currants and Gooseberries being largely propagated. Cuttings of Currants are being put in now, and the trees are sold three years from cuttings. A considerable collection of the large Lancashire varieties is also grown, and there is an increasing demand for them.

Maiden Apples, Pears, Plums, Cherries, and Peaches and Nectarines of the finest kinds are here in large quantities. Maiden Apples worked in March have made a rare growth, and have strong well-ripened stems 5 and 6 feet in height, and this without the help of manure; the natural fertility of the soil is the only stimulant.

An old gardener once remarked that "it is always better to have a soil too light rather than a very wet one; for where it is found to be too adhesive after the roots of the tree have extended themselves in the border, a remedy for the soil cannot well be applied without damage;" therefore the nature of the soil should be considered at the time of planting. A heavy clay soil can be lightened by having road-drift or burnt earth mixed with it—previous to planting, of course, and vegetable refuse can be added with advantage. On the other hand, if the soil be too light it can be improved by the addition of some of a stronger character—say a strong loam. Trees in a light soil are greatly helped by a good mulching of short manure during summer, and by occasional doses of liquid manure when bearing fruit. *R. D.*

THE CHRYSANTHEMUM SEASON.

The return of November has brought with it the ever-welcome Chrysanthemum, the first appearance of which was noted in the pretty display at South Kensington on Tuesday, October 26. We say this much advisedly, as since the advent of the summer, or early flowering varieties, the flower in some of its forms is hardly ever absent from gardens after June, and the flowering season can merely be said to culminate in November. Unlike the popular fancy for Dahlias of certain classes, the regard for the Chrysanthemum has known no waning, but in fact has considerably advanced of late, societies for the encouragement of its cultivation springing into existence in towns and rural districts. Apart from its value as a plant to enliven the greenhouse or conservatory in dull November, the late flowering kinds are certainly becoming favourites in the flower borders, and as floral coverings to disfigured walls, and especially in town gardens that usually have more than their share of ugly brick surroundings.

We shall soon be in the thick of the different Chrysanthemum contests of the South of England; and no doubt we shall have some fine novelties to chronicle amongst [Japanese, incurved, Anemone-flowered or pompon kinds. It may be noted as a sign of the interest betrayed in the Chrysanthemum, that a new work on the culture of the flower has quite recently appeared from the pen of Mr. Molyneux, of Swanmore Park Gardens, Hampshire, than whom no more competent exponent could be found.

EXHIBITIONS AND MEETINGS.

The following are some of the more important Chrysanthemum shows that will take place during the present month, viz.:

- November 8 and 9—Surrey Chrysanthemum Society.
- 8 to 10—Lambeth ditto.
- 9—Royal Horticultural: Floral, Fruit, and Scientific Committees; and St. Neots Chrysanthemum Society.
- 9 and 10—Kingston and Surbiton ditto; and Southampton Horticultural Society.
- 10 and 11—Croydon ditto; National Chrysanthemum Society; and Bath Floral Fête.
- 11—Hammersmith.
- 11 and 12—Tombidge Wells Chrysanthemum Society; Portsmouth ditto; Richmond Horticultural Society; Bury and West Suffolk ditto.
- 12—Devon and Exeter Chrysanthemum Society.
- 12 and 13—Huddersfield ditto; Reading ditto (two days); Canterbury Gardeners' Society; Lewisham District Floral Society; and Cheshunt Chrysanthemum Society.
- 15 and 16—Sheffield and Hallamshire Gardeners Society.
- 16 and 17—Putney Chrysanthemum Society; Southend ditto; Winchester Horticultural Society; Brighton Chrysanthemum Society; Watford ditto; Devizes ditto (two days); Teddington ditto; and Twickenham Horticultural Society.
- 17—Caterham Chrysanthemum Society.
- 17 and 18—Bristol ditto; Newport and County Horticultural Society; and Ascot and Sunninghill Chrysanthemum Society.
- 17 to 19—York Society of Ancient Florists.
- 18—Hitchin Chrysanthemum Show; Taunton Chrysanthemum Society; Chiswick Horticultural Society; and Royal Horticultural Society of Ireland.
- 18 and 19—Hull Chrysanthemum Society.
- 19 and 20—Sheffield and West Riding ditto.
- 20—Pudsey Chrysanthemum Society. Ramsbottom Floral Society; and Kettering ditto.
- 22 and 23—Leeds Chrysanthemum Society.
- 23—Borough of Hanley ditto; and Oxford ditto.
- 23 and 24—Manchester Botanical and Horticultural Society; and Liverpool Horticultural Association.
- 24—National Chrysanthemum Society: Floral Committee, 1.30 P.M.
- 24 and 25—Birmingham Chrysanthemum Society.
- 26—Colchester and Essex Horticultural Society.
- December 1—Tadcaster Chrysanthemum Society.

THE INNER TEMPLE.

The usual annual arrangement of the Chrysanthemums in the small greenhouse by the Embankment affords the visitor a view of a great number of both the new and the best of the older varieties. It is always desirable to see and test the new candidates for popular favour, but whether it is owing to the unfavourable effect the heat and dryness of the air of August had on the buds, or to other causes, these new (and also the older) varieties do not approach in excellence the flowers seen in previous years. But before bearing witness against this year's flowers generally we shall await their appearance on the show tables at the National, Kingston, and other leading shows. What we had the pleasure of seeing at the Temple Gardens proves that the gardener—Mr. Newton—thoroughly understands the culture of the flower in mid-London, and has done the best possible under peculiar circumstances.

GOOD OLD SOSTS.

We will note here those kinds that appeared in good form. In incurved flowers Beverly, still one of the finest white; Emily Dale, a pale primrose sport from Queen of England; Fingal, rose-violet; Formosa alba, a pretty French white, more than ordinarily incurved; Gloria Mundi, a small but pleasing tint of yellow; Hero of Stoke Newington, rose-pink; Jardin des Plantes, which every one knows as being a beautiful golden-yellow flower; Lord Derby, a dark purple; Mrs. G. Rundle, one of the most perfect white flowers we have; and Nil Desperandum.

Of Japan varieties we noted Bras Rouge, copper-bronze of hue; Lakme, a variety with twisted florets of dark orange, with a pink tinge; Val d'Andorre, and under its synonym Gaillardia, large, and of an orange-chestnut tint; the bright rose-coloured Bouquet Fait, with large half tubulate florets; J. H. Laing, a very bright primrose, with florets of great width; Madame Lacroix, a fine pure white flower; Miss Townsend, with thread florets of deep yellow; the crimson-maroon Triomphe du Nord, well reflexed and distinct; Le Roi, a brilliant red-chestnut, very showy; Mons. Harman Payne, a chestnut-brown changing to yellow in the centre—a flatish flower with pointed florets; M. Richard Lariss, a flower large and full with florets white in the middle

of it, changing to mauve at the margin; the rich chestnut-coloured *Père Delaux* was good in some instances, as were *Gordon* and *Source d'Or*—a rich orange, and a flower of much regularity of outline. We must not omit that fine red-brown, flower *Souvenir d'Amsterdam*, several examples of which were observed.

FINSBURY PARK, N.

The usual annual display of *Chrysanthemums* is well worth a visit: the reputation of the Park for its shows of these useful and decorative flowers is sustained. Mr. Mardlin, who has charge of the plants, evidently thoroughly understands their requirements, and that he does produce good plants and fine flowers the large attendance of visitors amply testifies. The individual flowers, generally speaking, are large-sized, clean, and well shaped, and in all cases the colours are bright and clear. Perhaps the most—or, at all events, one of the most—attractive varieties for those people whose favour does not run in the direction of the incurved sorts, and who desire something distinct, is *Mons. Freeman*, a Japanese variety, with incurved tips to the petals, the colour being a delicate rose. The flower has a solid appearance, and is dwarf in habit. Among other noticeable varieties

Japanese variety is *Galathée*, rose tinged with violet, and is a grotesque flower, the florets being long and much twisted—very large.

A good incurved is *George Glenny*, a bright primrose, and well formed compact flower. Also *Golden George Glenny*, differing only in colour.

Other well known flowers include *Elaine*, *Emily Dale*, *Jeanne d'Arc*, *Mons. Tarin*, *Empress of India*, &c., which are all very well known and appreciated.

THE ALPINE GARDEN.

SAXIFRAGA FORTUNEI AND ITS ALLIES.

The Saxifrages of the "Diptera" section, only four of which are as yet known to botanists, are all natives of China and Japan, and include *Fortunei*, *cortusefolia*, *sarmentosa* or *japonica* of some gardens, and *cuscutiformis*. The first three are in cultivation, but the last, which is figured in the *Botanical Cabinet*, t. 186, introduced by the Loddiges, and, if we mistake not, flowered at Oxford in 1861; the runners are said to resemble a *Cuscuta*, leaves nearly orbicular, flowers small, with the petals more regular than in any of the other species. We have never had the pleasure of seeing

division of the roots after flowering or by seed, which it sometimes ripens in open seasons. It first flowered in Mr. Standish's nursery, Bagshot, and is figured in the *Botanical Magazine*, t. 5379.

A plant figured in *Illustration Horticole*, 1864, t. 398, as *S. Fortunei* var. *tricolor*, and which we believe was procured from the above source, is only a variety of *sarmentosa*, and not *Fortunei*. No flowers are shown in the drawing, but the runners so peculiar to *S. sarmentosa*, as well as the very hispid leaves, are shown distinctly.

S. cortusefolia, which is of more recent introduction, having been sent out a few years ago by the Messrs. Veitch differs from the above in its smaller flowers, subreniform leaves, and triangular acute instead of obtuse lobes, and entire not crenated petals. It is a useful companion to the above, especially as it flowers with the other at a time when most of the good things are long past their best, and notably that they may be grown with ease even in a small garden with little or no attention after the plants are once established.

PRIMULA CAPITATA CRISPA.

A provisional name given to a plant now flowering in the new rock garden at Kew; a decided acquisi-



FIG. 115.—HEINEMANN'S NEW VARIETIES OF GLOXINIAS. (SEE P. 588.)

were—*Yellow Globe*, a very handsome flower in all respects but in colour like *White Globe*, from which it is a sport. The colour is pale yellow. *Queen of England* is well flowered at the Park, and is represented by several fine blooms of a very pale flesh colour (incurved).

Mandarin is a Japanese variety with tubular florets; its colour is a bronzy-yellow, produced by the red-brown streaks on a yellow ground, and it should be a great favourite; it is, moreover, a free flowerer. One of the newer flowers, and one of merit also, is *Mrs. Mardlin*, a hybrid pompon from President; it is red on white, and very distinct; it is yet to be seen how it will be appreciated. *Moons. J. H. Laing* should recommend itself to lovers of the peculiar on account of its colour, which is a strange mixture of yellow and pink or rose shading on a whitish ground, the tips white: the florets are flat, and the whole flower of a medium size. *Lakmé*, *Madame de Sévin* (Japanese), rich cerise, and one of the best large flowers, being solid. *L'Adorable* is likely to become a favourite—yellow with red-brown centre (Japanese). *Dormillon* (Japanese), rich red with a tinge of violet, medium size; *L'Aube Matinale* (Japanese), terracotta on yellow—a fine medium-sized flower, yellow on the underside, florets slightly twisted; *Sœur Dorothee Souille*, free flowering *Anemone* Japanese, pink, darker underside; *Marguerite Marrouch*, a large flowered terra-cotta coloured variety, with a yellow reverse; *La France*—a Japanese, much resembling in colour the *Rose* of that name, medium size—is a very pretty flower. A very good tubular

it growing, and it may probably be lost altogether. A good division, which may be taken advantage of by growers, presents itself even in such a small section as the above—those having runners including *sarmentosa* and *cuscutiformis*, those without runners including the other two; and it is to the last section that our attention is particularly directed at this late season, both of them having for the last fortnight or more eclipsed all other late flowering plants with which we are acquainted, *Fortunei* more especially, the flowers being much larger, and if anything more numerous than in the other. In *S. Fortunei* the leaves are generally distinctly cordate, dark green-coloured, and having but a few bristles on the upper surface. Underneath the bristles are more numerous, especially on the veins; lobes from 10 to 12, distinctly obtuse, with many small serratures, petioles rough from the scars of deciduous bristles, and broadening into a hollow clasping base; flowers very numerous, in loose panicles, white, the longer petal being sometimes bifid with serrated margins. This, as we have already said, is one of the best autumn flowering plants we possess for open-air culture. It is perfectly hardy, and seems to thrive best in half shady places, inclined to be moist than otherwise. Rich peat is a good medium, but we find it grows more robust, and produces more flowering stems in a stiffish half loam half peaty soil. Although it produces no runners it may be easily propagated by

tion, and one of the most distinct of this set we have yet seen. It seems to partake of the characters of both *capitata* and *denticulata* in such a way that the lower half is *capitata* and the upper *denticulata*; the leaves are in rosette form, thin textured, finely reticulated, and with a beautiful crisp margin; the flowers, however, which are in capitate heads, are deeper in colour than *denticulata*, and all looking up as in that species, and not at right angles with the scape, as is the case in the ordinary forms of *P. capitata*. Seedling plants of it have flowered more or less since the latter end of April, and as it appears to stand our moist winters better than any of the others from that region (the Himalayas), it is likely to be sought after by lovers of this class of plants, *D.*

ORIGANUM SIPYLEUM.

There seems to be frequent confusion between this species and *O. Tournefortii*, in British gardens at least. If *Sibthorp's* figures in his *Flora Græca* are to be relied upon, there need be no confusion between the two, unless they are more liable to variation in a cultivated state than is generally supposed. *O. Tournefortii* is represented in vol. vi., 569, and exhibits stiff, very leafy, and slightly branched stems, terminated by an oblong solitary spike of flowers with the usual densely arranged imbricating bracts. *O. sipyleum*, on the other hand, as represented at fig. 570 of the same work, is dis-

tinely characterised by a drooping or procumbent habit, with much branched stems and wiry branches terminated by solitary, gracefully nodding spikes of smaller size than those of *O. Tournefortii*. The radical suckers are villous or densely hairy, while the plant is altogether smoother upwards, with deeply glaucous leaves. This is the form commonly seen in cultivation, although frequently named *O. Tournefortii* in gardens. It proves hardy in all but the severest winters in the neighbourhood of London, and keeps up a lengthened display all through the autumn months. The rosy-purple bracts enclosing the spicate flowers are highly ornamental in themselves, even after the corollas have long since dropped. Rather dry, sheltered nooks in the rock garden, with perfect exposure to sun and light, will grow this or any of the hardy perennial species of *Origanum* to perfection. The species under notice well merits cultivation in pots by those who have the convenience of a cool house to show it off with the best effect. The rootstock does not spread rapidly, but propagation is readily effected by the barren shoots that spring from the rootstock, even when the plant is in flower. Sandy soil under a handlight is the best medium. *J. F.*

FRUIT AND VEGETABLE CROP OF 1886.

THE ingathering of the season's crops must now be about completed everywhere, and a few remarks as to how far anticipations have been fulfilled, which were but in distant view and hanging in the balance on July 24, when reports from correspondents were seen, gleaned from all parts of the United Kingdom and Ireland, in the *Gardeners' Chronicle*. The season had been, as then reported, cold, and not less than from two to three weeks later than the average for the period. A very general wish being then expressed that the backward summer would be followed by a bright and warm autumn, thanks to a kind and merciful Providence the desired change came, and for this northern district especially not a day too soon. This increase of heat began early in August, and continued with little variation until October 15. Fruit on walls especially showed an early improvement, particularly on south aspects, getting full benefit of twelve hours' rain. Here Peaches and Apricots ripened perfectly; the former, although a little smaller than usual, were high coloured, and good flavoured. The latter were, however, quite equal in size to former seasons, being also clean and perfectly ripened fruit all over. Plums have yielded a large crop both on walls and standards; they have, however, been smaller than usual, owing, no doubt, to the cold summer and heavy crop.

The Pear crop has been a light one, being also small and imperfectly ripened especially on walls of east and west aspects.

Apples, with the exception of two or three sorts, were all but a complete failure; plenty of blossom was produced in the spring, but weak and imperfect, and they failed to set, although the weather at the time was favourable and free from frost.

Strawberries were a good crop, but owing to a continuation of dry weather, all kinds of early sorts were soon over. Late kinds were also abundant and high flavoured. Raspberries also carried a good crop, but were soon over.

Gooseberries were only a moderate crop; several sorts which promised well earlier in the season, did not hold out, and from the dry weather fruit were soon over. Currants of all kinds were plentiful and good. Cherries dropped a good deal in the stoning period, and supplied but a moderate crop.

In the class of vegetables, the season has suited most kinds admirably; with frequent light showers and plenty of dew they have kept fresh and good well through the autumn. Potatoes have produced heavy crops everywhere in the North, and generally of excellent quality. This is now the second year that we have been free from *Peronospora infestans* on the foliage, while the root are as sound as ever they were previous to 1845—the first year of its appearance.

I have been examining the full and forward stages of fruit buds on most kinds of fruit, which are promising well for another year's crop, and having escaped early autumn frosts, foliage on early kinds are falling yellow and ripe. Heliotrope was only cut up on October 26 by 2° of frost.

Rainfall for the last nine months has been under average for each month, excepting in May, when it was

1½ inch in excess. This is now the third dry year in succession. Depth of rain for the locality in the year is a little over 30 inches. *J. Webster, Gordon Castle Gardens, Aberdeenshire, October 29.*

ORCHIDS AT THE WOODLANDS.

TO the enthusiastic lover of Orchids, the collection of R. H. Measures, Esq., affords at any season of the year a rich treat, abounding as it does in good plants of all the finest species and varieties procurable, and cultivated in a perfect manner. As a consequence their flowers are produced in great profusion and have a vigour and beauty not often seen. This remark applies particularly to a fine specimen of *Vanda Sanderiana*, a grand plant and variety carrying two spikes of magnificent blooms. *Acridas Lawrencei* is flowering freely; this is also a handsome species with its long racemes of large brightly coloured flowers. The new *Cattleya Bowringiana* is a welcome distinct and lovely addition to our late autumn-blooming species, the colour being deep rose with a dark crimson labellum, and the plant very floriferous. The true autumn-flowering *Cattleya labiata*, var. *Pescatorei*, is just expanding its blossoms and will be in perfection for some time to come, as the plant is large and in robust health. The houses devoted to *Cypripediums*, are now a beautiful sight and promise a still greater display of bloom at a later date; there is a large number of *Cypripedium Spicerianum* and its var. *magnificum*, a great many of them carrying two flowers on a spike; this is probably owing to the strength and vigour of the plants. The new *Cypripedium Measuresianum* is also showing bloom-buds. This is probably one of the handsomest of the hybrids, the parents being *C. villousum* and *C. venustum pardinum*; it is a very free grower, and an abundant bloomer, the greater part of the flower being old gold colour; of this variety Mr. Measures holds the entire stock. The new *Odontoglossum-house* lately erected is a success in every way, and may be taken as a model of what such structures should be, while the condition of the plants is the best evidence of its suitability. There are now in flower some handsome specimens of *Odontoglossum Inseayi splendens*, of both light and dark varieties, and an enormous quantity of *Sophranites grandiflora*, *Oncidium varicosum*, and many other kinds, all being vigorous in growth and clean. The Dendrobium-house contains many gems, and in really good plants, such as *D. nobile nobiliss.*, *D. nobile Cooksoni*, *D. Leechianum*, and a large quantity of *D. Ainsworthii* and *D. Ainsworthii roseum*. The *Cattleyas* and *Laelias* are showing a great quantity of flower sheaths. A special favourite with Mr. Measures is the genus *Cymbidium*, and no collection probably contains such large specimens of the best and showiest species; but probably the most notable plant not in bloom is *Angreum caudatum*, a picture of perfect health, and having eight large growths, with many long thick aerial roots—doubtless the best cultivated specimen, and probably the largest in this country; the pure white *Lycaste* and the charming *Vanda cœrulea*, *Cymbidium Mastersi*, *Dendrobium Goldiei*, and many others, each and all lending their charms to a display which is quite exceptional for the time of year. I must not forget to mention that the owner's fine manner and cheery welcome adds much to the enjoyment to be found in an inspection of his fine and, in many instances, matchless specimens. *L. G.*

The Flower Garden.

DAHLIAS.

THESE plants are better cut over about 10 to 12 inches from the ground; after they have received one night's frost a little soil should be drawn round the stems to prevent injury reaching the crown, and it is better to let the tubers remain in the beds thus for a few days previous to lifting them. Choose a dry day for this operation, and use a piece of wire to fasten the names securely to each plant. Let the tubers be partially dried in a shed previous to storing them for the winter, and frequently examine them for the first few weeks, as they are more liable to decay then, than afterwards. They may be stored in any frost-proof

place. My usual place is underneath the potting bench, covered 6 inches deep with dryish soil. They will, however, stand the winter out-of-doors in the ground with protection from a heap of coal ashes, straw, leaves, or any other material of sufficient thickness to exclude frost. With a little extra care in the spring those so treated, will bloom considerably earlier than those struck from cuttings.

WINTER AND SPRING BEDS.

The various occupants of the flower beds should now be in their allotted places as soon as possible, if they are to do much good, as frosts and rain will rapidly cool the soil and bring root-action to a minimum. The present month is a very suitable one for the planting of all kinds of bulbs, but the sooner these are planted the better. In planting *Crocuses* it is a good preventative against damage by mice to well dust the bulbs with red lead. Where winter bedding is not carried out, and the empty beds are an eyesore, shoots of evergreens may be stuck in, such as Laurel, Holly, Box, Rhododendron, &c., or the beds may be dug, finishing them with a smooth margin about 4 inches wide; this has a neat effect, and more of the surface is exposed to the action of the atmosphere than in ordinary digging.

Much time will now have to be devoted to sweeping of lawns to rid them of leaves and wormcasts; a thorough watering with lime-water will bring worms to the surface, and a heavy roller passed over the surface will kill them. The exceptional mildness of the season has entailed much mowing, but now that growth has almost ceased, a close mowing should be given for the last time, which will facilitate the work of sweeping during the winter months when neatness is essentially necessary. *W. M. Baillie, Luton Hoe Gardens.*

THE ORCHID HOUSES.

VANDAS.

ALTHOUGH it may be natural for these plants to lose many of their bottom leaves, we always endeavour to give them a sort of treatment that will tend to retain them on the plants for as long a time as possible. No one will admire long leafless stems, and the handsomest specimens are those with foliage down to the pot. At the same time the leggy plants might be in good health, and perhaps bear the finest flower, because they may have been grown in light airy positions. To grow *Vanda tricolor*, *V. suavis*, and *V. insignis* as to have the best appearance and flower freely, they require a temperature and treatment between that of the *Cattleya* and of the East Indian-houses. We have several standing on the central stage in the *Cattleya-house*, where *Laelia purpurata* does well. This place suits the *Vandas* best, during the cooler season as the atmosphere is moister, and they derive benefit from the warmth of a bed of Oak leaves that is placed under the stage. In summer the *Cattleya* treatment causes the *Vandas* to flower very freely which is antagonistic to their being kept well furnished with foliage. Those plants which have the best appearance here are grown in a small division at the north end of the *Cattleya-house*; here the atmosphere is quite as moist as that of an East Indian-house. The right temperature during winter is two or three degrees warmer than that of the *Cattleya-house*, and in summer with sun-heat it is generally lower than the *Cattleya-house* proper. *Vanda Denisoniana* grows very well in baskets with only a few crocks placed about the roots, the plants are suspended in the *Cattleya-house*, and they are watered often during the summer time, but not syringed overhead. *V. (Renanthera) Lowii*, *V. cœrulea*, and *V. Batemani* grow best in the East India-house; but if the latter will not flower place it in a light position in the *Cattleya-house* for the summer months.

POTTING AND CUTTING DOWN

From the present time until February will be the safest season to repot or cut down any plants that require it. This is best done when the plants are active at the roots. Any that have lost many leaves and not yet thrown out roots from the bare stems high enough to bring them into shape when cut down should be placed in a warm moist atmosphere which will induce them to throw out roots freely. I have never gained much by trying moss round the stems,

Any one desirous of increasing the stock of any variety should not be in a hurry to cut their plants down, as they will push out breaks from the stem. These can be taken off when they have made sufficient roots to take care of themselves. Sometimes by leaving these on a noble plant is formed, providing the lead does not lose leaves too fast. Vandas delight in plenty of drainage. When potting use rather large crocks. These can be worked in with the sphagnum higher than the rim of the pot. Plants that appear too large for their pots and do not require lowering will receive the least check by picking out all the moss possible, and by filling in the space with new crocks, placing the pot inside a larger one, afterwards filling the space between them with plenty of drainage and sphagnum, turning in with it when possible the points of outside roots. Very little water is necessary during winter, but just enough to keep the sphagnum alive. Plants that have been disturbed at the root should be damped about the pots and the stage when the air of the house gets at all dry.

CLEANING THE STOCK.

It will greatly improve the appearance of any collection of Orchids at this season to go through all the houses, taking the plants as they come, sponging the foliage, top-dressing any that require it, and washing the pots, stages, and roofs. Then rearrange the plants so that all may get an equal share of light, but avoid the practice of standing plants on the floor too long when the weather is cold. After the cleaning is done, should there be any doubt as to thrips being still on some of the plants, the warm houses should be fumigated—first brushing a little flowers of sulphur into the centre of any growths where thrip is likely to hide. We never make much preparation before fumigating, only to see that growing or tender plants are moist at the root and the foliage dry. After trying different kinds of fumigators, I find nothing safer for Orchids than several ordinary clay saucers, about 7 inches diameter, placed at equal distance on the walks, in number according to the size of the house; place two or three red-hot coals in each, and at the same time lay on a small handful of tobacco-paper, damp it a little on the top, and leave the material to burn out without further attention. *C. Woolford, Downside.*

PLANTS AND THEIR CULTURE.

THE CONSERVATORY.

The longer nights and damp weather of the autumn will call for constant attention in picking over the plants, else a great deal of bloom will be lost by decay; give air freely on favourable days. Camellias should have weak waterings of liquid manure to increase the size of the blooms, the best stimulant being soot water. In conservatories, as a rule, the borders are rarely fitted to grow well the subjects planted in them, and considerable attention is required to keep the plants in health and vigour. Orange trees, especially the Otaheite variety, will require careful watering, otherwise they will lose their rootlets and the plants will soon become sickly looking. Keep the house gay with Chrysanthemums, Arums, Salvias, Violets, Mignonette, Cyrtus, Tuberoses, zonal Pelargoniums, Fuchsias, Bouvardias, and Cyclamens; these, with such things as Azaleas, Grevilleas, Palms, Ferns, and the very useful varieties of *Amaranthus salicifolius* and *A. tricolor*, which come in at this season. All climbing plants should be thinned out, with the exception of those that are in flower, viz., *Habrothamnus*, *Plumbago capensis*, *Lapagerias*, red and white. By timely attention to this matter, the plants beneath the climbers suffer but little.

FORCING HOUSE.

This must be kept well filled with such plants as are required; a good quantity of Roman Hyacinths, Spiraes, Duc van Thul Tulips, Azaleas of the early flowering kinds, Muskis, Violets, Eucharis, Tuberoses which were potted late, *Schizostylis coccinea*, which was potted early; Arums, a few established Lily of the Valley, Gardenias, and *Tabernaemontana coronaria*. Keep up a nice growing atmosphere in the house, and keep some of the troughs over the hot-water pipes filled with manure-water, so as to charge it with mild ammoniacal fumes, thereby greatly assisting the development of foliage and flower. When the plants have come nicely into bloom they should

be placed in a cooler and better ventilated house to stand there till required, otherwise they will not last in good condition for any length of time. The temperatures in the various houses for the ensuing fortnight should be kept as follows:—Stove, 68° night, 75° day; greenhouse, 55° night, 65° day; fernery, 55° night, 65° day; Rose, 60° night, 70° day; forcing, 65° night, 75° day; warm plant pits, 60° night, 70° day. *A. Evans, Lyth: Hill, Haslemere.*

FRUITS UNDER GLASS.

WINTERING STRAWBERRIES IN POTS.

THE time of year has now arrived when pot Strawberries should be put into their winter quarters. I may here remark in connection with this subject, that we should endeavour to imitate the most favourable conditions under which any plant is known to flourish in its natural state during its period of growth and rest in subjecting it to pot culture. It and more particularly as to the process of forcing. Hence it is that we always winter our stock of Strawberries in pots in their natural quarters out-of-doors. Our method of procedure is as follows:—A series of short piles about 24 inches long are driven into the ground (a gravelled space free from the lodgment of water, and having a south or west aspect, which is set apart for this and other purposes), to which three 6-inch wide straight-edged boards are nailed, the size and number of frames thus made being determined by the number of plants to be wintered therein. A little sifted coal-ashes is then spread over the gravel and the pots plunged below the rims closely together in the same material, covering the surface of the balls of earth and roots with the ashes as the work is proceeded with, and in the event of severe weather, such as was experienced during the preceding winter, they are slightly covered with some dry Bracken. This, however, has been removed on every favourable opportunity, and *vice versa*; and notwithstanding the fact that the whole—ashes, pots, and soil—were one frozen mass for weeks at a time, we found very few broken pots—not a score out of 3000—by the action of frost. Readers of the *Gardener's Chronicle*, who may not have the accommodation indicated, can, nevertheless, winter Strawberry plants satisfactorily by placing a few inches thick of ashes on the surface of a dry border—that is to say, a border where water will not lodge at any time—and plunging the pots thereon in the manner advised above, enclosing the whole by a bank of ashes to the level of that in which the pots are plunged; and where there is any difficulty experienced in the matter of dry borders, it may be removed by placing on the latter a few inches thick of clinkers, &c., to insure drainage before plunging the pots in the way recommended above. *H. W. Ward, Longford Castle.*

HARDY FRUIT GARDEN.

PLANTING, AND SORTS TO PLANT.

PRUNING, training, and planting, will now constitute the principal work in this department. Many planters of hardy fruit trees will now be making a choice of varieties, and selecting their trees. Whilst the latter should receive careful attention, the former subject—the choice of varieties—is undoubtedly of the greatest importance. It is interesting to have a good collection, say, for instance, of Pears or Apples, but the novelty of cultivating endless varieties soon wears off, and one often wishes the numbers were reduced, retaining the best and longest keepers. Keeping quality is of the greatest importance, as this decides in a great measure the intrinsic value of the fruit. How many good Pears, for instance, come in season altogether, and possess but poor keeping qualities?—hence the major part of them is wasted, for even if they could be sold, buyers would be scarce. The following varieties of Pears and Apples are amongst the best, and will come into use in succession, and, when well grown, will meet with ready purchasers, and will give every satisfaction at the table:—*Souvenir du Congrès*, *Williams' Bon Chrétien*, *Beurré d'Amanlis*, *Napoleon III.*, *Windsor*, *Beurré Superfin*, *Fondante d'Automne*, *Beurré Hardy*, *Brown Beurré*, *Louise Bonne* of Jersey, *Urbaniste*, *Doyenné du Comice*,

Marie Louise, *Pitmaston Duchess*, *Thompson's Napoleon*, *Glou Morceau*, *Beurré de Jonghe*, *Josephine de Malines*, *Beurré Rance*, *Éclair Beurré*, *Olivier de Serres*, and *Van de Weyer Bâle*.

Steeping Pears.—*Catillac*, *Léon le Clerc de Laval* and *Uvedale's St. Germain*.

Desert Apples.—*Irish Peach*, *Devonshire Quarrenden*, *Oslin*, *Duchess of Oldenburg*, *Worcester Pearmain*, *Kerry Pippin*, *Yellow Ingestre*, *American Mother*, *Gravenstein*, *Cornish Aromatic*, *Harvey's Wiltshire Defiance*, *Scarlet Pearmain*, *Cox's Orange Pippin*, *Blenheim Orange*, *Lady Henniker*, *King of the Pippins*, *Cox of Wick*, *Mannington's Pearmain*, *Ribston Pippin*, *Margil*, *Claygate Pearmain*, *Cobham*, *Braddick's Nonpareil*, *Adam's Pearmain*, *Pitmaston Nonpareil*, *Cornish Gilliflower*, *Court Pendu* plat, *Northern Spy*, *Cockle's Pippin*, *Nonpareil*, and *Sturmer Pippin*.

Culinary Apples.—*Lord Suffield*, *Stirling Castle*, *Nelson's Codlin*, *Eckinville*, *Yorkshire Beauty*, *Dumelow's Seedling*, *Warner's King*, *Tower of Glamis*, *Bess Pool*, *Allington*, *Winter Pearmain*, and *Hambleton Deux Ans*. These are, without doubt, twelve of the best all-round culinary Apples. *G. H. Richards, Somerley, Ringwood.*

The Kitchen Garden.

ASPARAGUS BEDS.

THESE should now be cleaned from weeds and put in order for the winter, first removing the stems of the Asparagus by cutting them off close to the ground; the soil should then be forked off low enough to expose the crowns of the plants, and a mulching of thoroughly rotten manure, to which salt has been added at the rate of 1 bushel to the ton, and placed evenly over the surface to the depth of from 2 to 3 inches, afterwards replacing the original soil. Each bed should be accurately defined by having a strong stake driven into the ground at all the corners, and from these the line should be stretched lengthways, and the sides, having been previously made firm and even, chopped down with the spade, the alleys raked, and the whole left smooth and even. Plants intended to be lifted for forcing should be allowed to remain as they are, simply covering the ground with a few inches of litter, to prevent it freezing. A pit or frame can be selected and prepared for forcing the above—one with sufficient heating capacity to maintain a bottom-heat of 80° and a top-heat of about 60° will be very suitable for the purpose; where bottom-heat from hot-water pipes is not available, fermenting material—a mixture of leaves and stable litter—should be prepared for the purpose beforehand. In preparing the bed for the reception of the clumps it should, if possible, be so constructed that when finally planted and finished the surface of the soil be within one foot of the glass.

RHUBARB AND SEAKALE.

Roots of these should be lifted and started for the earliest supplies; a steady bottom-heat, as for Asparagus, will be necessary, all light, however, in this instance being excluded. Where a portion of the Mushroom-house can be devoted to this purpose no place is more suitable. Both Rhubarb and Seakale can be planted thickly and firmly in fine soil, sufficient to cover all but the crowns, and if the soil be in a proper condition, as it should be—namely, in a moist and usable state—no water will be required until the young growths have started. To encourage and promote this a layer of from 6 to 8 inches of dry, sweet leaves should be placed over the surface of the crowns, and afterwards gradually removed at discretion. *John Austen, Willey Court Gardens.*

MARIGOLDS.—The distribution of colour in these flowers is worthy of note. In most forms ray and disc are alike of some shade of yellow, but in some the central disc is of a deep purple, contrasting well with the yellow rays. In the ray-florets the ray is really composed of three petals, united, as may easily be seen, by looking at the notches at the ends. In some cases the marginal portions of the ray—that is, the two outside petals—are deep orange, while the central one is light yellow. In other cases the colouring is precisely opposite. In a third set of cases, while the base of the ray is light, the other, or free end, is deep orange.

Appointments for the Ensuing Week.

SHOWS, &c.

MONDAY, Nov. 8.	Surrey Chrysanthemum (two days). Lambeth do. (three days). Royal Horticultural Society: Meetings of the Scientific, Fruit, and Floral Committees, at South Kensington.
TUESDAY, Nov. 9.	Kingston and Surbiton Chrysanthemum Society (two days). St. Neots (Hants) do. Southampton Horticultural do. (two days). National Chrysanthemum Society, at the Royal Aquarium, Westminster (two days). Bath Chrysanthemum (two days). Croydon do. (two days).
WEDNESDAY, Nov. 10.	Richmond (Surrey) Horticultural Society Chrysanthemum Exhibition (two days).
THURSDAY, Nov. 11.	St. Peter's, Hammersmith, do. Tunbridge Wells do. (two days). Portsmouth do. (two days). Bury and West Suffolk do. (two days). Huddersfield Chrysanthemum (two days). Reading do. (two days). Lewisham and District do. Devon and Exeter do. Canterbury Gardeners' Society do. (two days). Cheshunt do. (two days).
FRIDAY, Nov. 12.	

SALES.

MONDAY, Nov. 8.	Sale of Dutch Bulbs, Roses, &c., at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Clearance Sale of Nursery Stock, at Lambourne Ead, by Protheroe & Morris.
TUESDAY, Nov. 9.	Sale of Nursery Stock, at the Milford Nurseries, near Godalming, by Mr. Stevens (four days). Sale of Nursery Stock, at the Royal Ascot Nursery, by Protheroe & Morris (two days).
WEDNESDAY, Nov. 10.	Sale of Dutch Bulbs, Roses, &c., at Stevens' Rooms. Sale of Dutch Bulbs, Roses, &c., at Protheroe & Morris' Rooms. Sale of Imported and Established Orchids, at Stevens' Rooms.
THURSDAY, Nov. 11.	Sale of Nursery Stock, at the American Nurseries, Leytonstone, by Protheroe & Morris (two days). Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
FRIDAY, Nov. 12.	Sale of Established Orchids, at Protheroe & Morris' Rooms.
SATURDAY, Nov. 13.	Sale of Dutch Bulbs, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.

IN announcing the decease, on the 29th ult., of the author of a *History of English Gardening*, we can hardly expect to evoke more than a passing feeling of sympathy from the majority of our readers. A new generation has sprung up since that work was published in 1829. The book itself is now scarce, and is probably only known to a few students and journalists. Fewer still knew or realised that the author was, till comparatively lately, the learned, firm, but genial co-editor of the *Journal of Horticulture* and the founder, in 1848, of the *Cottage Gardener*. This was the humble title by which the now well known *Journal* was originally designated. Of late years, more particularly, Mr. GEORGE W. JOHNSON had, by reason of deafness and increasing infirmities, withdrawn into private life. He was seldom seen at meetings or societies, and in 1881 he retired altogether from the editorship of the *Journal*, leaving its management to his old friend and colleague, Dr. HOGG. Under the circumstances we have named, it is a simple act of justice to the memory of a laborious and conscientious worker to recall the services of the veteran, and give some expression to the gratitude which he has so amply earned at the hands of his successors.

For our own parts the *History of Gardening* forms the special thing for which we feel under an obligation to our late colleague. We do not,

of course, overlook his many other services to horticultural literature, his researches in chemistry, and their application to practical purposes; his *Dictionary of Gardening*, his charming biographical notices of horticultural worthies of the past which from time to time appeared in the *Journal*; but all of these, however well suited for their immediate purposes, were nevertheless ephemeral in their character. Not so with the *History of Gardening*. That is a book of permanent value, as is evidenced by the frequency with which we are obliged to have recourse to it. "To the general reader," says the author in his preface, "this work offers entertainment from its historical details; to the man of literature it affords notices of the authors on gardening, with statements of their various works and their editions; to the gardener, all of its contents possess some degree of interest, for besides being a record of his art in every age of which we have any history, it may serve as a guide to such authors as contain information on subjects relating to it, of which he may be in search."

The great value of the book from an historical point of view as supplying details, not only of the literature of gardening, but of the introduction of various flowers, fruits and vegetables, here so lightly touched on, renders it incumbent on others to say for him what the author could not say of himself. "The chief qualifications," he continues, "required of the author were diligence and care," and these undoubtedly must have been freely exercised. But more than these—appreciation and judgment—were necessary. Diligence and care are not uncommon qualities: hard workers are not rarities. The higher qualities of discrimination and proportion are much more rare, but they were not wanting to the author of the book we mention. Mr. JOHNSON'S book deals with the progress of horticulture from the earliest beginning up to the time of KNIGHT and DAVY. Any one who would bring out a new edition of this useful book and take up the thread where JOHNSON left it would not only be rearing a monument to the original author, but doing a work of great public utility.

For the details which follow we are indebted to the courtesy of the Editor of the *Journal of Horticulture*. GEORGE WILLIAM JOHNSON was born on November 5, 1802, at Blackheath. Together with his elder brother, CUTHERBERT, well known as a writer on agricultural subjects, GEORGE devoted his attention to chemistry, and its practical application to agricultural purposes. Their father's salt works at Heybridge in Essex supplied both the incentive to research and the means for carrying it out. As early as 1826 Mr. JOHNSON began to write for the horticultural Press, and to *LOUDON'S Gardeners' Magazine* he, in 1827, contributed a series of papers on chemistry as applied to horticulture. Other literary work followed during the time the author was reading for the bar. After being "called" at Gray's Inn he proceeded to India, became a Professor in the Hindoo College of Calcutta. Here he did much journalistic work, including the editorship of the *Government Gazette*.

Mr. JOHNSON, however, only resided in India for a few years, and on his return to this country again turned his attention to gardening pursuits and horticultural literature. In 1848 he founded the *Cottage Gardener*, as above stated, and in 1851 he became associated as Editor and proprietor with Dr. HOGG, and the friendship and conjoint labours of these two men was, to those who knew the circumstances, one of the pleasantest episodes of the journalism of our time.

After eighty-four years of life, the long working period of which was so usefully and so honourably filled, GEORGE WILLIAM JOHNSON

was laid to his rest in the burial ground of St. Peter's, Croydon, on Thursday last.

FOR the next few weeks the CHRYSANTHEMUM growers will have it all their own way, and the Chrysanthemum exhibitors will be fired with zeal, to which there is nothing comparable save the enthusiasm of the Rose exhibitors. The Chrysanthemum lovers have ample ground for the faith that is in them. The range of colour is almost as great as in the case of the Dahlia, while the form (except in the incurved varieties) is much more beautiful and much more varied. The foliage is good also; but the special virtue is the production of flower in these dull November days, and the prolongation of the flowering by means of the showy Japanese varieties all through the winter. Chrysanthemums now-a-days may be had for half the year or more, and there is already a multitudinous race of summer-flowering varieties which, pretty as they are seen, so much surplusage. Indeed, the Chrysanthemum more than most flowers offers an example of what, Nature giving the lead, the gardeners can do in altering the character of flowers. It is not only that there are early varieties and late varieties, flowers of almost all hues except blue, but the whole shape and construction of the flower is altered. Flat rays give place to quills, and these to the extravagant shapes of the Dragon varieties and of those wherein it is hardly an exaggeration to say that the flower is turned inside out.

Again, they are the flowers of the million; they can be grown cheaply and well in the most unfavourable surroundings. The London suburbs have been famous for them for years, and even the benchers of the Temple relieve the tedium of dry law by the refreshing brilliancy of the Chrysanthemum. The Chrysanthemum fairly deserves its popularity; notices of some fifty Chrysanthemum shows lie on our table, and these do not exhaust the list. Ealing and Highgate lead off, while, mindful of the proverb, *carpe diem*—seize the opportunity—Mr. MOLYNEUX has reprinted his useful series of papers on the cultivation of the Chrysanthemum, and to which we must allude at greater length on another occasion.

— HORTICULTURAL CONGRESS IN PARIS.—In May, 1887, a Congress will be held in Paris in connection with the Spring Exhibition of the National Horticultural Society of France.

— THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Mr. CUTLER, the Secretary of the above, desires to remind holders of collecting cards that the latter are due from them at a date not later than November 30.

— THE VINTAGE.—From advices from the Burgundy district we learn that the vintage, though deficient in quantity, is excellent in quality.

— ILLUSTRATIONS OF BRITISH FUNGI.—Dr. COOKE'S useful series of coloured illustrations, published by WILLIAMS & NORGATE, has now reached its forty-fourth number and its seventh plate.

— SEED DRILLS.—There is to be an international competition of sowing-machines (not sewing machines) at Foggia, Italy, during the present month.

— A BENEVOLENT SHOW.—The display of Chrysanthemums at Devonhurst, Chiswick, has been opened to the public for the benefit of a district ragged school. This example, set by E. H. WATTS, Esq., is one that is worthy of imitation. There are many establishments in all parts of the country which could be advantageously used for similar purposes.

— PLANTING FRUIT TREES IN TOWNS.—Belgian papers inform us that the authorities of the town of Ypres have planted fruit trees along the promenades. In this way about 600 Walnut trees have

been planted along the boulevards. The trees have prospered, and not only afford grateful shade, but produce a revenue which, in the present year, has amounted to 900 francs. The good burghers of Vpres can afford to let the boys indulge their natural proclivities.

— THE LAGO MAGGIORE. — We understand that the beautiful estate of Prince TROUBETZKOY, at Intra, near Pallanza, some twenty hours from Paris, and two from Milan, is for immediate sale. An account of the Prince's garden, with illustrations, was given in our columns in 1874 and again in 1877. Apart from the singular beauty of the site these gardens have gained great reputation from the numerous experiments in introducing new and valuable plants made by the proprietor, especially Eucalypts, including *A. amygdalina*, specimens of which, sown in 1870, have now attained a height of 25 metres, and a circumference of 2½ metres. The garden, which com-

bility of consulting the authentic specimens. The removal of the herbarium to Paris will obviate this difficulty.

— HAIR OR NO HAIR. — In a recent issue we had occasion to mention the curious case of the *Greyia*, some of the leaves of which are glabrous, others hairy on the same shoot. Almost equally marked is the prevalence of the downy variety of the common *Ling*, *Calluna vulgaris*, growing side by side with the common form, as on the Surrey heaths, where the conditions are the same for both.

— COPPER IN WINE. — The treatment of mildew in Vines by means of a solution of sulphate of copper, which has been adopted so successfully in France, has raised some doubts as to the wholesomeness of the wine made from Grapes so treated. In consequence, says the *Vigne Americaine*, M. MASSOL, of the School of Pharmacy of Montpellier, has

Colombian bark. In 1881 the value of the bark exported was about 2,000,000 dollars. It is estimated that since 1881 not half the quantity exported in that year has been shipped yearly.

— THE PHILOSOPHY OF VINE PRUNING. — The production of grains of starch in the chlorophyll of the leaves when exposed to the sun is a well-established fact. This starch is subsequently dissolved, converted into sugar and other substances fit for the food of plants, and transmitted to the growing points or to the store-places, where it is again converted into starch. The production of starch in leaves is shown by immersing the leaves in boiling water, to which a little potash is added, and then plunging them for a quarter of an hour in hot alcohol. The leaves are by these means deprived of their green colour, and the starch in them is now easily rendered visible by the addition of tincture of iodine. By covering one-half of the leaf with some



FIG. 116. — PRIMULA HIRSA ALLIONI: FLOWERS ROSE-PINK. (SEE P. 595.)
(From a coloured figure of H. Sendtner's of Munich.)

mands on one side a view of the Simplon, and on the other of the lake, occupies the side of a hill sloping to the lake, the foreshore of which, for 560 metres, belongs to the property, and is well adapted for numerous villa residences, hotels, &c., though for our own parts we should greatly prefer that the garden be kept for its present purposes and not defaced by bricks and mortar. At present there are two or three elegant and well appointed Swiss chalets on the property. The climate is nearly as mild as that of Nice in winter, while in summer it is fresh and cool.

— LAMARCK'S HERBARIUM. — We learn from *Nature* that the authorities at the Jardin des Plantes have purchased from the University of Rostock the herbarium of LAMARCK, which belonged to the late Professor REPER. At Rostock this herbarium has been, as it were, lost to science, which was the more to be regretted as LAMARCK was, in many ways, the predecessor of DARWIN, while the determination of the species described by him in the *Encyclopédie Methodique* was rendered difficult from the impossi-

analysed several samples of the wine, which he finds entirely free from copper. Traces of this metal were, however, found in the "marc," or pressed skins from which vinegar is made, and similar traces in the vinegar itself.

— CAPERS. — *Après* of Capers figured in the last issue of the *Gardeners' Chronicle*, a good story has been latterly put in circulation to the effect that some emigrant passengers from the Emerald Isle complained to the captain on the hardship inflicted on them by having served up with their boiled mutton what they termed "sour pasc."

— CINCHONA BARKS IN COLOMBIA. — In a recently issued report on the trade of Colombia, the Consul states with a view of illustrating the alarming depression of the export trade of Colombia, that the exportation of Quina bark, which was the staple article of Colombia, has greatly diminished in consequence of the competition of the Indian and Ceylonese growers, who produce an article which yields a far larger percentage of quinine than is obtained from the

opaque substance, leaving the other half exposed to the sun, starch may be detected in the uncovered half, while none is to be found in that which has been shielded from the sun's rays. Signor CUBONI, who has made numerous experiments on the Vine, says that this production of starch increases gradually from the leaves at the base of a young shoot to the middle, and as gradually diminishes from the middle towards the point, starch being absent from the very young leaves near the apex. These facts supply a reason for pruning, for the young leaves above the flower bunches, not producing starch, but on the contrary consuming it, in so far deprive the berries of their sugar.

— TOMATOS AND VINES. — If science has its marvels which, however well attested, often fail to convince, certainly ne-science has sometimes even greater marvels, which nevertheless are accepted as gospel by some folk. At one time, year after year, we received from a correspondent leaves of Violets affected with a fungus (*Puccinia violæ*). The leaves thus had a superficial resemblance to those of a Fern

studded with spore-cases, and as the Violets grew beneath the shade of some Ferns was not that proof positive that a cross had been effected between the Fern and the Violet? It was no use appealing to structural and physiological reasons why such a cross could not be. Nothing could shake our correspondent's faith, and year after year, with an expression of surprise and pity at our incredulity, the specimens were sent. As we write a multiple Grape berry is before us such as often occurs at the end of the bunch, when two or three Grapes, from union in a very early stage of development, run together into a mass lobed like a Tomato. Now, as Tomatoes grew in the house, what more natural (?) than to infer that here we have a cross between a Tomato and a Vine? It would not be so unlikely as a cross between a Fern and a Violet, nevertheless we should be as incredulous in the one case as in the other.

— **THUIOPSIS DOLABRATA**.—It is interesting to see in nurseries the variations in colour of this hardy shrub. Some retain their green colour throughout the year, while others assume a rich brown tinge like some of the *Thuias*.

— **ROYAL MICROSCOPICAL SOCIETY**.—The next meeting of this Society will be held on Wednesday, the 10th inst., at 8 o'clock precisely, when the following papers will be read:—Mr. S. O. RIDLEY—"Classification and Speculation of the Monaxonid Sponges of the *Challenger*;" Mr. A. DENDY—"Anatomy and Physiology of the Monaxonid Sponge of the *Challenger*;" Dr. CROOKSHANK—"On the Surra Parasite."

— **RAMIE FIBRE IN SPAIN**.—Mr. Consul WOODBRIDGE, reporting from Barcelona, refers to the opening in August last, near Girona, of a manufactory, the first of its kind in Spain, for cutting and separating the fibres of the Ramie, or *Cunila-grass* plant (*Boehmeria nivea*). This establishment is described as the property of a French company, styling itself the "Compagnie Ramie Française." This plant was introduced into the country as far back as 1870, and its cultivation proving a success, the above manufactory has been erected. There are three machines at present, of French manufacture, at work, which decorticate some 450 kilos of fibre per day, and the thread is said to be much cheaper, finer, and stronger than either hemp or jute, and produces a rich, glossy textile, and the refuse is used in the manufacture of paper.

— **SEEDS, &c.**—EDINBURGH INTERNATIONAL EXHIBITION.—Messrs. SUTTON & SONS, of Reading, have received the award of a Gold Medal for their fine display of seeds, grasses, models, &c., at this Exhibition.

— **PACKING PEARS**.—The French, who export more Pears than any other nation, cover the inside of the boxes with spongy paper or dry moss, which absorbs the moisture. Each Pear is then wrapped in soft paper, and placed in layers in the boxes, the largest and least mature in the bottom, filling all interstices with the dry moss. Thus, they will keep a month or more. They are so closely packed that though they cannot touch each other, all motion is prevented. If one decays the others are not harmed.

— **PEPPERMINT CULTURE IN JAPAN**.—As an indication of the increased demand for Menthol in Europe the following extract from Consul ROBERTSON'S report on the trade of Kanagawa for the year 1885 will no doubt be read with interest:—"Peppermint oil has been an article that has attracted much attention in the past year because of its increasing importance as an article of export. The production has been steadily increasing for the past three years, and the latest crop has greatly exceeded those of previous years. This is principally due to the demand for crystals, a product of the liquid oil, and which are now largely used in pharmacy as a specific for neuralgia and other complaints. Japanese Peppermint oil is distilled from a species of Mint (*Mentha arvensis*) cultivated largely in the northern portion of the main island of Japan. Like the English Mint (*Mentha piperita*) there are several varieties of the Japanese plant, one only of which produces an article of good quality. The sudden and increased demand from abroad for the Peppermint crystals has led to new plantations being formed, and these have, I am told, been for the most part laid out with

inferior plants. The produce of these new plantations has been sold at very low prices, and the oil thus obtained is not likely to be of good quality. If this is sent to a foreign market it will, perhaps, cause the Japan oil to be regarded with less favour, and thus damage the prospect of an otherwise promising export." Some blundering seems to have been made in printing this report which it would be well for the authorities carefully to look after in future. Though the report is issued under the authority of the Foreign Office, and is "printed under the superintendence of Her Majesty's Stationery Office," and is dated "Kanagawa, May 28, 1886," and further bears the word Japan on its title-page, the heading of every alternate page is "China, Kanagawa." Some one, therefore, whose duty it is to look after these things has apparently a hazy notion as to the country to which Kanagawa belongs.

— **THE CORSICAN PINE**.—Mr. E. M. ARCHDALE, Crock-n-Crievie, Ballinamallard, says, in the *Irish Farm, Forest, and Garden* as follows:—"As the planting season is now near at hand, I would warn any of your readers against planting Corsican Pine (*Laricio*), under the impression that rabbits will not touch it. For the last three years I have planted it, getting it from different seedsmen each time, and it has always been the first attacked by rabbits, who seem to prefer it even to the Ash."

— **FRUIT LABEL HOLDERS**.—At South Kensington on October 20 several of the Canadian fruit exhibitors made to the Royal Horticultural Society, through the Fruit Committee, a present of several hundreds of stout wire label holders for dishes of fruit or other things needing names on show tables. Like so many Transatlantic "notions" these holders are very diverse from ours. Each one has a base formed of a ring of wire to stand in the plate, and from the centre rises a single stem some 10 inches high having upon the top a spring holder for the name card erect, and another to grip the prize card, if any, hanging beneath. The arrangement is an admirable one. The present was cordially accepted by the committee.

— **MANURING CINCHONAS**.—It has been a question whether the application of manure would increase the yield of quinine in the bark. According to the Government quinquologist at Madras this question is now settled. Comparative experiments show a gain of from 20—50 per cent. in favour of manured trees. Moreover, the increased yield more than covers the cost of the manure, so that the process is not only physiologically but commercially profitable.

— **MAHOGANY IN INDIA**.—The success that has attended the raising of Mahogany plants from the last consignment of seeds sent out by the Kew authorities shows that some other and better method was adopted in packing and sending out the seeds, which, Mr. LAWSON says, "arrived in magnificent order." It would have been useful to have given publicity to the system of packing. The seeds were distributed chiefly to the Forest Department and to the local Agricultural Society. "Almost every seed germinated," says Mr. LAWSON, "and tens of thousands of plants must have been raised. From a single pound of seed sown in the greenhouses at Ootacamund, between 3000 and 4000 plants were obtained." This is very gratifying, and efforts ought to be made to distribute the plants widely for trial in all parts of the country suited to the growth of Mahogany.

— **ALCOHOL FROM THE PRICKLY PEAR**.—Don FERNANDO DE LA CAMARA, a member of the Society of Natural and Physical science at Malaga, has been experimenting for over a period of twelve years with this plant (*Opuntia vulgaris*), and has at length obtained results which may be regarded as being satisfactory. He states, in rocky ground at Malaga 2600 Figs, weighing about 13 kilos, are an average crop on 10 square metres, and the proportion of spirit obtained from the juice amounts to about 8 per cent.

— **LONDON CORN EXCHANGE**.—A Chrysanthemum show was held at the Exchange in Mark Lane, E.C., on November 2 and 3, in aid of the Benevolent Society of the Exchange. The classes, which were very numerous, were for cut blooms only, and were restricted to *bona fide* amateurs who were engaged at work in London, with the exception of that for twelve incurved and twelve Japanese blooms, which was open.

The blooms were very good, and reflected great credit on the competitors. In the open class Mr. J. Bettesworth, gr. to R. Ewing, Esq., Barton Grange, Cheshunt, was 1st, with uniformly good blooms; Mr. J. P. Kendal, was 2d. The chief prizetakers in the other classes were Messrs. T. W. Jones, G. Lambert, O. T. Hodges, J. Spiers, F. Woodley, John Aste, A. Macgetson, and J. P. Kendal. A collection of fine blooms was staged by Mr. N. Davis, Lilford Nurseries, Camberwell, S.E., this was very fine as regards the Japanese varieties.

— **TOBACCO IN LOANDA**.—Referring to the cultivation of Tobacco in Loanda, the British Consul reports that the plants are carelessly grown and gathered by the natives. When the leaves are sufficiently matured they are plucked from the stem, tied in bunches, and hung round the native but to dry. No care is taken, no selection made, nor is any preparation resorted to beyond the bunching and drying.

— **A TRAP TO CATCH A DROP OF WATER**.—M. VOLKENS describes a remarkable adaptation of means to an end in the case of some Egyptian desert plants, such as *Reaumurea*, *Tamarix*, &c. In these plants a number of glandular hairs are produced in little basin-like depressions on the leaves. These glandular hairs secrete a bitter crystalline substance, which exudes and covers the whole surface of the leaf. During the night this saline matter attracts the dew and moisture from the atmosphere, and the plant becomes saturated with moisture.

— **LUFFAS IN JAPAN**.—Reporting on the trade and commerce of Hiogo for the year 1885, Mr. Consul TROUF says:—"A new article of miscellaneous export has lately been in some request—the fibrous part of the Snake Gourd—called by the Japanese 'Sachima,' and in commerce 'Luffia.' Ordinarily exported to Europe for use as a bath rubber, it has, I believe, come now to be used as padding in the manufacture of *Sola* hats. It is used by the Chinese as padding for the soles of shoes." The plant here referred to is apparently not the Snake Gourd as understood by *Trichosanthes anguina*, but is the *Luffa*, or *Loofah* (*Luffa acutangula*), the vascular portion of the fruit of which is now so much used as a flesh brush.

— **MRS. JOHN LEE**.—The numerous friends of Mr. JOHN LEE will sympathise with him in the recent death of his wife, who died at Warwick Road, Kensington, on Friday, October 29, after a few days' illness.

— **DESERT PLANTS**.—M. VOLKENS has been studying the plants of the Egyptian desert, and their means of adapting themselves to the very dry climate. One of the principal characteristics resides in the great length of their roots, which in some cases are twenty times longer than the above-ground parts. The leaves of a Gourd remain fresh while still attached to the plant owing to this abundant root-development, but if a leaf be removed from the plant it shrivels in a few minutes.

— **TRENTHAM GARDENS**.—We are informed that Mr. PETER BLAIR, a son of the respected gardener at Shrubland Park, Ipswich, has been appointed to the post of head gardener, rendered vacant by the lamented death of Mr. STREYERS. During the illness of the latter Mr. BLAIR, who was foreman of a department at Trentham, had the general superintendence of the gardens. With so thorough a training in horticultural pursuits as would almost as a matter of course fall to the lot of the son of the gardener at Shrubland, we may believe that the gardens at Trentham will be maintained at their present high state of culture. Mr. BLAIR had the great misfortune to mourn the loss of his wife quite recently.

— **PUBLICATIONS RECEIVED**.—*The Camera*, No. 6. (London: WYMAN & SONS, 74, 76, Great Queen Street, W.C.)—*The Coming Deluge of Russian Petroleum*. By C. MARVIN. (London: R. ANDERSON & CO., 14, Cockspur Street.)—*Chrysanthemums and their Culture*. By E. MOLYNEUX. (London: 171, Fleet Street, E.C.)—*The Forum of Seedlings*. By Sir JOHN LUBBOCK, Bart., M.P., &c.; also *The Sympathetic Nervous System*. By W. H. GASKELL, M.D., F.R.S. (Royal Institution of Great Britain.)

— **GARDENING APPOINTMENTS**.—Mr. R. C. WILLIAMS, Foreman in the gardens of HOWELL GWYN, Esq., The Duffryn, Neath, South Wales, has been appointed Head Gardener to the Earl of LISBURN, Cross Wood Park, Abystwith.

PRIMULA HIRSUTA ALLIONI.

THE Primrose of which we give an illustration is undoubtedly amongst the most charming of our spring alpine flowers for rockery decoration. It is considered by most botanists in this country, if not synonymous, as a mere variety only of *P. viscosa*, which is also made to include *P. villosa*, *P. commutata*, *P. latifolia*, *P. decora*, *P. pedemontana*, and a host of others, no less beautiful and useful in the way indicated above. The Continental botanists, however, many of whom have studied these plants both growing wild and under cultivation, preferring them distinct, having a separate place for *P. hirsuta*, *P. villosa*, *P. ciliata*, and all the others above enumerated; none of them seem to agree with our lumping system, and it is doubtful whether, in a genus like that of Primulas, where the characters of the European kinds (excepting *Primulastrums*) are so constant, the separation policy may not, after all, turn out to be the best; at any rate, our nurserymen do not seem in a hurry to leave off following Continental nomenclature. All the Primroses of the Erythrodium type, to which the illustration (fig. 116, p. 593) belongs, are comparatively easy to grow out-of-doors with us—indeed, the finest plant of *P. viscosa* we have ever seen was growing in a little rockery with a north-eastern aspect in a small suburban garden, black with soot, for which the glandular-tipped hairs have a great attraction; thriving it was, however, and carrying half-a-dozen heads of its pretty purple blooms.

The difficulty of procuring a cool position is not easily overcome by Southern growers; a little experience, however, will soon remove this, and with the impetus given by the late Conference, we shall soon have to go as far as the Tyrol to see alpine Primroses at their best. The soil should be free, well mixed with stones, and the drainage perfect. Most of them are very impatient of stagnant water, hence the necessity of growing them, wherever possible, on slopes, or almost perpendicular rockwork. *P. hirsuta* is a native of Eastern Switzerland and the Tyrol, at elevations of 6500 feet above sea-level. The flowers are the largest and brightest of this set—lilac with a greyish-white centre, flowering freely from April to June, recognised from other viscosas by its more deeply serrate and downy leaves, and longer petioles. D.

The Apiary.

THE CANADIAN HONEY SHOW.

As I have paid a special visit to the above show, and spent some time looking over everything there, I thought that perhaps some of the readers of the *Gardeners' Chronicle* would like to know my opinion about a few things I saw there. The Canadians have sent over to this country about 40 tons of honey, gathered during the present year. The honey is of very good quality. I do not say it is better than ours, nor do I think so, but there are many things about the show from which we can learn much. One thing seems to be certain, and that is, there will shortly be a revolution in the sizes of sections. On entering the show I was struck at once with the narrowness of the sections, and the beautiful way the bees had finished all off. In many cases the honeycomb was as flat as a marble slab and finished off completely, that is, with no popholes. Mr. S. Corneil, from Canada, explained to me how these results were obtained. First, they make their sections only 1½ inch wide, instead of 2 inches as in our country. The result is that the bees make the comb exactly as wide as the sections. As near as possible the size of their sections is 4½ × 3½ × 1½ inch. These hold, I believe about half a pound. Now there are lots of people who would buy a pretty little half-pound box for sixpence who would not spend a shilling on a pound. By numerous experiments Mr. D. A. Jones, of Canada, has proved that bees enter the narrow sections with more readiness than the wide ones. This seems likely to be the case, for bees, when left to themselves, make their combs the same width that our cousins make their sections. Mr. Jones says he can get more honey from the narrow sections than from any other, and, as our Mr. Cowan says, it would require a brave man to differ from Mr. Jones. This,

then, is a matter for serious consideration, and now is the time to consider it, and make any alteration while the bees are at rest. Mr. Corneil also put me up to a wrinkle in the matter of fixing foundation in sections. He puts a piece of foundation at the top and the bottom of the section. The pieces do not quite meet in the middle, but fill every corner of the section. When the bees have completed just past the middle the section crate is reversed, and the remainder of the business is completed with incredible speed. Mr. Corneil uses queen-excluder zinc between the frames and the crate, but this is not generally done in our country now. I could have said much more about the show had I space, but I have touched on a few of the most salient points. Walter Chitty, *Penney*.

NOTE ON SOME BEES AND THE FLOWERS OF SNAPDRAGONS.

Having this year a great quantity of *Antirrhinum majus* growing together, I have made, during the month of August, many and continuous observations of the behaviour of some kinds of bees with the flowers, which in the main corroborate those of the late Mr. E. Newman, communicated to the Entomological Society (*Proceedings*, 1850, p. 36). He enumerates four kinds, but names only one (No. 1), designating the others as "*Bombus*—" with numbers 2 to 4; these numbers I adopt here, assuming from the identity of proceeding in the bees I have seen with that recorded by Mr. Newman that the kinds are the same; the specific names of these, and also of Nos. 5 to 7, have been kindly furnished by Mr. Edward Saunders from individuals taken in the acts mentioned.

No. 1. *Megachile centuncularis*.—This I have not seen; it is said to enter the flowers back downwards.

No. 2. *Bombus Derhamellus*, ♀.—This invariably enters the flowers back upwards, going in so completely as to be entirely hidden, and no entomological Dogberry on day duty would suspect its presence. However, it soon comes out, its thorax striped with yellow pollen from the anthers, which it at once carries to fertilise another flower, and so on again and again. "*Sic vos non vobis*" may well be said of such bees as this, which thus unconsciously have contrived a double debt to pay. Mr. Newman believed this bee to be the neuter of No. 4, and this was correct if my No. 4 be the same, of which there may be a doubt (see No. 7).

No. 3. *Bombus terrestris*, var. *lucorum*, ♀.—This does not enter the flower at all. Mr. Newman says it alights on the flower-stalk just below the flower, cuts a hole in the corolla close to the nectary, and thrusts its tongue or labial apparatus through this to the nectary. I have, however, often seen it not only act thus, but also alight on the flower, yet never attempt to enter it, but crawl at once down the outside to the base of the corolla. I thought the size of the bee might have been against its entry, but as I afterwards saw larger bees go in, this theory was defective; it therefore appeared that it sought honey only, and took the readiest way to get it. I saw no ♀ of this var.

No. 4. *Bombus Derhamellus*, ♀.—This large bee was of too great a size to get into the flower; so, standing on the lower lip, it opened the mouth of the corolla, and thrusting itself in as far as it could, thus reached the nectary, as could be seen through the sides of the tube, the posterior part of the body remaining exposed to view; when the bee came out the thorax was marked with pollen like No. 2, the ♀.

No. 5. *Apis mellifica* (Ligurian race).—This (not mentioned by Newman) goes on the outside of the flower from below and proceeds to extract the honey like No. 3. Simultaneously, however, I saw other bees of this species go to the mouth of the corolla and open it, but they did not enter; they only stood on the lower lip and pushed their heads in; and I repeatedly noticed that they reached only to the polleniferous anthers with their forelegs; so it was clear they required pollen only. I further noticed that the honey collectors went from flower to flower always on the same errand, and that the pollen gatherers acted similarly, neither taking up the occupation of the other. Here was clearly an economic division of labour.

No. 6. *Bombus terrestris*, var. *virginialis*, ♀.—This settled on the lower lip of the flower and pushed itself into the corolla as far as it could, leaving a considerable portion of its abdomen and its hind-legs in sight. This I saw repeatedly. It evidently went to

the nectary for honey, for the pollen from the anthers remained thick on the thorax, and was regarded as an encumbrance, as the bee occasionally rested on a leaf, and did its best to get rid of the dust with its forelegs. If it had intended to gather pollen it would not have acted in this way. It is very singular that to get the honey the procedure was so different from that of No. 3—another variety of the same species.

No. 7. *Bombus terrestris*, var. *virginialis*, ♀.—This also settled on the lower lip of the flower, and thrust itself as far as it could into the corolla, but being the largest of all the bees the whole of the abdomen remained in view. It evidently reached the nectary with its tongue; honey was the object of its action, for the pollen formed a large stripe on the thorax, and efforts like those of No. 6 were made to remove it. This may have been the "very large bee" mentioned by Newman as his No. 4, in which case his belief that it was the ♀ of No. 2 was incorrect.

I did not in any instance see either No. 3 or No. 5 make the hole which always existed at the base of the corolla after a bee had examined it, and so the opening once made served for every successive visitor. In Hermann Müller's work, *The Fertilisation of Flowers*,* at p. 433, the fertilisation of *Antirrhinum majus* by various bees is noticed, but in every case quoted the bee entered the corolla. This is the more singular, as it is said, with respect to the flowers of the allied *Linaria vulgaris*, "I have seen the honey-bee bite a hole in the spur and empty it, as Sprengel describes."

Nos. 2, 3, and 4, disappeared after September 3, at least they then came no more to the Snapdragons.

The flowers exhibited countless shades and combinations of colours, from pure white to crimson, including spots and stripes, but the bees had no preference for any, going indiscriminately from one to the other. J. W. Douglas, 8, Beaufort Gardens, Lewisham, September 10, in the "*Entomologist's Monthly Magazine*" for November.

FORESTRY.

NOVEMBER.

WHEN to plant, what to plant, and how to plant are questions which at the present season engross the attention of not a few landowners who are not practically acquainted with the various duties of the ordinary forester. To these three questions we will in turn give replies, but only so far as our own experience warrants us in doing.

WHERE TO PLANT.

This at a great extent depends on the quality of soil to be planted, but unless in the case of peat bog or other damp soils which we prefer to operate upon in early spring, all other planting should be well in hand, if at all possible finished, before the end of the year. Although the advantages of such a course of action are well known to be many indeed not only to the landowner but forester as well, but which advantages time will not permit of our dwelling fully upon at present, still the majority of planters cannot get rid of the old-fangled idea that spring planting is best—perhaps not best for the plants, but more suitable for themselves and their arrangements, whereas such persons by a little timely forethought and scheming could easily enough have so arranged other work that all hands could be put on the planting during the months of November and December, and when suitable weather allowed of such work being carried on without fear of harm to the young and tender plants. By pushing on planting operations at present, when there is still a little warmth left in the soil, the plants get, not established, but so settled, and the roots so firmly embedded in their new situation, that with the first fine day in early spring a start to grow is at once made; whereas those who defer planting until the long cold days of the early year, and when the parching east winds tell so pronouncedly on vegetation generally, little wonder is it that the majority of the work then accomplished reflects but little credit on the operator, and what is a hundred times worse still, unnecessary outlay on the owner as well. To the very fact of injudicious planting in its many forms

* *The Fertilisation of Flowers*. By Prof. Hermann Müller. Translated and edited by D'Arcy W. Thompson, B.A. (London: Macmillan, 1883.)

and with its attending dire results may be traced much of the ever-increasing unwillingness on the part of not a few landed proprietors to engage largely in the formation of new plantations, for with owners as with servants "once bitten, twice shy."

WHAT TO PLANT.

This, again, depends so much on the taste of the operator that it is no easy task to recommend even a few trees that will suit the public taste, and give at the same time a margin of profit to the owner. From rather extensive experience the following are the trees, apart from the Larch, Scotch, Silver, and Spruce Firs, that are commonly planted, that we have found to be well suited for planting in this country:—

THE CORSICAN PINE (PINUS LARICIO),

a tree that, amongst all the forms of *Coniferae* yet introduced, is by far the most desirable, whether considered in an ornamental sense, or for the value o the timber it produces. Actual experience has certainly convinced us that this is one of the trees of the future in Britain, and now that the Larch has failed completely in several parts of the country, the best substitute in our opinion is the tree in question. The timber produced in this country is excellent; the tree is in hardness and suitability for exposed or maritime situations excelled by no other; while as an ornamental tree it can well hold its own amongst the score and more of its tribe than have been introduced. As to soil it is not particular, but that of a light sandy nature is preferred; while as regards exposure, it seems to me that the higher it has been planted on the Welsh hills the better it succeeds. Grant we must that the *Laricio* is difficult to transplant safely, but this, by previous forethought and common-sense management, may be readily enough rectified. The secret, if secret there be, is this—transplant when a year old, and annually for three years before final planting-out, and losses will soon be few indeed in the transferring of this valuable Pine from one situation to another.

PINUS AUSTRIACA AND P. STROBUS,

the latter in particular, we can confidently recommend for rather extensive use in the formation of British woods and forests. *P. strobus* grows best on decayed vegetable refuse and at average high elevations, but particularly where the subsoil rests at no great depth on rock. It produces excellent timber for inside uses; in Canada it is considered the most valuable, grows rapidly, transplants well, and is highly ornamental. I have seen it towering 90 feet in height and with a butt girth of fully 9 feet amongst the Welsh rocks, not half-a-dozen miles from Snowdon. The Austrian Pine is to be recommended as a shelter-giving tree, but hardly as a valuable timber producer, although a trial we made with it for embanking purposes, for which it is said to be specially adapted, has given the utmost satisfaction.

Almost any soil suits the Austrian well, but it is too much inclined to throw the weight of its growth into numerous and mighty branches, and less so into the stem. For planting along the outskirts of exposed maritime woods, it is of great value, and being of such a dark sombre green, it offers a fine contrast to the ordinary run of our forest trees. It transplants well, but is liable to the attacks of game.

PINUS PONDEROSA

is another valuable tree, and one that unfortunately does not in this country meet with the welcome that its merits demand; which may likewise, though in a less degree, perhaps, be said of *P. insignis*—one of the handsomest and most valuable for particular situations of any other with which I am acquainted—"For poor soils and windswept districts it is a blessing to have such a Pine" are expressions that any one may occasionally hear from the inhabitants of that desolate-looking sea-shore in Anglesey, near to Bodorgan. There it thrives with a luxuriance that is quite surprising, and puts on its freshest and greenest of tints even in the very teeth of the blast. Let every landowner who possesses a barren tract of sandy seashore at once set about reclaiming it by the judicious planting of the Pine in question, assisted by the well-tried *P. pinaster* and the common *Sycamore*; and if their efforts do not prove a success, as likewise a blessing to the landward inhabitants of such a place, I will be responsible for all blame: but mind that you plant properly and at the right time.

THE DOUGLAS FIR (PSEUDO-TSUGA DOUGLASSII)

must not on any account be omitted from our list, for a handsome or more valuable timber producing tree it would certainly be difficult to find. Like almost every other tree the Douglasii has one fault—not that it transplants badly, or thrives indifferently—it is very apt to have the leading shoots broken after overtopping those of other trees with which it is planted. A remedy I have frequently recommended, but that I do so now with a far greater amount of assurance than ever before, and that is, plant the Douglasii only with other trees of an equally rapid growth, such as the Silver Fir, Red-wood (*Sequoia sempervirens*), or *Thuja gigantea*; or, better still, form a plantation entirely of Douglasii, with perhaps a few Larches for cutting out as fencing poles at an early date.

By following out this method of rearing Douglasii plantations the trees being of equal growth will shelter each other, whereas when planted amongst the general run of our forest trees they are coddled up until a height of 60 feet or so is attained, when the others cease growing, and leave the frail shelter-expecting tops of the Douglas Firs to battle with the storms, but which, from being nursed and protected from their infancy upwards, they are ill adapted for doing; the result being that they usually get broken over or assume that miserable whip-like appearance that is anything but desirable in well-managed woods.

All of the *Conifers* recommended to be planted with the Douglasii may be relied on not only as being well suited for ordinary planting, but very valuable for the timber they produce. The Red-wood for planting in dampish valleys is a capital tree, and the timber being of large size, clean, easily worked, and suitable for a great many important purposes, renders the planting of this tree in this country, for which it is particularly well adapted, a work that should be far more eagerly pursued than it is at present. Like the Douglasii, it is best planted alone or with other equally rapid-growing kinds, but it is by no means apt to lose its leading shoot, even when planted in exposed situations. To see this tree as it is grown at Penrhyn in alluvial deposit and a semi-sheltered situation would do any tree-lover an amount of good—the stems of 8 or 9 feet girth rising clean and straight and almost branchless for nearly 180 feet. I would strongly urge on any person who has the chance to give this giant of the forest a fair trial, and he will not be disappointed with the results. *A. D. Webster, Penrhyn Castle.*

SELENIPEDIUM SEDENI.

THIS was a most lucky cross of Mr. Seden's. Itsself a most desirable Orchid, it has become the ancestor of a race distinguished for the beauty of their flowers and the robustness of their constitution. It was, we are told, the result of a cross between *C. Schlottii* and *C. longifolium*, and, what is very interesting, whichever of the two be used as the seed-parent, the result is the same. Again, this beautiful hybrid frequently produces malformed flowers, which if they do not always add to its beauty, do so sometimes, and are often most important for the secrets they reveal. Such an instance was sent us lately by Mr. Tautz, in which the three sepals (marked s in the plan, fig. 118, p. 597) were separate, the three petals, *p*, also; the median petal, or lip, *l*, in this case, instead of being bag-shaped was flat like the side petals and of the same colour, but rather larger. The outer row of stamens was represented by the usual staminode *A* ×, the two lateral ones, *A* ×, *A* × not being present. All three of the inner series of stamens were present, and each had its anther *a*₁, *a*₂, *a*₃. These stamens surrounded the style, being confluent with it at the base but free above. The style itself expanded into a large median stigmatic lobe, *G* 1, while the two lateral ones, *G* 2, *G* 3, though smaller, were yet distinctly marked. This is one of the few instances in which we have observed the ternary character of the stigma. A section of the column below the insertion of the stamens showed only three vascular bundles, while a similar section above the stamens showed also three bundles. The flower is an illustration of "regular polioria," a term applied to those cases in which a flower which usually develops itself in an irregular manner as to the number, form, and proportion of its parts, for some reason or other unknown, develops itself into a regular orderly fashion. As a matter of speculation rather than of demonstrated fact, in this case, it may be said that probably the regular form was the original ancestral characteristic, from which

the irregular arrangement has been evolved in course of time, the better to adapt the flower to the surrounding conditions. If so, then these cases of regular polioria may be looked on as reversions to the ancestral plan of construction.

Orchid Notes and Gleanings.

CONSTRUCTION OF ORCHID HOUSES.

ONE of the most important items in Orchid culture is that of the construction of the houses for the reception of the plants. Sometimes these structures are joined together or placed side by side with a gutter running up the central space between them. Such houses are difficult to get at, and glass is frequently broken through the difficulty in passing along the gutters to repair or paint the sashes. But even this, though inconvenient and expensive, we do not consider the chief evil of such a mode of construction. We maintain that there should be a passage-way of 3 feet or more in width between the houses, so that a free circulation of air may be obtained; and then, if they are span-roofed, ventilators can be placed in the brickwork in order to secure bottom ventilation, which is required equally with that at the top to keep the plants in perfect health. We have always adopted this plan, and have found it most convenient and useful for regulating the temperature of the house. It is sometimes argued that in building two walls we incur an extra expense, but we think the first expense is the best, and we know that it is soon saved by the facility of access to each house separately, by avoiding the expense of the gutters and the inconvenience of getting at the glass for repairs. The tradesmen's bills will show which is the best and cheapest plan in the end. Those gentlemen who go to the expense of having houses built, of purchasing plants, and of keeping men to look after them, should not object to lay out a little extra money on the structures for the well-being of the plants, and as they gain experience they will be able to see the difference in the progress of their plants. Those who may think it worth while to act according to these few simple suggestions will find their reward. It is always desirable to try to avoid whatever is detrimental to the growth of the plants, whether they are valuable ones or not, for complete success not only gives one greater pleasure, but is far more satisfactory both to employer and employed. *B. S. W., in "Orchid Album."*

TWIN-FLOWERED MAXILLARIA VENUSTA.

Usually when two or more flowers become fused into one, or in any way amalgamated, they assume a monstrous appearance or exhibit a greater or less depression of parts. In the present instance there is no suppression, but merely a slight dislocation of one labellum owing to the absence of space for its proper development. The spur or chin of this species is naturally very much produced or elongated, and it so happens that the labella are placed in close apposition back to back, causing the spur of one to interfere with that of the other. That which is developed naturally pushes against the long foot of the column in the other, doubling it up against the latter, which it equals in length. From the apex of this the labellum is suspended, and has its normally straight tube doubled up in a pouch fashion, containing the farinaceous material so peculiarly characteristic of this species. The lateral sepals in both cases are closely applied, edge to edge, and connate for one-half or one-third their length. The two seed vessels arise from the top of the peduncle, of equal strength or nearly so, and are more amalgamated than any other two organs of the flowers, and although by the dislocation of one labellum that appears larger, it is not really so. The specimen was handed me the other day out of curiosity. *J. F.*

DENDROBIUM PHALÆNOPSIS.

I notice in this week's *Gardeners' Chronicle* a short article on "Dendrobium Phalaenopsis," which states that this plant flowers in April. This is, I think, incorrect. My plant, which is the fine variety figured in the *Orchid Album*, is, I believe, distinct in size and colour, and has always flowered in October. This was so in 1884, the first year it came over to England, and again in 1885, and it is in flower now

(1886). The plant at Kew also flowers about this time, though that variety is but little better than a large D. bigibbum. I have sent you by this post a flower which illustrates its character for size and colour, though it has been open fourteen days now. You will see that instead of being 2 to 2½ inches across this flower is 3½ inches across, and all are alike with me. D. Phalaenopsis is at present very rare indeed, and I almost think that the variety I have is unique. *William Lee, Downside.* [With this communication came a flower over 3 inches across, with broad reflected petals. The sepals were of a light rosy-lilac, the petals of deeper hue, the lip of the richest red-violet colour—truly a superb flower. We must also say a word for the packing. This consisted of damp sphagnum, as green as a lettuce—just what the Orchid cultivator should aim at. In this material the flower came to hand in excellent condition, and was readily examined. We could wish that a very heavy tax were placed on cotton wool—that most abominable of packing materials. ED.]

"REICHENBACHIA."

The elegance and artistic character of this fine work increase with successive numbers. The value of this sumptuous publication would be increased at comparatively little cost by representations of the microscopical characters of the leaves, which, as we have occasion to show by illustrations, afford useful indications as to the amount of light or shade, and the quantity of water required by these plants. The plants figured in the present number (4) are the following:—

Masdevallia Shuttleworthii and *M. S. var. xanthocorys*, t. 13.—A very elegant plate, representing two forms not common in collections, owing to the circumstance that but few plants survive the journey from the New Granadan Andes. They are not among the most showy members of the genus, but are nevertheless very pretty, the type form having a rosy tint, while in the variety *xanthocorys* the flowers are straw-coloured, with faint rosy streaks on the median sepal. These *Masdevallias* require a mild equable temperature and a moist atmosphere. They are best grown (says Mr. Sander) in shallow pans suspended under the roof, or placed on a shelf in a light position. If ample drainage be provided, there is no fear of giving too much water.

Aranthus sesquipedalis, t. 14.—Better known under the name of *Angrecum*.

Cattleya labiata Mendeli, Duke of Marlborough, t. 15.—Of this Professor Reichenbach writes:—"It is one of those grand Orchids which occupy the mind of the orchidist so fully, which fill him with such a religious admiration, that in looking at it he considers he sees the finest of all the fine Orchids."

Zygopetalum intermedium, t. 16.—A fine old Orchid, the more useful in that it blooms in mid-winter. It requires to be grown in turfy loam, to have abundance of water, and a temperature ranging from 60° to 65° Fahr. After flowering it should be kept drier, and in a cool house.

Florists' Flowers.

HYACINTHS.

THE last week in October or the first in November is a good time to pot the general collection, using good rich compost of an open texture—sandy loam two parts, one part decayed cow manure, one of leaf-mould, and one of sharp sand. We use for potting ordinary 6-inch pots, these being quite large enough for any of the bulbs—those that are of smaller size do better in 5-inch. It is a grave error in culture to overpot Hyacinth bulbs; the large deep pots sold as Hyacinth pots hold too much potting soil; they have also a very ungainly appearance on the greenhouse stages. I like them not. In potting the bulbs, place a little sharp sand under each—the crown of the bulb should just be seen above the potting soil; and, as a finish, drop a pinch of clean sand over the crown of each. Plunge them out-of-doors in an open position exposed to the weather.

Progress is being made in the raising of new seedling forms, but it is not rapid. When I first exhibited Hyacinths, about twenty years ago, King of the Blues and La Grandesse were not to be bought; it was two

or three years later that I paid 20s. for one bulb of King of the Blues. This and La Grandesse are, I think, the best Hyacinths of any colour. Princess Mary of Cambridge is a lovely pale blue, more beautiful than Czar Peter; Lord Derby or Blondin, King of the Reds, and King of the Yellows we are growing this year. I fancy they are the best in their respective colours. A decided advance has been made in the dark bluish-purple colour in *Souvenir de J. H. Neere*, but I fear this variety is too popular, the bulbs sent being miserably small. We are trying a dozen new varieties this year, distinct in colour, and with good trusses; these I must allude to when they have

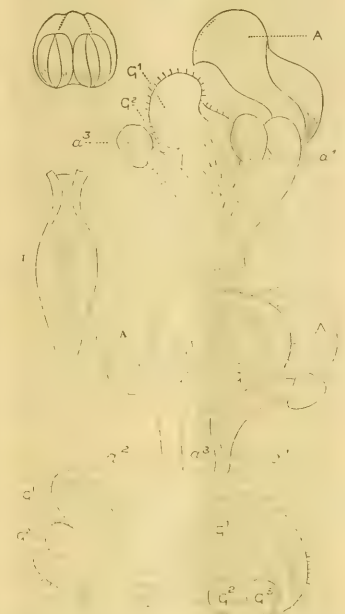


FIG. 117.—PELORiate FLOWER OF SELENIPEDIUM. SECTIONS COLUMN FROM BENEATH AND FROM THE SIDE, ANTHER, LIP, AND STIGMAS, ALL MAGNIFIED EXCEPT THE LIP, L. (FOR REFERENCES, SEE TEXT, P. 595.)

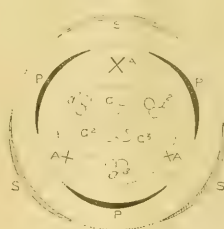


FIG. 118.—PLAN OF PELORiate FLOWER OF SELENIPEDIUM (FOR REFERENCES, SEE TEXT, P. 595.)

flowered. It does not answer to trust entirely to a solitary plant with a grand spike at an exhibition. I have learned to be careful about recommending anything until it has been proved in our own garden. This of course cannot always be done, but it is safest and best where practicable.

ZONAL PELARGONIUMS.

These are now in great beauty in our roof-heated greenhouse. We have not yet used the heat from the pipes in the roof, nor is it necessary to do so until frosty weather, when its value is seen at once. The glass and also the flowers are kept dry, as hot-water circulates most rapidly upwards. One has to be careful not to overheat these pipes, for if they are too warm the flowers are injured thereby, as I found last year. We are careful at this season not to spill

water about in the house, as a damp atmosphere is decidedly injurious. Any shoots that seem to grow away with too much vigour should have the points pinched out; this causes the flower trusses to develop much more freely; indeed some varieties will not produce flowers at all unless the shoots are stopped when the trusses appear. *J. Douglas, Great Gearie.*

HOME CORRESPONDENCE.

Bees and Colour.—It is too late this season, but if "T. F." next season will carefully observe bees collecting honey, he will find that my statement is materially correct. I can assure him that those knowing little insects do not waste their time in visiting "hundreds of flowers" for nought. It is true they visit some for honey and others for pollen. "T. F." mentions "humble bees," which I know visit many flowers that domestic bees do not, such as *Rhododendrons*, &c. My statement was, that bees (domestic bees, of course, were meant) collect their honey from one description of flower at a time, such as *Mignonette*, *Thymus*, *Heath*, *Lime*, &c., and that their exquisite sense of smell alone enables them to do so, and also to detect and prefer the most melliferous. "Dromio," I see, confirms my observation that bees keep to one sort of flower, and even, he says, to one colour, as in the case of blue, white and yellow *Crocuses*. The more the habits of bees are studied, the more marvellous appears their instinct. *W. H. R.*

Grafted Grapes.—I have done a little in this way, and will now record the results. First, I put a *Madresfield Court* on *Gros Colmar*, doing this for two purposes, viz., to see if, by ordinary treatment, watering, &c., as for *Gros Colmar*, it would crack, and also to see if the size of the berries would be increased. It did not crack, but the berries were not so large as those on their own roots; besides, the flavour was very poor. This graft is not strong, so I have only two bunches growing with *Gros Colmar*. This time I have grafted *Gros Colmar* on *Barbarossa*, and hope for something good, as this Vine is the only stem I have that measures well in girth. The *Black Hamburgh* as a stock for *Gros Maroc* is right, one crop being enormous, and the berries large and black, with an improved flavour. *Gros Maroc* on its own roots is nowhere compared with the grafted Vine. *Alicante* worked on the *Black Hamburgh* stock is good for a crop of nice-shaped bunches, but I wish the berries were larger, and I am inclined to think the weight is too much for the roots, some canes of 1885 carrying 40 lb. of Grapes, but they are black and well finished. One *Black Hamburgh* Vine I grafted with *Gros Maroc*, and also *Alicante*; in this case the latter is much better in berry; these berries are, however, rounder than any others that I have. I have never succeeded in growing many *Black Hamburghs*, the fruit becoming chiefly of a red colour, and this summer it has been rather amusing to see the few bunches of red *Hamburghs* and black *Gros Maroc* on the same roots. I intend to try Mrs. Pince on Lady Downe's, as I believe the latter would prove a strong, good stock for it; and, although Mrs. Pince would not only colour any better, it might be the means of preventing the shrivelling which this variety is liable to when kept. *Stephen Castle, West Lynn, October 23.*

"T. L." p. 502, invites expressions of experience on the result of grafting black Grapes on a white stock, and had your correspondent confined himself to the particular variety, viz., *Golden Queen*, I should not have added my testimony in favour of "Vitis," who recommends that "T. L." should graft his Vine of *Golden Queen* with either *Black Alicante* or *Gros Maroc*. If I cannot claim the title of an experienced Grape grower, I can, if necessary, have the corroboration of one who is, in support of excellent *Black Alicante* being grown on a Vine of *Buckland Sweetwater*. About four years ago, owing to some changes in the arrangement of the houses, we became very short of late-keeping Grapes, and as the Grapes from the *Buckland Sweetwater* Vine at the end of the second house were not much appreciated, I determined to inarch this Vine with a rod of *Black Alicante*, which I did, taking the rod half-way up the house the next year, fruiting it and the old rod of *Buckland Sweetwater* the next and the following year, cutting away the old root of the white sorts. During the whole time if there was any difference detected in the quality and finish of the Grapes, the black ones were the better of the two. I had retained a spur of the white below the union of the *Alicante*, and which has fruited every year since, and this last summer I cut three bunches of *Buckland Sweetwater* from a little extension of this spur which won me second honour in an open competition of five or six exhibitors for any other variety of white Grapes, not *Muscat*, and these were not nearly

so good for a white sort as were the Alicante for black ones, some of which are still on the Vines. For shape of bunch, size of berry, and perfect bloom and finish, nothing more could be wished for, and this Mr. Ward, at Longford Castle Gardens, I am sure, were it necessary, would confirm, as he a short time ago complimented me on their finish. I have been compelled to cut most of them to let in all light possible to the plants which I have underneath. For the information of "T. L." and in support of the recommendation of "Vitis," I may be permitted to say that the Alicante on the white stock here are better than those on the Vines in another house on their own roots. *C. Warden, Clarendon Park Gardens, Salisbury.*

— *Appropos of the communications of "Vitis" and Mr. Castle in the Gardeners' Chronicle,* Oct. 30, permit me to mention an interesting case of the mixed action and reaction of stock on scion respectively that came under my notice to day at Drinkstone Park, near Bury St. Edmunds. On looking over this excellent Muscat and other Grapes grown by Mr. Palmer, Captain Powell's able gardener, a rod of Alicante—differing widely from the others by its side—was noted. The berries were equally large and well coloured, but the bunches were smaller and less wide shouldered, more like inverted pyramids than the Alicantes, that were more broadly ovate. On inquiring into the cause of this difference, it was pointed out that this particular rod was grafted on the West's St. Peter's. This was further demonstrated, were further proof necessary, by a large bunch of the latter variety on the base of this worked Alicante. I am by no means disposed to attribute undue importance to differences of size or form of bunch in either of the two Grapes concerned. They may be found in different localities, and even at times in the same house, differing widely, and more especially in form and length of bunch and breadth of shoulder. But the point in the fine house of Grapes at Drinkstone, consisting chiefly of Alicante, Lady Downe's, Madresfield Court, and Mrs. Pince, is that only the Grapes on the grafted rod differed from the other Alicantes, which were of the massive broadly ovate form. Neither must any one confound the West's St. Peter's here with the Black St. Peter's—a totally different Grape, and, which is, in fact, synonymous with Alicante, that we applied on the spot a more satisfactory test, that of flesh and flavour. Three not bad judges of Grapes, of whom Mr. Palmer was one, carefully tested the quality of the Grapes on this worked Vine with those unworked by its side. The difference was so marked as to be obvious in an instant to all three. The skin was thinner, the flesh more tender, sprightly, and sweet, suggesting West's St. Peter's blood and quality in a moment. The skin also separated more freely from the flesh than in the Alicante. And, further, that were not equally fine in berry and parallel in ripeness. It is somewhat difficult to assess relative proportions of qualities on the instant, but it would be safe to assert that fully a third of the qualities of the West's St. Peter's were added to those of the Alicante growing on its roots. Nor did this change of quality exhaust the whole effect of the union of these two varieties; for on tasting the one bunch of West's St. Peter's on the base of this worked Alicante, ample proof was found on its surface of the less common effects of the scion on the stock. The skin was thicker, tougher, and the flesh less tender and juicy than in West's St. Peter's of normal quality. Though the modification of quality in this case, was less pronounced than in the Alicante on the scion, yet it was so marked as to be obvious at once to the taste. Fortunately the difference between the rinds and flesh of these two Grapes is so great as to render their closer approach to each other, even through grafting the more easily apparent, and there can be no manner of doubt of the changes of form or size of bunch, and quality of flesh in this case. The rebounding effect of the scion on the stock, to use a popular phrase for a mysterious physiological phenomenon, is only what might be expected from the interesting records that have been chronicled from time to time of the appearance of variegated shoots on the stems of green plants far below the point of insertion of variegated buds. *D. T. F.*

Rhus radicans (syn. *Ampelopsis japonica*) in Nurseries.—Having read the interesting article on the above plant, and its poisonous effects, I can only on my own experience fully endorse all that Miss Owen has said respecting it. We have a plant growing on a shed with south-west aspect in Mr. Cripps' nursery, which has been for some time a pleasing and striking object in the distance, with its bright orange-scarlet coloured foliage, which is found very useful for colour and indoor decorations, and from which I cut a number of branches for the purpose of propagation two years ago. My assistant very the same day affected with a headache, and the next day had his face and arms very much swollen, and was under medical treatment for some four weeks. Last year another assistant was slightly affected with swollen

arms, &c., from the same cause. Upon me it has never shown any evil effect, although I have cut a great many cuttings on several occasions. *David Dartnall.* [This is an instance of faulty nomenclature which may produce serious results. In some nurseries we could name, we have pointed out the error but without result. Ed.]

Flowers out of Season.—Among the marvels of this wonderful age not one of the least is October Laburnums. Comments have been made thereon of late in the *Daily News*, &c. From Cambridgeshire and Bermondsey this prodigy has been noted. It is more marvellous that on the ridge of the Cotswold Hills, in a parish nearly 600 feet above sea level, Laburnum should still be in blossom. I have in my garden a young Laburnum tree planted last autumn, with blossoms hanging side by side with the last season's seed-pods; and an old Laburnum tree, forming an archway over a cottage garden gate hard by, presents the same appearance. The old legend of a death happening in the family when flower and fruit hang side by side may be superstitious (though verified to my knowledge in 1864 by a Pear tree in Wiltshire), but the fact is curious. I have also in my garden now (October 27) a Strawberry plant in blossom, and a fine Strawberry quite red and well-nigh ripe for eating. These are strange marvels of late autumn of 1886. Some one wise in the life of trees and plants give some scientific reason for these October Laburnums blossoming, and fruit-bearing plants, &c.? Is it merely the result of mildness of season? Is it only a marvellous freak of Nature? Is it the world is getting turned topsy-turvy? Is it the classical "Monstrum in forme ingens cui lumen ademptum"? Whatsoever it is will these same trees and plants blossom again and bring forth fruit in their season next spring? This is an interesting present enquiry and future outlook. *Arthur Blenfield, Everton Rectory, near Tisbury.* [In the case of the Laburnum the new flowers are produced, as in a Rose, on the new shoots of the year, instead of on "spurs." In other cases second flowering is merely an anticipation of spring. Ed.]

Lespedeza striata.—It is a mistake to say that *Lespedeza striata* is indigenous to most parts of North America. It is a Chinese and Japanese plant, which came to the United States nobody knows how, but not many years ago, but now spread wonderfully in the Southern United States. *A. G.*

Bouvardias Turned Out.—I do not mean by this that they are turned out during the summer months only, but during their flowering season from the time they are lifted from the open ground and transferred into heated pits. Having adopted the practice for several seasons with every success for the supply of cut bloom, we can recommend it with confidence. Our usual way is to lift them with a good ball and transfer them from the open ground into a pit that has previously been used for Melons; the soil used for the latter will do for the former with alterations in height, &c., so as to suit the incoming plants; about 6 inches from the glass at the time of planting will allow sufficient space for growth and flower. A thorough good watering to settle the soil after the planting is finished will be needed, then with occasional syringing for a few days, and not much air, the plants will soon take kindly to their new quarters. When fairly established more air should be given; this will prevent the plants from becoming drawn, and at the same time will aid in the production of flowers of better substance and more lasting properties when cut. A little heat at all times in the pipes will dispel superfluous moisture and maintain a growing atmosphere. After Christmas, or as soon as the plants have ceased to give a good return, they will be lifted again, the balls reduced, and the growths pruned hard back, and most of them potted into 6-inch pots, the young shoots afterwards made in a moderate heat, will yield excellent cuttings if needed to maintain the stock at the required standard. If not so needed the shoots should be pinched occasionally, and nice bushy plants will be the result; these with care in hardening off can be turned out early in June. All that is then needed to ensure success is immunity from insects, occasional watering as needed, and frequent pinching of the shoots up to the end of August, and there will be a return in flowers from the pits during the following October, November, and December, after which early forced flowers from other sources will be a welcome change. *J. Hudson.*

Hybridised Daffodil Seeds.—One of our nursery-men has been advertising for sale "Surplus supplies of hybridised Daffodil seed," and on p. 535 of the *Gardeners' Chronicle* speaks of it as "the seed offered by me, I believe, for the first time in England," adding that he has tried to effect this (hybridising) with the brush aided by the bees; also, that the fears the results will be lost to science. Brushes and bees would indeed be valuable friends to a gardener, if

they would justify him in selling all the Daffodil seed ripened in his garden at a high price. Crossing Daffodils is an art on which some of us have long been making experiments, but few of us would venture to feel sure that a cross had been effected because seed ripened on a flower which had been brushed with a hair pencil containing the pollen of another flower; still less to promise the particular cross which had been effected in this way "aided by the bees." If the raiser will wait, as most of us are content to do, till his supposed hybrids flower before announcing them, there is little fear they will be lost to science. As regards the scientific aspect of the subject, it is certain that under favourable conditions several distinct species of *Narcissus* may either spontaneously or artificially be crossed with one another. Many such hybrids have been found wild, and they are still more likely to be produced in gardens. For example, *N. Pseudonarcissus*, wherever it is found at all, is almost sufficient to retard its flowering till the season of *N. poeticus*, so that the two are in flower in the same place simultaneously, makes crosses with it, and the flowers of these hybrids vary one with another in form. In the Pyrenees, however, where I have collected them in spots where these two species have flowered together probably for many centuries, the proportion of hybrids to the thousand flowers of the species is not more than one in a thousand; and we may fairly infer that this represents the proportion of hybridised seed which have been found also amongst *N. Bulbocodium*, *N. triandrus*, and some others, though less frequent, perhaps because the ground where they flower together has been less carefully searched. But Mr. A. Tait has found several such hybrids in Portugal, some of which are preserved, I believe, in the herbarium of the University of Coimbra; others flowered in my garden last spring, and are likely to flower there again. We may therefore hope for new crosses from gardens where many varieties of *Narcissus* are grown together. *C. Wolley Dod, Edge Hall, Malpas, Oct. 23.*

A New Plant-protecting Material.—Just a word in corroboration of Mr. Budd's remarks respecting Messrs. B. Eddy & Co.'s dressed canvas. Like your correspondent we had a length made to cover a range of pits in which we forced such plants as Azaleas, Deutzias, Spiræas, and Lily of the Valley in the winter months, and which it was necessary to keep very warm. The dressed canvas was nailed on two strips of boards on which it was rolled off and on every morning and evening the whole of last winter, and was also used for covering the earliest batch of Melons, and I must add it has answered my every expectation. It carries off all water, and is impervious even to snow, which thaws and runs off leaving the canvas comparatively dry, and presenting a striking contrast to the saturated and heavy mats of straw we used. To remove after a stormy night, I have this day brought out our sheet of dressed canvas for use again, and it looks none the worse for six months' wear. *C. Warden.*

Fuchsia corymbiflora.—As this Fuchsia is just now receiving some attention, permit me to state that a coloured illustration of it appears in the *Floricultural Cabinet* for January, 1884, and it is stated there—that is probably not generally known—that it was raised from seed by the late John Standish, then of Bagshot. The seeds from which it was raised were sent to Mr. Standish by a friend residing at Montreal, who had received them from Cuzco in Peru. It is reported to have been found growing "in shady situations in the woods at Chincayo and Muna," places which are situated north-east of Lima, where the climate is much more temperate than in the neighbourhood of Mexico, from whence we had *F. fulgens*, and consequently, we have no doubt will be found to be more hardy than that species." I incline to the opinion that this expectation was scarcely verified. I occasionally met with *F. corymbiflora* in getting about the country, but it is not grown nearly so much as it deserves to be. *R. D.*

Anthraxite Coal.—There having been, concerning this coal, so many inquiries in the different gardening papers, and as the efficient heating power of the fuel does not seem to be generally known, I think a few remarks from one who has regularly used it for more than twelve years may be useful as an inducement to other gardeners to give it a trial. I feel certain that they would not care to revert to the use of coke after fairly testing anthracite. I know I should be very sorry to do so. It is not applicable to all kinds of boilers, but appears to me to be more suitable for the upright form. The largest boiler we have in use here is an Excelsior boiler, with about 2000 feet of 3 and 4-inch piping attached (half of each). This boiler consumes, in very severe weather, nearly a ton per week, but half a ton is about the weekly average during the colder six months of the year. We never do anything to the fire between 5 o'clock in the afternoon and 7 o'clock next morning, let the weather be ever so severe, as it is not required; and even at that

time but very seldom, for the pipes will be nearly or quite as hot as when left for the night. Anthracite clinkers but very little—not a quarter so much as coke; or half the stoking is wanted, but it requires a little management. If the fire is well clinkered in the morning and again at midday, to pass all the fine ash through the bars, it requires no more attention from the stoker, except to put a sufficient supply of coal in the furnace. The fire should never be stirred, or the result will be disappointing, as its heating power is greatest when left undisturbed. If by any chance our supply of the coal happens to run out, and we have to send for a few chaldrons of coke, then is the time we appreciate the good qualities of the anthracite, for it is no joke to be groping about the fires, night putting a few shovelfuls of coke on the bars, which I, as many more of my brother gardeners, have had to do many times. We, in general, have a little reserve of Welsh coal, as used for Hop drying, somewhere about the estate, and it is a far better substitute than coke—at least, we find it so. I may mention that we get just as good results with the same kind of fuel from a smaller boiler which we have in use. I do not think Mr. Rust has said one word too much in favour of anthracite, and feel convinced the longer his experience with it the better he will like it; and I am quite sure the young gardeners who have to play the stoker's part will welcome it, a little regulation of the damper being all that is required in the evening when going their rounds. We get our coal direct from the Welsh collieries in truckloads; there need be no difficulty in obtaining the genuine article. *A. Giffins, Barkham House, East Hoochley, Sussex.*

A Singular Delusion.—In reading in the *Independent* the Bishop of Winchester's address at the recent consecration of the new part of Southampton Cemetery to use the Bishop's own words, "One of the things many found it difficult to believe in these days" is, that any educated person—as a Bishop, for instance, is presumed to be—can publicly assert as a fact long since exploded, "that seeds buried with Egyptian mummies for not less than 3000 years have risen to life again," when the existence of the kind has ever been proved from indisputable authority to have taken place. Another erroneous statement of the Bishop's was, that "seed buried in the ground died, and continued, as it were, dead for the time." That is not so. Of course seed, if bad, rots, but when good it retains the vital principle—life, and in due time germinates and brings forth fruit. Instead of seed being said to die when it is sown, the most beautiful and wonderful arrangement of Nature commencing for seed germination consists of three principal parts—the testa, the albumen, and the embryo. The testa is the outside or covering, the albumen is situated between the testa and the embryo, and supports the latter until it can develop organs to draw nourishment from external sources. The embryo is the rudiment of the future plant, which again consists of three parts, the radicle, the plumule, and the cotyledons. *A.* [We think that, as far as the matter of seed is concerned, the Bishop was in error, but the remainder of the statement is substantially correct, for the seed coat and the perisperm do die as the embryo they enclose develops itself, the embryo indeed feeds on the albumen. *Ed.*]

The Tillandsia (Vriesia) Regina.—At The Hollies, Dringhouses, York, the residence of Mr. Alderman Close, there is to be seen in bloom a plant of one of the finest species of the natural order to which the Pine-apple belongs—viz., the *Tillandsia (Vriesia) Regina*. This particular species is peculiar to tropical America, and rarely flowers in this country. Mr. Slater, gardener at The Hollies, is to be congratulated on having succeeded in blooming this rare and beautiful plant, which we understand has been in Mr. Close's possession for many years. *W. W. Hargrove.*

A Large Leek.—A monster Leek has been grown in Messrs. Dobbie & Co.'s nursery gardens, Rothsay, Fife. The bladed part measured about 12 inches long and 9 inches in circumference. One of the outside leaves stripped off and laid out flat, measured no less than 15 inches in breadth and about 3 feet in length. The variety is Dobbie's Champion, which has carried off first prizes at several International Exhibitions since 1873. *The Buteman, Oct. 30.*

Cornish Moorlands.—Truth first and effect afterwards. The anonymous writer of the pleasant little article under the above title in your last number has, through ignorance or from a wish to heighten effect, committed an extraordinary entomological error. He associates the Purple Emperor Butterfly with flowers of Hemp Agrimony, ripe Blackberries, &c. What can he mean? Most certainly not the Purple Emperor. Fine Purple Emperors in Cornwall, and presumably in the month of September or October, are enough to take away the breath of any sober-minded entomologist. May I modestly suggest that he intended to write Painted Ladies, and that his wicked pen wrote something else? *R. McLachlan.*

Reports of Societies.

NATIONAL CHRYSANTHEMUM:

October 27.

A FULLY attended meeting of the Floral Committee of the above Society took place at the Royal Aquarium, Westminster, on the above date, E. Sanderson, Esq., President, in the chair, and a goodly number of subjects were staged. First-class Certificates of Merit were awarded to Messrs. James Veitch & Sons, Royal Exotic Nurseries, Chelsea; and to Mr. J. Martin, gr. to C. N. Kidd, Esq., West Hill House, Dartford, for Japanese Chrysanthemum *Phoebe*, a rich pale golden variety, slightly reflexed, distinct, and a good acquisition. To Mr. Martin, to Mr. Shoesmith, Hythe, and to Messrs. Henry Cannell & Sons, nurserymen, Swanley, for Japanese *La Triomphe*, in the way of Dr. Macary, bluish ground shaded with light pinkish lilac—large, full and striking. To Messrs. Henry Cannell & Sons, for pompon *L'ambau*, Toulouse, a charming well formed bright lilac-pink variety, pleasing and distinct. To Mr. William Owen, nurseryman, Maidenhead, for pompon *William Bealby*, bluish, a very charming reflexed pompon, compact, excellent form, and apparently very free; also to Mr. N. Davis, nurseryman, Camberwell, for the same. To Messrs. James Veitch & Sons, for Buttercup, rich gold, recognised as a reflexed variety, said to be one of Mr. Alfred Salter's seedlings. To Mr. George Stevens, nurseryman, Putney, for Japanese *William Stevens*, bright bronzy orange, showy and pleasing—large full flowers. To Messrs. Henry Cannell & Sons, for large Anemone-flowered *Cincinnati*, the guard petals deep lilac-pink, buff and yellow quilled centre—a very fine and distinct variety; also for *Begonia Octava*, double white, with pure *Gardenia*-like flowers of fine form—very free and pleasing.

J. Wright, Temple Gardens, had Japanese *Gorgeous* in the way of Peter the Great, but considered to be of a brighter gold colour. Messrs. James Veitch & Sons set up a fine stand of Japanese varieties, including Japanese Ornaments, bright cerise-red, rather small as shown; *Charlotte de Mont Cabrier*, delicate bluish-pink, in the way of James Salter, the petals not so much twisted; *Irene (Salter)* a refined Japanese in the way of Maiden's Blush, very pleasing, and promising to be seen again; *M. Weick* fls. shaded chestnut-red, with slight tips of gold, one flower only exhibited, a very promising variety; *Janira*, in the way of *La Ville de Toulouse* a fine variety—Commended; *Mons. H. Elliott*, pale cinnamon, promising.

Mr. N. Davis exhibited gardens of what he considered to be Temple of Solomon, a rich golden flower of the Christine type, when fully developed being partly incurved and partly reflexed; this was Commended, but it was considered doubtful if it really was Temple of Solomon. Mr. Davis also had pompon *Lilacé*, bright purple, lilac-exterior, and bronzy centre, very free and pleasing; Commended. Mr. Henry Galton, Shaftesbury House, Winchester, sent a bloom of his pretty bluish sport from *Bouquet Fait*, which he has named *Marie Louise*, to show that it maintains its character. Mr. W. Owen had Japanese *E. G. Henderson*, a pleasing pale yellow variety; and a bunch of his new hybrid *Marguerite*, Cloth of Gold, which the committee wish to see again. Messrs. H. Cannell & Sons showed an excellent collection of bunches of Japanese and pompon Chrysanthemums; and *Precocité*, a pretty and compact bright chestnut-red variety, was Commended; and the same award was made to Mr. Davis and Mr. H. J. Jones, Hope Nursery, Lewisham. Messrs. Cannell & Sons also had Japanese *H. Laing*, delicate bluish, with pale orange and gold centre, small, but very pleasing; *Madame Rozin*, pale reddish cinnamon, the reverse gold—flat as shown, yet a promising flower; and pompon *Cremé*, bluish, with golden centre—Commended.

The next meeting of the committee is to be held on Nov. 24.

EALING, ACTON, and HANWELL:

Nov. 2 and 3.

HELD in the spacious Lyric Hall, Ealing, on the above dates, this pleasant suburban show was probably the first of the autumn series which are now so plentiful throughout the kingdom.

PLANTS.

These were shown diversely, the most striking being the large groups of Chrysanthemums arranged for effect, the best of which came from Mr. Wigmore, gr. to F. Hicks, Esq., Ealing, whose plants carried many fine flowers, and were all the more meritorious because so early. Other fine groups came from Mr. Baird, gr. to C. A. Daw, Esq., Ealing, who was placed 21; and Mr. Fulford, gr. to J. Boosey, Esq., Acton, who came 3d.

Mr. Wright, gr. to — Greenfield, Esq., Hanwell, had the best three trained plants of incurved Chrysanthemums in Queen of England, G. Glenn, and Mrs. Dixon, fairly good; Mr. Chadwick, gr. to E. M. Nelson, Esq., Hanger Hill, being 2d, with fair specimens of *Abtè Paspallia*, Empress of India, and *White Venus*.

Mr. Wright had three dwarf bushy pompons in *Cedo Nulli*, St. Michael, and *Sir Justin*; Mr. Chadwick being 2d, with tall specimens of *Sœur Melanie*, Fremy, and Mrs. Asie. With a single specimen of incurved Mr. Wright was 1st with a good Mrs. Dixon; Mr. Chadwick coming 2d, with Peter the Great.

In the same class, for pompons, Mr. Fulford took 1st place with a large bush of *Sœur Melanie*; Mr. Wright came next, with a good golden *Mülle. Marthe*.

The finest specimen Japanese, a capitally bloomed broad bush of *Hiver Fleur*, came from Mr. Wright.

Of miscellaneous groups of plants was a fine and most effectively arranged bench of Ferns from Mr. Fountain, gr. to Miss Wood, Hanger Hill; a really beautiful collection of decorative plants from Gunnersbury Park, sent by Mr. Roberts, and comprising Chrysanthemums, Azaleas, Tree Carnations, Heaths, Calanthes, Cypripediums, Scabious, &c., with *Poliothos*, Ferns, and other foliage plants. The collection occupied a prominent place on the raised platform. An effective group of decorative plants came from Mr. Passey, gr. to T. Nye, Esq., Ealing; and from Mr. Rideau came a good plant of Chrysanthemum *Maximum* in bloom, and a box of charmingly coloured *Primroses* in good bloom.

CUT FLOWERS.

These made a good display, and although not fully developed, yet many were exceptionally good for the early date of the show. Japanese blooms were in strong force, the best stand of twelve coming from Mr. E. Long, gr. to E. Ridge, Esq., a new exhibitor, who had capital Elaine, the premier bloom of the section in the show; *Comte de Germiny*, P. Delau, *Hiver Fleur*, *Meg Merrilies*, M. Astorg, and *Madame Andiguer*, all excellent in the stand. Next came Mr. Stanton, gr. to H. Smith, Esq., Chiswick, with *Madame de Sévin*, *Madame Feral*, *Boule d'Or*, *Triomphe du Nord*, &c.

With six blooms of Japanese, Mr. Hudson, gr. to H. J. Atkinson, Esq., M.P., was 1st, with fine flowers, set up on tall stems, without cups or other aids; these were *Madame de Sévin*, *Triomphe du Nord*, *Incomparable*, *Fulton*, *Elaine*, and *Madame C. Andiguer*. Mr. Milson, gr. to W. Lindell, Esq., Ealing, was 2d, his blooms being somewhat squat in the box.

Turning to incurved flowers, the best twelve blooms came from Mr. Davis, gr. to H. G. Lake, Esq., Chiswick, who had capital blooms of *Golden Empress* and *White Empress*, Queen of England, *Alfred Salter*, *Jeanne d'Arc*, *Angelina*, *Prince Alfred*, and *Lord Wolsley*. The Empress of India in this stand was the premier incurved flower in the show. Mr. Long had larger but less perfect blooms; *Prince Alfred*, *Jardin des Plantes*, *Beethoven*, *Venus*, and *Faust* were amongst his best.

Mr. Milson had the best nine blooms.

Mr. Collyer had the best six blooms, having fine *Lord Wolsley*, *John Salter*, and *Queen of England*.

Pompon flowers made a fine show, being well out and remarkably good. In the class for twelve bunches, Mr. Milson was 1st.

In a class for twelve trebles, the blooms being very fine, Mr. Collyer was 1st, having fine flowers of *Prince of Orange*, *La Parnasse*, *Madame Mar. de St. Rias*, *Miss Waecler*; Mr. Passey came 2d with capital blooms of *Toussaint Mauricet*, *St. Rias*, Mr. Holmes, *Rose d'Amour*, *Fremy*, &c.

Mr. R. Dean was the only exhibitor of six pompons, having very good flowers.

Only two bouquets were shown, the best, white ground, dressed with bronzy-red and crimson flowers, and *Maidenhair Ferns*, came from Mr. Baird—Mr. Chadwick having the other, composed entirely of white flowers.

Of other flowers, Mr. Hudson had a big box of twenty-four varieties, and was 1st in the class for six bunches, with *Stephanotis*, *Didipendia amabilis*, *Lapageria rosea* and *L. alba*, *Vanda tricolor*, and *Pasiflora quadrangularis*. Mr. Baird, who came 2d, had some beautiful white *Camellias* in his lot. Mrs. H. B. Smith, Ealing, had a new style of basket with an elevated base, termed *The Gleaner*, most effectively dressed with *Bramble leaves* and *yellow*, buff, bronze, and red Chrysanthemums, to be in character with the foliage, also some elegant spray of *Salicaria roseobuds* and *Pleione* flowers. A curious contribution was a box of bright single *Dahlia* blooms, sent by Mr. Fountain.

FRUIT.

The best Grapes came from Gunnersbury House Gardens in Mr. Hudson's usual fine form, the three bunches shown comprising two fine *Blaik Alicante* and one of *Alnwick Seedling*. Mr. Baird came next

with two good Alicantes and one of Bowdow Muscat, and Mr. Milson was 3d, with fine berried Lady Downe's.

Pears were excellent, the best three dishes coming from Mr. Garlandroy, gr. to C. B. Bingley, Esq., Greenford, who had good Beurc' Die, Van Mons, and Pitmaston Duchess. Mr. Milson was 2d, with excellent Beurc' Bachelier, Beurc' Die, and Pitmaston Duchess.

Of dessert Apples, Mr. Hudson had the best in handsome Gravenstein, Scarlet Nonpareil, and Ribston Pippin; J. Wright was 2d, and Mr. Chadwick 3d, with kitchen Apples—all capital samples.

Mr. Chadwick was 1st with good Wellington, Emperor Alexander, and Minchul Crab; Mr. Hudson had Blenheim Pippin, Pomona, and Golden Noble.

Mr. Hudson sent a collection of sixteen dishes of Apples and Pears. Mr. Garlandroy put up a collection of forty dishes, and from Messrs. C. Lee & Sons came a collection of fine samples of Apples—in all sixty dishes, such kinds as Warner's King, Beauty of Kent, Pomona, Stirling Castle, Lord Derby, Mere de Ménage, and others being remarkably good.

VEGETABLES.

The best collections of these came from Messrs. Fountain, Milson, and Simmons, Ealing—all good samples.

For Messrs. Sutton & Sons' prizes for four dishes of Potatoes, there were seventeen competitors, the samples from Charles Taxgood, Mr. Chadwick, J. Farndon, and others, were exceptionally good. London Hero, Schoolmaster, Snowdrop, Vicar of Laleham, Beauty of Hebron, and Duke of Albany, were specially good.

In the cottagers' classes there was large competition, their exhibits in Carrots, Parsnips, Onions, Celery, &c., being specially noticeable.

There were some twenty-five dishes shown in the two classes for boiled Potatoes, and generally the cooking and quality were first-rate, some ten dishes receiving awards.

HIGHHATE, FINCHLEY, AND HORNSEY CHRYSANTHEMUM: Nov. 3 and 4.

GROUPS OF PLANTS IN POTS.—At this show were several very fine lots of Chrysanthemums, especially in the cut blooms, some of the collections being highly creditable. The show was rather large, although in many classes there were not as many competitors as prizes offered.

The best group in competition for prizes offered by the President of the Society was that of Mr. James Brooks, gr. to W. Reynolds, Esq., The Grove, Highgate. This was an extensive group, and included several very fine plants, and was composed of about equal quantities of Japanese and incurved. The arrangement was tasteful, and the colours well blended. Mr. J. H. Witty, gr. to The London Cemetery Company, Highgate, was 2d, also with a large group of good quality.

Mr. W. Theobald, gr. to A. Goslett, Esq., J.P., had the best six trained Japanese plants. They were good plants, elegantly trained, and very even.

For prizes offered for six trained plants (pompon), Mr. J. Brooks was awarded the 1st prize; the flowers were rich coloured, and plants well grown.

Three white-flowered varieties were exhibited by Mr. J. Brooks, who obtained 1st for good plants, Fair Maid of Guernsey, and Lady Selborne being very good.

The best single specimen plant was Chinaman (a Japanese), from Mr. J. Brooks. This was a very fine plant. Mr. W. Theobald was 2d; and 3d, Mr. B. Calvert, gr. to G. Kent, Esq., Highgate, for L'ile des Plaisirs. The competition here was very good.

The best six incurved plants also came from Mr. Brooks, his Mrs. Dixon (yellow incurved), Princess of Wales (incurved bluish) being very fine. Mr. Theobald was a good 2d.

CUT BLOOMS.

Bouquets were fairly well represented, the premier award being granted to Mr. F. Horsman, gr. to A. J. Reynolds, Esq., Highgate, for a light arrangement. Mr. W. Theobald received 2d for better flowers, but not so lightly set up. Table decorations were also good.

Twelve cut reflexed blooms.—1st, Mr. W. Theobald, with as his best Dr. Sharp, King of the Crimson, and Emperor of China.

For twenty-four cut blooms Mr. W. Theobald was 1st, with good blooms of Elaine, Refulgens, La France, &c.; 2d, Mr. J. Brooks, with Maid of Guernsey and Madame Clemence Audiguer, &c.

Mr. Brooks was 1st for twenty-four Japanese blooms with Madame C. Audiguer, Fair Maid of Guernsey, Elaine, &c.; 2d, Mr. W. Theobald, with Carmen, Peter the Great, &c.; 3d, Mr. J. Brittain, gr. to F. Reckitt, Esq., J.P., Highgate. In this and in the former class the stands were of excellent quality.

For twelve large Anemone-flowered the 1st prize was given to Mr. Theobald, for a good stand, including Prince of Anemones and Fleur de Marie.

For twelve cut blooms (not pompons) Mr. Theobald was again 1st, and Mr. T. Curry, gr. to A. G. Meissner, Esq., Hornsey Lane, 2d. The best flowers from both groups were Criterion, Comte de Germiny, and Source d'Or. Mr. J. Hatt, gr. to T. Reedpath, Esq., Hornsey, was a close 3d in a good competition.

For six blooms of one Japanese variety, Mr. Theobald was again the chief prizeman.

For six blooms of Empress of India Mr. B. Calvert was 1st with good blooms.

Mr. T. Turk, gr. to T. Boney, Esq., Highgate, had the best six incurved blooms (one variety), and Mr. B. Calvert 2d. All the above were special prizes. There were others, but the competition being poor, we do not regard them as worth mention.

OPEN CLASSES.

Mr. B. Calvert had the best stands of thirty-six, the finest being Elaine, Bouquet Fait, Margot, Queen of England, Lady Slade, Lord Alcester, &c.—very fine; 2d, Mr. Brittain, with good flowers, especially Japanese, including grandiflora, Jeanne d'Arc, Source d'Or, &c.

In all the leading classes Mr. Brittain, Mr. Theobald, Mr. Brooks, and Mr. B. Calvert, secured the chief prizes with such varieties as have been already mentioned.

The prizes offered in other classes, not for Chrysanthemums, which included plants and vegetables, were extensively competed for by cottagers, &c., but we are unable to give the awards that were made, for they were not published when we left. The same may be said about the Medals and Certificates of the National Chrysanthemum Society which were at the disposal of the local committee.

Messrs. B. S. Williams, Holloway, and Messrs. W. Cutbush & Sons (Limited), Highgate, staged, not for competition, one group each of foliage and flowering plants, very good.

Mr. J. Douglas staged three bunches of Grapes, Snow's Muscat, Mrs. Pince, and Royal Vineyard, which were also creditable.

SCOTLAND.

ORCHIDS AT OSWALD ROAD, EDINBURGH: JAMES BUCHANAN, ESQ.

This well known collection of Orchids is always worthy a visit by any one interested in these plants. The present is not the best season to find many in bloom, yet the large number of interesting species and varieties comprised in the collection renders an inspection both instructive and delightful to the lover of Orchids at any time. The perfect health of the collection, and the many fine, almost matchless specimens of rare kinds, afford an amount of pleasure to the eye of the cultivator which it is most agreeable to record to the credit of Mr. Grossart, the gardener.

Amongst those in flower we noted a grand form of *Lælia elegans prasiata*, which was recently pronounced by Mr. B. S. Williams to be the finest he had met with. It is in the way of *L. e. Turneri*, and quite equal to that variety in the size, substance, and brilliant colour of the flowers. Mr. Williams looks upon the plant as being remarkable, as he knows of no other at the present time in cultivation of the same variety. *Cattleya Schofieldiana*, a rare and curious species, was flowering for the first time in the collection. The figure in the *Orchid Album* is a very faithful representation of the almost indescribable colouring of this very distinct species. *Lælia elegans Lowiana*, a very fine plant of this grand variety, was in bloom. *Vanda cerulea*, a remarkably deep coloured variety, was showing newly opened flowers of great size; the reticulations of the veins passed from the fine sky-blue of the ground colour into clear violet.

Amongst others in flower were a grand plant of *Vanda tricolor superba*, and a superior variety of *V. suavis* similar to Veitch's variety, *V. teres*, *Pleione Wallichiana*, *Dendrobium Dearei*, *Oncidium sarcoches*, the latter opening splendid spikes from 5 to 6 feet long; *Cypripedium Spicerianum* was plentiful, and imparted a pleasing feature to the stages on which it was displayed. *Odontoglossum* were not plentiful in bloom, but a very superior *O. grande* challenged attention; the flowers were very large, about 7 inches across from tip to tip of the lateral petals, which were proportionately broad, and the colouring was very deep and well defined. Other excellent varieties of this species were in bloom also,

but none that could be compared to the one described. In a very full collection of very healthy *Masdevallias* we observed only *M. chimæra* and *M. bella* in bloom, along with the very distinct and rare *M. macroura*.

Of rare and unique sorts not in bloom we noted a magnificent specimen of *Lælia purpurata alba*, 4 feet through, showing thirteen grand growths just maturing; *Cattleya crispa superba*, 4 feet through, with twelve strong growths; *Cymbidium eburneum* and *C. e. Dayanum*, both very fine plants, the latter 3 feet in diameter; *Cypripedium Stonei*, also about 3 feet through, a splendid mass that it would be difficult to match: this plant formerly held a place in the renowned collection of the late Mr. Sam Mendel; *Cattleya crispa Buchanani*, a valuable and distinct form of this species that originated in this collection, and was named after its owner. *Nanodes Medusæ*, of this a remarkable plant of about 18 to 20 inches across, with very numerous growths, was very notable; *Ada aurantiaca*, a very luxuriant plant, with from thirty to forty growths; *Odontoglossum vexillarium rubellum superbum*, a fine plant, and believed to be one of three only of this form known to be in this country at the present time. The plant was bought from Messrs. Ireland & Thomson a short time ago for *O. v. rubellum*, but on flowering it was found to be the true *superbum* form, of which the only other two verified plants are in the possession of Sir Trevor Lawrence and Mr. Measures respectively. *Odontoglossum brevifolium*, which is found very shy to flower, is showing four strong spikes for the first time in this collection. It is worthy of note that this species flowers from the two-year-old or three-year-old bulbs—never from the younger ones. The closely related *O. coronarium* has the same peculiarity as regards flowering from the older bulbs, but it is less shy, and has flowered in this collection before. Two fine plants of *Lycaste Skinneri alba*, one with three gigantic bulbs, the other with ten smaller bulbs, were recently obtained from Mr. B. S. Williams amongst a dozen plants purchased for the typical *L. Skinneri*—a fine stroke of good fortune for Mr. Buchanan, if not for Mr. Williams! Space will not admit at present of our remarking on many other noteworthy subjects to be found in this collection, and we shall finish at present with the mention of perhaps one of the finest plants of *Cattleya exoniensis* in the country, a plant with fourteen fine plump pseudobulbs, all with healthy leaves, and consequently a rather valuable possession in itself.

The whole collection is grown in glazed pots, with the exception, of course, of such as are grown in baskets and blocks, and Mr. Grossart has a strong preference for them over the ordinary porous pots. Judging by the very healthy condition of the entire stock it would be difficult for those who look upon the glazed pots with disfavour to say there was room for improvement here, or that to revert to the use of porous ones would be desirable. X.

SEX IN PLANTS.

To American botanists mainly is due the credit of the discovery that whether a plant be male or female, or a flower on the plant be male or female, is a mere question of nutrition. The primary cell seems capable of developing an individual of either sex according to the amount of nutrition it assimilates, and this assimilation may depend on the quantity of nutrition actually at command, or the ability of the cell to profit by it. In Coniferous trees the female flowers, ultimately the cones, are only borne on branches which have plenty of light at command and are endowed with vigorous vitality. When these branches become overshadowed, or weak from age, they are given up to male flowers only. In Indian Corn and similar plants the ears are located where the most favourable conditions for nutrition exist, the male flower, or tassel, forming merely the "tail end" of the stalk. Numerous facts of this character have been collected closely connecting the female flower with full nutrition, and the male flower with a more limited supply in the primordial stages of their existence.

European observers continue to record facts sustaining these views. Among the latest is a paper by Hoffmann in the *Botanische Zeitung* for 1885. He sowed seeds of numerous kinds of dioecious plants closely together, so as to give little food to each plant, and the same plants thinly, so as to give each

plant nearly all the food it could use. Where they were thickly sowed he counted 283 males to 700 females. In the well-fed lot there were but seventy-six males. In our own country the common Rag-weed, *Ambrosia*, is a good illustration of this fact. In a Potato or corn-field where the plants grow very strong and vigorous, the proportion of female flowers is largely in excess of the male, and it is not uncommon to find plants with nothing but female flowers under these circumstances. But in fields where grain has been cut, and the Rag-weed comes up in thick masses late in the season, and nearly starving each other, male flowers are very numerous, and some are wholly male. Female flowers are always few on each plant. *Thomas Mehan*.

CAPE BULBS.

IN the published papers on Cape bulbs by Mr. Baker and others, the great distinction in vegetative habit between Eastern Cape and Western Cape bulbous plants has been ignored, although in this differentiation will lie some of the cultural difficulties experienced. Thus *Ixia* are all Western, and are subjected to a wet cold winter followed by a burst of glorious spring or rather young summer, during which they flower. The Eastern *Gladioli*, such as *G. Eckloni*, *G. carneus*, &c., experience a perfectly dry winter and come to flower late after the rains of November, *i.e.*, when Western Cape *Gladioli* have run their course. Obviously Westerns fail to grow Eastern bulbs to any perfection, and *vice versa*. Also such things as *Cliveas* and *Vallotas* keep slowly growing in the dead season, and never shed all their leaves. Yet Cape bulbs, *genus omne*, get the same treatment from the average gardener, than whom often no more stolid follower of routine exists. *P. MacEwan, Cape Town*.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 3, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 5th Edition.		WIND.	RAINFALL.
	Mean Reading from 5 a.m. to 5 p.m.	Deposure from 5 p.m. to 5 a.m.	Highest.	Lowest.	Range.	Mean for Day.	Deposure of Mean from 50 years.	Dew Point.		
Oct. 28.	In. 30.09	In. 0.10	57.44	0.13	50.50	53.48	94	N.E.	0.00	
29.	30.14	0.04	62.06	0.16	54.11	57.51	90	S.W.	0.01	
30.	30.17	0.43	58.46	12.03	56.6	54.11	94	S.W.	0.01	
Nov 1.	30.21	0.16	61.80	0.18	55.33	58.54	96	S.W.	0.00	
2.	30.00	0.15	57.51	0.13	54.33	58.54	93	S.W.	0.31	
3.	30.00	0.24	56.54	0.17	55.00	54.49	94	S.W.	0.14	
4.	30.01	0.14	54.37	0.16	58.45	54.49	95	S.W.	0.16	
Mean	30.09	0.25	58.45	12.4	51.9	56.50	94	S.W.	0.63	

Oct. 28.—Fine and bright.

29.—Slight rain in early morning; fine warm day.

30.—Thick mist in morning, and overcast all day.

31.—Slight rain in early morning; dull and overcast throughout.

Nov. 1.—Wet till 2 P.M., fine and bright afterwards.

2.—Fine till noon, then a little rain, and fine and dull alternately afterwards.

3.—Fine till 2 P.M., wet and dull afterwards.

LONDON: Atmospheric Pressure.—During the week ending October 30, the reading of the barometer at the level of the sea increased from 30.10 inches at the beginning of the week, to 30.27 inches by 9 A.M. on the 25th, decreased to 29.88 inches by the morning of the 27th, increased to 30.38 inches by the afternoon of the 29th, and was 30.18 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 30.17 inches, being half an inch higher than last week, and 0.27 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 62° on the 29th; the highest

on the 27th was 49°. The mean of the seven high day temperatures was 54°.6.

The lowest in the week was 42°.6 on the 24th; the lowest on the 25th was 47°.5. The mean of the seven low night temperatures was 45°.3.

The greatest range of temperature in one day was 16° on the 29th, the smallest was 3°.5 on the 26th. The mean of the seven daily ranges was 9°.3.

The mean daily temperatures were, 48°.4 on the 24th, 49°.3 on the 25th, 47°.3 on the 26th, 46°.3 on the 27th, 50° on the 28th, 54°.1 on the 29th, and 52°.6 on the 30th. These were all above their averages with the exception of the 27th, which was 0°.6 below, by 0°.5, 1°.8, 0°.1, 3°.3, 7°.5, and 6°.1 respectively.

The mean temperature of the week was 49°.7, being 0°.6 higher than last week, and 2°.7 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 88° on the 29th. The mean of the seven readings was 67°.2.

Rain.—Rain fell on four days to the amount of 0.17-inch.

ENGLAND: Temperature.—During the week ending October 30th, the highest temperatures were 65°.4 at Cambridge, 64° at Truro, and 62° at Plymouth and Blackheath; the highest at Sunderland was 54°, and at Preston and Newcastle 56°. The general mean was 59°.

The lowest in the week were at Bradford 54°, at Hull 37°, and at Cambridge 39°; the lowest at Brighton was 46°, and at Plymouth, Sheffield, and Leeds 45°. The general mean was 42°.3.

The greatest ranges of temperature were at Cambridge 26°.4, at Bradford 22°.8, and at Hull 22°; the least ranges were at Sunderland 10°, at Sheffield 12°, and at Preston and Newcastle 13°. The general mean was 53°.8.

The mean of the seven high day temperatures was highest at Truro 59°.7, at Plymouth 56°.3, and at Hull 54°.9; and lowest at Sheffield 50°.6, at Bradford 51°.3, and at Wolverhampton 51°.6. The general mean was 53°.8.

The mean of the seven low night temperatures were highest at Plymouth, 49°.4, at Truro 49°, and at Brighton 48°.1; and were lowest at Cambridge, 43°.7, at Bradford 43°.8, and at Hull 44°. The general mean was 46°.

The mean daily range was greatest at Cambridge, 11°, at Hull 10°.9, and at Truro 10°.7; and least at Sheffield, 4°.4, at Sunderland 6°.3, and at Brighton 6°.5. The general mean was 6°.5.

The mean temperature was highest at Truro, 53°.5, at Plymouth 52°, and at Brighton 50°.6; and was lowest at Bradford, 46°.7, at Wolverhampton 47°.1, and at Sheffield 47°.6. The general mean was 49°.2.

Rain.—The largest falls were 0.99 inch at Truro, 0.98 inch at Newcastle, and 0.91 inch at Preston; the smallest falls were 0.07 inch at Hull, 0.12 inch at Cambridge, and 0.17 inch at Blackheath. The general mean fall was 0.51 inch.

SCOTLAND: Temperature.—During the week ending October 30th, the highest temperature was 60° at Paisley; the highest at Perth was 51°.9. The general mean was 55°.8.

The lowest temperature in the week was 32° at Perth; the lowest at Dundee was 42°.3. The general mean was 39°.4.

The mean temperature was highest at Paisley, 49°.8, and lowest at Perth, 46°. The general mean was 48°.2.

Rain.—The largest fall was 0.65 inch at Dundee; the smallest fall was 0.28 inch at Paisley. The general mean fall was 0.45 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, November 1, 1886, issued by the Meteorological Office, 116, Victoria Street, London, S.W. :—The weather has been cloudy or dull generally, with several, but not heavy, falls of rain.

The temperature has been above the mean in all districts, the excess ranging from 2° in Ireland, the "Channel Islands," and the north-west of England, to 5° over north-eastern, central, and southern Eng-

land, and also in the west of Scotland. The highest of the minima, which were registered in most places on October 29, varied between 57° (in Scotland) and 65° (in "England, S.W."). The lowest of the minima which were recorded during the earlier days of the period, ranged from 29° to 33° in Scotland, from 30° to 32° in Ireland, and from 30° to 43° in England. In the "Channel Islands" the lowest reading was 47°. During the latter part of the time the minima were high for the season, the thermometer at many stations not falling as low as 50°.

Rainfall has been a little more than the mean in "England, N.W.," but rather less in all other districts.

Bright Sunshine shows a decided decrease, except in "England, S.W.," the "Channel Islands," and "Ireland, S." The percentages of the possible amount of duration ranged from 9 to 15 in the "Wheat producing" districts, and from 19 to 35 in the "grazing" districts, while in "Scotland, N.," 38 per cent. was recorded, and in the "Channel Islands" 41 per cent.

Depressions observed.—During the whole of this period the barometric pressure has been highest over Sweden and the Baltic, while towards the end of the time it became relatively high over Germany and France. No depressions appeared immediately over the United Kingdom, but during the earlier part of the week a disturbance, which subsequently travelled slowly away to the north-westward, lay over the Bay of Biscay and produced fresh or strong easterly winds on all our coasts. During the latter part of the period some depressions skirted our extreme and north-west coasts, causing fresh or strong southerly and south-westerly winds in the west, and moderate breezes from the same quarters elsewhere.

Law Notes.

RATING NURSERIES.—On Saturday, October 9, Mr. Edwin Bentley Haynes, proprietor of the Penge Nurseries, was summoned at Croydon, by the overseers for the hamlet of Penge, to show cause why a distress warrant should not be issued against him for the non-payment of £39 15s. 6d., due for rates. Mr. Haynes contended that he had been overcharged, the Act of Parliament clearly stating that nurserymen, florists, farmers, and occupiers of arable land, should only be called upon to pay one-fourth of the rateable value. In this case the overseers had charged him one-fourth in respect of his land and plant-houses for the sewer and consolidated rates, but they had demanded the full amount of the poor, lighting, and police rates. He held that a nurseryman's houses were quite as necessary for him to keep his stock in as a cellar was to a publican. At Tottenham a case was fought, and the justices decided in favour of the florist. He would be glad if the Bench would state a case, as he was determined to have the opinion of the Court of Queen's Bench on the subject.

The Chairman said they could not do that. They must grant the warrant asked for by Mr. Besley.

Mr. Haynes: As the matter is to be fought out, will you kindly allow the warrant to stand over?

Mr. Besley: If you reply you can take the matter to the House of Lords.

The warrant asked for was then granted.

Mr. Besley applied for costs, but the magistrates declined to make any order, except for cost of summons, viz., 3s.

Answers to Correspondents.

TO THE TRADE.—Members of the Trade will oblige by sending notes of matters of Trade Interest, Cultural or Commercial. Short notes of daily experience are what are most useful.

ADIANTUM SEEDLING: *E. H. V.* A handsome Fern, which we shall note further hereafter, but shall be glad to know if it is constant from spores, as on that depends its value. It seems to have a good deal of *Adiantum cuneatum* about it, but the fronds are larger and taller, as well as different in composition. There is not much trace of *A. amabile* in it, though it is to be presumed it is one of the forms now regarded as hybrids.

AMERICAN OAKS: *H.* These are notoriously variable and multiform. We believe that of the two you send, that with the longer and more brilliantly coloured leaf-stalk is *Q. coccoinea*; the other, with shorter and duller-coloured leaf-stalk, is *Q. rubra*.

CHRYSANTHEMUM BLOOMS: *C. W. Cook and others.* We cannot undertake to name florists' flowers—let some good specialist see them.

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| 50 Narcissus, Polyanthus. | 24 Tritellets uniflora. |
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| 24 Narcissus, Poeticus. | 4 Lilium umbellatum. |
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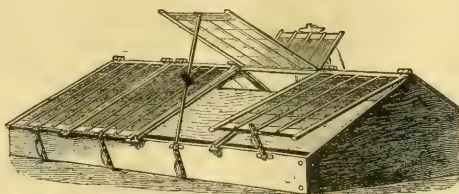
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1886.

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Ammonia ..	4.0	Ammonia .. 6.1
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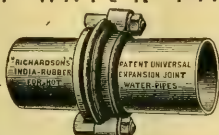


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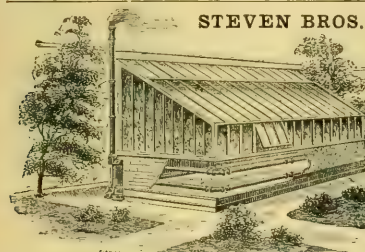
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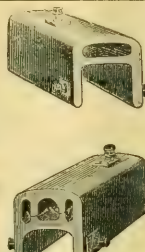
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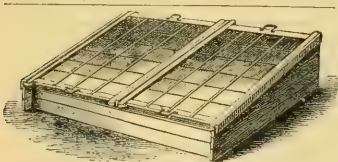
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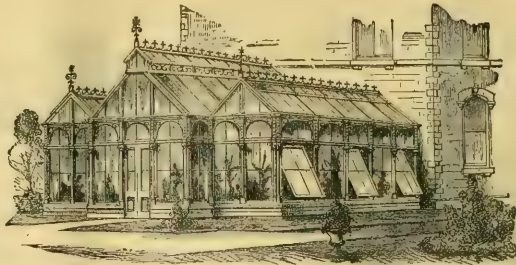
2-light frame, 8 feet by 6 feet	Packing	£ 3 10 0
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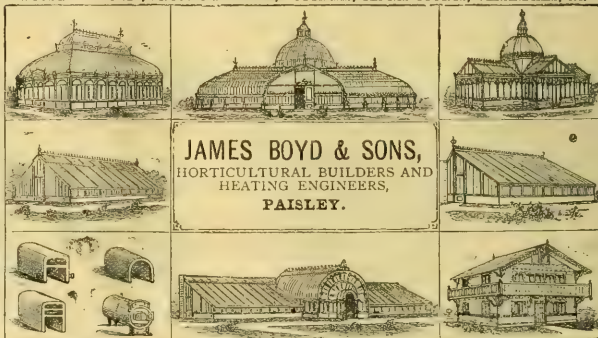
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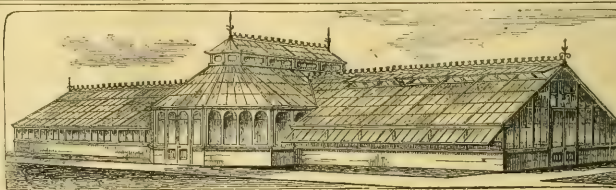
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DAFFODIL, double yellow	30 0	3 6
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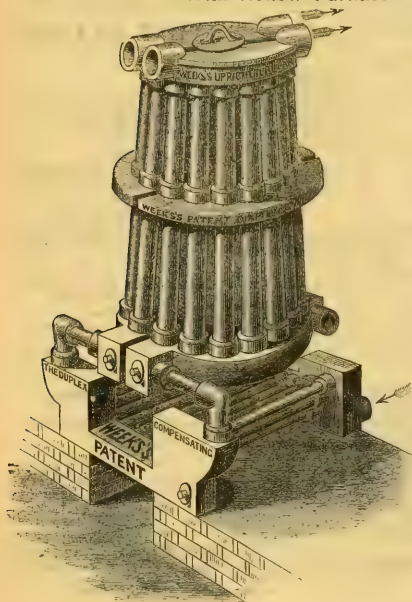
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OR

CHRISTMAS ROSES.

I am very pleased to be able to
offer a magnificent lot of Christmas
Roses, probably the finest lot in the
trade. All the varieties now offered
are strong Home-grown Clumps,
full of Flower-buds, and I would
advise Early Orders to secure
them, as I know the stock of fine
Clumps is very limited this season.

NIGER CAUCASICUS.

An intermediate form between *major* and *maximus*,
having dark mottled stems and dark green erect foliage.
The flowers are large and very conspicuous, pure white
when flowered in a cold frame or even where protected
by shrubs, but when fully exposed the outside of the
petals are slightly tinted with rose. It is one of the most
vigorous of the Christmas Roses, and one which will
succeed where some of the ordinary varieties fail.

Fine Strong Clumps full of Flower-buds, 1s. 6d. and
2s. 6d. each, 18s. and 24s. per dozen.

MADAME FOURCADE.

This is a gem — flowers of medium size, snow-white,
and produced in the greatest profusion, the very smallest
plants flowering: the foliage is light green, of a spreading
habit, and a very robust grower, quite distinct.

Strong Flowering Clumps, 1s. 6d. and 2s. 6d. each,
18s. and 24s. per dozen.

MAJOR.

Although this plant is frequently offered, it is seldom
to be obtained true to name, owing to its great value for
cutting purposes. The flowers are pure white under
glass, but have a slight rosy tinge in the open; it is the
greatest favourite among market growers, producing
flowers from December to January. It is a grand variety
for potting, the foliage is so close and compact, and the
flowers abundant.

Fine Strong Clumps, full of Flower-buds, 1s. 6d. and
2s. 6d. each, 18s. and 24s. per dozen.

MAXIMUS.

A robust variety, the largest of the group, and very
ornamental as a foliage plant. The blossoms are large
and white, shaded with rose on the exterior, and generally
produced in twos, but if shaded or a glass placed
over the plants the flowers are then pure white. By
shading, the flowers can be retarded even to December.
It is the most vigorous of the section, and succeeds where
many of the others fail to grow.

Extra Strong Flowering Clumps, 2s. 6d., 3s., and
4s. 6d. each; 24s., 30s., and 48s. per dozen.

Smaller but still flowering, 1s. and 1s. 6d. each,
10s. 6d. and 15s. per dozen.

RUBRA.

One of the most distinct and novel of this group, a
veritable red Christmas Rose. The flowers are large
and white, shaded with rose on the exterior, and are of a lovely
rose colour. It is a robust grower, very free blooming,
and a decided acquisition for cutting purposes.

Strong Flowering Clumps, 2s. 6d. each,
24s. per dozen.

NIGER.

COLLECTED PLANTS.

I have just received a very heavy consignment of these,
which are really fine healthy stuff, full of flower-buds — I
think the finest batch of imported Hellebores which
ever reached me.

THOMAS S. WARE,

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THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 13, 1886.

ARDDARROCH.

(SEE SUPPLEMENTARY SHEET.)

ON an amphitheatre-like groundwork, spring-
ing from the upper reaches of the waters
of Loch Long, is situate the demesne of Mr. R.
D. White, of Arddarroch. It is situated on the
outer confines of Dumbartonshire, and com-
mands that combination of feature which so
much delights the general tourist — chains of
hills as wavy in their sky outline as the South
American Cordilleras, with just sufficient breadth
of water, while the steamers pass up its midst
for the eye to command on both sides the
masses of rock, here clothed with arboreal
vegetation, both deciduous and evergreen —
there empurpled with thousands of acres of
Heather, and which seems to revel all along
the lochs that fork out from the estuary of
the Clyde into Dumbartonshire and Argyle-
shire.

Arddarroch is one of the places that show
what judicious expenditure can do by way of
extending the resources of Nature and enhancing
the value of land. While thousands of acres
on the opposite side of the loch are still, so
to speak, in a state of Nature, in so far as
the outcome is probably only a few shillings
per acre for grazing purposes, this estate, cer-
tainly limited in size, is well planted, and
although timber hitherto has not been very
remunerative, the forests of America and the
Baltic, in the progress of civilisation and the
multiplication of the population, will not last
for aye. It is a pity to see so many thousands
acres left exclusively to the shepherd, the
sportsman, and their dogs.

From a landscape point of view this residence
is admirable. There are so many vistas and
broad reaches in the foreground, opening up all
the variety of prospects presentable, as would
delight the landscape gardener. Down towards
the estuary the hilly portion of the ground on
the Holy Loch strikes the eye, and then nearer
the foreground comes Loch Gill, where the chief
of Ulva's isle with Lord Ullin's daughter, in
Campbell's stirring legend, met a tragic end, and
with it the charming grounds of Sir John
Douglas, of Glenfinnart. Up the loch towards
Ardroch the great hills of Ben Arthur or the
"Cobbler," Benvoirich, and away in the far
distance Benmore, in Perthshire, supply a back-
ground that commands universal admiration.

Turning to the house itself, it covers a con-
siderable area of ground, and has commodious
reception rooms, with a serviceable conservatory
attached. Its front is covered with a variety of
creepers, none more interesting to the writer
than a well bloomed plant of *Desfontainia*
spinosa, clad with its orange and scarlet tubular
flowers, looking all the grander that they are set
in a profusion of the Holly-like leaves of the
plant. This is so seldom seen as a climber
planted out north of the Tweed, that a special
note was made of it as being a particularly
eligible plant for the milder climate of our
Scottish lakes. *Tropæolum tricolorum* was

exceedingly rich. Nothing for profusion or colour as a climber can beat this where the climate favours it. The grounds immediately adjoining are well clothed, not inconveniently crowded, with trees of ornamental character. Among the larger of them are the Oak, the Ash, the Lime, and the Birch, and these interspersed with such well known and much appreciated Conifers as the Wellingtonia, the Araucaria imbricata, the Cryptomeria japonica, here simply in perfection towering from 40 to 60 feet high, and faultless in symmetry. Of lesser altitude, but striking amongst their fellows, are the glaucous variety of *Abies nobilis*, a pretty Crimean Silver (*Abies Nordmanniana*), several faultless *Picea Menziesii*, and the Lawson Cypress (*Cupressus Lawsonii*) in quantity. The Scots Fir and Larch are timber trees of value. The *Rhododendrons* luxuriate almost beyond compare here; hybrids in quantity in great masses 20 feet high, and the catawbiense seedlings among the bracken (*Pteris aquilina*). Then the Ghent Azaleas are equally remarkable for luxuriance, mollis overtopping them although only half their age.

Just within easy distance of the first lawn, and in juxtaposition to a rather quaintly-designed kitchen garden, stand the

ORCHID-HOUSES.

Of these the proprietor takes a large and lively interest, and he appears to be ably seconded and supported by his head gardener, Mr. Kidd. The collection has not been very long in existence, but in these days the affluent cannot wait, and the consequence is that whereas it took a good ten years to make a decent show of Orchids in the days when I was an apprentice-hand scarcely ten months are now required. Chief, in the meantime, amongst the groups, in the half-dozen compartments devoted to Orchid culture are the Cattleyas and their congeners. One is struck to see the great quantities of *C. Dowiana* cultivated, and well cultivated too. In 1872, just fourteen years ago, the subscriber flowered one, and it was the first of them, to the great delight of all who beheld it; but what must be the scenic effect of a couple of hundred, not in pieces of ten or a dozen pseudobulbs, but in lumps covering racks and baskets, and seemingly going along well! This was not always the case. Often the young pseudobulbs were suffocated with the outer sheaths enveloping them too tightly, and hence the mishaps of the early days of cultivation; but now they seem to go along well suspended, near the light, not overdone with peaty lumps—at least, such is the case here, and the condition of the plants was entirely satisfactory. *C. Eldorado* was flowering and growing profusely suspended in the same way as Cattleya Trianae; Mossiae, Gaskelliana, Sanderiana, gigas, imperialis, *et hoc genus omne*, were treated to pot culture in stages, and so was *Lælia purpurata*, Cattleya Skinneri, and the white form of that species, and all doing very well. In the same temperature *Dendrobium Wardianum* was exceptionally good, and the young growths up to the extremity, clean and faultless; so also was *Dalhousieanum*, sometimes not very well "done." Then *Cypripedium Spicerianum* was particularly noticeable, and so were *Vanda cœrulea*, *Grammatophyllum Ellisii*, *Oncidium Marshallianum*, certainly a magnificent species, that will long connect Mr. Marshall's name with the Orchid world.

In the cooler houses were batches of *Odontoglossum crispum* and its now endless varieties, *Pescatorei*, triumphans, cordatum, together with splendidly grown plants, not of large size, but clean and pleasant to look upon, of *Odontoglossum vexillarium*. The lot comprises chiefly the small-flowered ruby variety, and it certainly is a very captivating form, contrasting well with that excellent yellow-flowered *Oncidium*, which

everybody now calls Rogersii. There were a few nice pieces of the comparatively scarce *Oncidium macranthum* and some *Oncidium nubigenum*, *Cattleya citrina*, *Masdevallias*, and *Epidendrum vitellinum*.

In several other houses were imported plants of both hot and cool temperatures, coming forward for taking their places in time among those established. What a charming addition to *Oncids* is *Jonesianum*. It is a veritable gem, so summer-looking in its features, although wearing the foliage of the whip-like *Scuticaria*. It seems to be an excellent raft plant, although there may be some difficulty in growing it into specimen size. Mr. White has taken to those pots of an irregular corrugated nature that will not take in slime and dirt very readily, and moreover have the advantage of a bottom tray for water, and longitudinal air-holes under the portable bottom, which fits into each pot; it seems to be a good thing.

The conservatory has its walls almost covered with the red and white *Lapagerias*, and in its centre at the time of my visit was a magnificently flowered *Lilium auratum* of the broad segmented and deep orange rayed variety, bearing over fifty flowers in two spikes.

The whole place is in excellent keeping, and the genial proprietor and his lady seem to enjoy it, and are likely to keep up its character as a summer and autumn residence. *J. Anderson, Meadowbank.*

New Garden Plants.

CATASETUM GALERITUM, n. sp.*

I HAVE at hand an inflorescence of seven flowers, which are nearly half as large again as those of *Catasetum atratum*, Lindl. Median sepal and petals connivent, ligulate-acute, light green, spotted with numerous transverse purple-brown spots. Lateral sepals turned back, broader, with numerous round spots of the same colour. The spots are very well marked, and of very elegant colour inside, but, as is commonly the case, far less remarkable outside. The lip is long and narrow, and very curious. The hypochile has rather upright borders, angled on each side in front of the base, leading to a blunt conical spur that is pressed under the very strong oblong-acute epichile, with reflexed margins just as in the spur in the group of *Acerides* affines. The anterior blade (epichile) is ochre-coloured, the remaining part is green with a brown area close to the yellow margin, and there are some scattered brown spots outside under the brown areas, and there are brown lines inside on a yellow ground. The bristles of the purple column are unusually strong. It is near *Catasetum atratum*, but is totally distinct in the lip. The flowers are far more conspicuous in the bright colour of the sepals and petals, and look rather pretty for those of a *Catasetum*. It was kindly sent me by M. Lucien Linden, Director of the Compagnie Continentale d'Horticulture, Ghent, *H. G. Rehb. f.*

CATASETUM PILEATUM, n. sp.†

A curious species, which, in the breadth of the lip, the ivory-like broad lip, the whitish colour, reminds one of *Mormodes luxatum*. It has rather large flowers, like those of that plant. Sepals narrow, large, ligulate-acute, light reddish. I am, however, by no means sure whether the colour is natural, or a consequence of withering. Petals broad, oblong-

acute, white. Lip a wide nearly triangular obtusangled expansion, descending at the base into a blunt cone. Column white, with a very long apical beak, and two well developed cirrhi. A specimen has been kindly sent to me by Messrs. Linden. *H. G. Rehb. f.*

DENDROBIUM NYCTERIDOGLOSSUM, n. sp.*

This is a new member of the *Aporum* section of *Dendrobium*. The leaves are like those of *Dendrobium sinuatum*, Lindl., but the habit is that of *Dendrobium Serra*, Lind., inasmuch as the very small green flowers are produced in fascicles, flowering in the specimens at hand singly from the upper and ultimately leafless part of the stem. The flowers are green, striped with very dark red, both sepals and petals developing a distinct mentum. The lip has a very short stalk expanded into a transverse blade, the side laciniae broad, triangular, the central lacinia very short, retuse. It is light green, with a dark green spot on the disc. I compared this lip to a bat, whence the name. This lip is quite of a new form, as I know of no species with a similar one. It was kindly sent me by M. Linden, who states that it is of Papuan origin. *H. G. Rehb. f.*

MAXILLARIA FUCATA, n. sp.†

This is near *Maxillaria irrorata* of Sir Charles Strickland, but it has no powdery cover to the lip. Such powdery masses are formed by the fragile hairs, which often contain starchy granules, such as I saw first in *Maxillaria anatomorum*. The sheaths under the bulbs are light brown, with darker spots. The leaves are on narrow petioles, 5 to 7 inches long, with an oblique articulation in the middle, the blades being ligulate, lanceolate, acuminate, one inch in breadth, about 1 span in length. The peduncles are of the same length. The narrow, acuminate sheaths do not quite touch one another, as they do in *Maxillaria irrorata*. The bract is also narrow, sometimes as long as the stalked ovary, at other times not. Sepal triangular. Lateral sepals rather broad. Lips reflexed. Mentum very blunt. Petals rhomboid, blunt-angled at the sides, with reflexed tips. Lip oblong-elliptical in outline, trifid at the anterior border, side-laciniae rounded, central lacinia small, semi-oblong, emarginate. A ligulate, retuse callus extends from the base to the middle. Column three-sided, whitish, yellowish at the base, with red spots under the fovea. The flower is nearly 1½ inch long, white outside, probably like the borders of the sepals and petals purple. The inner surface of the sepals is white at the base, purple in the middle, yellow, with red spots at the apex. The petals are of the same colour as the sepal, but without spots at the apex. The lip is ochre-coloured, and the marginal parts of the side-laciniae brown on the inner surface, with parallel brown stripes on an ochre-coloured ground.

This fine species was kindly sent me by Sir Trevor Lawrence, Bart., M.P., F.R.H.S., &c., I saw it afterwards at Barford Lodge in company with Messrs. J. Day and W. Lee, but, unfortunately, in the absence of the fortunate possessor.

The distribution of colour is very uncommon. I could not help remembering some harlequins I had seen with the paint not quite washed off their faces. *H. G. Rehb. f.*

THE BLACK WALNUT.

VERY few, if any, examples of this remarkably handsome North American Walnut (*Juglans nigra*) are to be found in Europe equal in age and size to those growing in the pleasure-grounds here. As will be seen by reference to the engraving (fig. 120) the two trees are growing within a few feet of each other. The circumference of the main trunk of each at 4 feet from the ground is exactly 129 inches, and both con-

* *Dendrobium (Aporum) nycteridoglossum*, n. sp.—Affine *Dendrobium Serra*, Lindl.; foliis ensiformibus mucronatis carinis; floribus ex caule superioribus demum apophyllis; sepalis impari oblongo acuto; sepalis lateralibus triangularibus obliquis; tepalibus linearibus acutis univerris; labello breviter unguiculato, transverso trifido, lacinia lateralibus triangularibus divaricatis, lacinia mediana quadrata retusa brevissima. *H. G. Rehb. f.*

† *Maxillaria fucata*, n. sp.—Proxima *Maxillaria irrorata*; foliis longe petiolatis linearibus ligulatis acuminatis; pedunculis plurivaginis; vaginis angustis, mento obtusangulo elliptico; sepalo impari tri-angulo, sepalis tribus longioribus lanceolatis, anice reflexis, sepalis rhombeis pariter apice reflexis, labello elliptico, antice trifido, lacinia lateralibus obtuse semi-rhombicis, lacinia mediana parva semi-oblonga emarginata bilobula; columna trifida. Vid. *vv. Juxta aceris*, Barford Lodge, & acc. ab ex. Ego Trevor Lawrence. *H. G. Rehb. f.*

* *Catasetum galeritum*, n. sp.—Affine *Catasetum atratum*, Lindl.; racemo paucifloro (septemfloro); sepalis ligulatis acutis; tepalibus subaequalibus cum sepalis impari conniventibus; sepalis lateralibus reflexis; hypochili limbo semioblongo erectis ante basin angulatis; calcaris conico sub epichilio trifido semi-oblongo valde cartilagineo presso. Sepala et tepala viridula brunnea purpureo maculata. Labellum viridulum intus flavum; hypochilium brunneo pictum, epichilium ochraceum. *H. G. Rehb. f.*

† *Catasetum pileatum*, n. sp.—Sepalis ligulatis acutis; tepalibus oblongis acutis, labello transverso subtriangulo obtusangulo amplissimo in connatis obtusum basi saccato; columna apice longi rostrata, basi solito more bicirrosa. Flores bellis, albis; sepalis (an maceratione?) purpureis. *H. G. Rehb. f.*

tinue of the same dimensions for fully 15 feet higher. Both have attained a height of between 90 and 100 feet, and the diameter of the spread of their united branches is 80 feet the narrowest, and 120 feet the widest way. One of the large branches gradually dropped to the ground many years ago, and the main point has nearly assumed a vertical position, forming a miniature tree; but whether the portion of the stem which is partially buried underground has roots or not I cannot say. The trees are in excellent health, and every year bear heavy crops of nuts, but these only in rare

As regards the history of these remarkable trees there is no doubt that they were planted at the same time as the other North American trees, Mesquits, Sugar Maple (now dead, but formerly an exceedingly handsome specimen), Cock's-spur and scarlet fruited Thorns, in the seventeenth century, by the then occupier of this estate—a gentleman either officially or commercially connected with North America. It is thought by some local historians that the Walnuts were planted by John Evelyn, as he frequently visited this neighbourhood and planted a great many Plane and Cedar trees, but there is no

baneful effects of London smoke. Even the Oaks and Elms are decaying rapidly, and we gradually meet with difficulties in the way of keeping many of our choice alpenes alive. *T. W. Sanders, Gr. to J. W. Larking, Esq., J.P., The Firs, Lee, S.E.* [This is the tree so much valued in the States for its timber, used for gun-stocks and cabinet-work. A curious feature is the frequent existence of two or even three buds in the axil of the same leaf, so that if one shoot gets nipped by spring frost there is another bud to take its place. It is a true Walnut, and not a Hickory. *ED.*]



FIG. 120.—BLACK WALNUT TREES AT THE FIRS, MANOR LANE, LEE, S.E. (SEE P. 616.)

instances become fully developed. Although I have opened hundreds of the nuts I have found none but what were destitute of albumen and embryo, the testa merely containing a small amount of watery liquid. This is, no doubt, due to imperfect fertilisation, or want of it. I have always observed that the male flowers appeared many weeks in advance of the female ones, and in consequence of this I have come to the conclusion that the pollen is either injured by the cold winds or distributed before the female flowers are open to receive it. I intend this next season to preserve some of its pollen, and artificially fertilise a few flowers with a view to determine whether my theory is right. [Probably the latter is the more correct view. *ED.*]

direct confirmation of this fact. By whomsoever or whenever planted they have formed the noblest and handsomest of ornamental trees, and are justly prized by my employer, to whom the late Sir William Hooker, in one of his visits here, described them as unequalled for size in Europe. It will be seen by the dimensions which I have given (and they are under rather than over the mark) that they far exceed in stature the typical species in its native habitat, as given by Michaux in his splendid work, *The North American Sylva*.

It is to be hoped that these trees will not suffer the same fate as our Cedars and Conifers generally (excepting, however, *Cupressus Lawsoniana*), and many other fine trees, and gradually succumb to the

TREES IN THE WRONG PLACE.

It may often occur to planters who observe the ill-health of the trees they have planted that the sorts selected were not those which should have been chosen for the particular soil or site. Amongst no trees does ill-health manifest itself so soon as in the various Conifers so commonly planted either to form plantations or as ornaments to the demesne and garden.

Provided the removal of surplus water has been secured by means of rubble drains and open ditches—never by pipes or tiles alone—if trees suitable to the soil be chosen, and with due regard to exposure and shelter, there is no reason why Coniferous trees and

others should not grow into handsome specimens as garden and park trees, and into profitable timber as woodland trees, without much, if any, further trouble or expense. The means often adopted to secure healthy growth in trees in bad soils and undrained sites by throwing out a trench around the trees and filling it with suitable soil, and by surface feeding, can never be adopted in a wholesale way by many owners, owing to its cost. As an example of a soil suited to Conifers, and to little else, we may cite Dromopore. There the drainage, either natural or artificial, is about perfection, and thus, although the crust of soil is of but little depth, and is of a light nature, the trees have made wonderful progress. Much of this fine development is due to properly prepared sites in the first instance, but which the trees have long ago outgrown, and to natural surface feeding. The rake and the broom were never wielded by a worshipper of over-neatness at Dromopore, so where the Pine-needsles fell, and the other foliage, and the woodland Ferns and weeds died down every year, there all was allowed to rot into mould, than which no better could be devised by man for the proper support of the trees. In special cases there, extra surface feeding has been and is practised now, but there is no general following out of the practice, and it is, moreover, unnecessary.

As regards the species of Conifers to plant as timber, the selection made by Mr. A. D. Webster in last week's *Gardeners' Chronicle* is a very good one, only he puts *Pinus strobus* into the position of a first-class marketable timber tree, which I think it is not; the timber is soft and perishable, and fit for indoor work only. The tree is very handsome, either in groups, rows, or as single specimens, especially when old and has acquired the massive umbrella-shaped head and clean reddish-brown bole. *M.*

BOTANICAL RAMBLES IN SOUTH CHINA.

(Continued from p. 581.)

In the same grove I also found a large bush of the showy *Cesalpinia minax*, a plant only previously found near Shu Hing, on the North Canton River, and described by the late Dr. Hance in the *Journal of Botany* for December, 1884. It is described as "a most interesting plant, remarkable as a singularly distinct member of the small group to which it belongs."

Emerging from this little wood we reached a ravine which leads to the top of a hill nearly 3000 feet high.

This was the happy hunting ground for new plants, and the hard work of the day now begins. I was attended by three coolies, one carrying a couple of large baskets, slung Chinese fashion, on the inevitable Bamboo pole; another with a vasculum and a number of sheets of drying paper fixed between two flat boards; the third carrying the provisions for the day. The temperature in the shade was considerably over 70° F., but we will not venture to say what it was in the sun; it was simply incandescent! The ravines I speak of form a natural channel for the mountain torrents. I was shod with a pair of shoes with corrugated indiarubber soles, which enabled me to cling to the smooth slippery rocks. Getting wet feet and legs is, of course, rather convenient than otherwise, as it helps to keep the extremities cool! The vegetation, which is purely indigenous, generally extends from 20 to 60 yards on each side of the stream. It would be impossible to push one's way through the entwined mass of thorny shrubs unless the stream had kept a passage clear. This middle passage has the advantage of enabling one to get a view of both sides. At intervals in the ascent the hill slopes back, forming a flat landing, the stream consequently broadens and waters a wide plateau. I do not know any feeling to equal the charm of exploring these sequestered nooks with the sense that you are the first European that has invaded them.

For ages the mountain torrent has been gradually deepening its bed, and has formed a fertile ravine sheltered from cross winds. Many of the huge irregular rocks and boulders that recede high above the stream on both sides are channelled and water-worn, showing that they, at some remote period, had been subjected to the "water that wears away the stone." And the soil that still remains in the crevices and in the deep passages between the rocks is the fine alluvial sand and mud of an ancient watercourse, mixed largely, of course, with the decayed vegetable

matter of many years. A large number of plants have here been conserved that would probably have otherwise become extinct. The rocks are clothed with Mosses, Ferns, Orchids, and innumerable trailing and creeping plants. On the moist rocks and in shallow pools *Aspidium calcaratum*—a plant that takes the form of a small tree-Fern—grows abundantly. Adjacent to this we see *Selaginella Wildevanovii*, *S. atrovirens* and *S. flabellifera* spreading at will. A little higher up the lordly *Angiopteris evecta* stretches its enormous fronds over its meaner neighbours. Sometimes we see a large rock covered with the strong erect fronds of *Polypodium coronans*, its broad shields completely hiding the rock. In a boggy situation I found the handsome *Asplenium maximum* the only specimen of this that I have seen. *Polypodium longissimum*, Bl., grows on dry banks; this I believe has not hitherto been found in China. Both on the rocks and on the earthy slopes we see *Gleichenia longissima*, *Asplenium nidus*, *A. cuneatum* (a most beautiful Fern), and *Gymnomgramma decurrens*. The very common kinds are *Asplenium esculentum*, *A. latifolium*, and *A. ruticolum*. The rarer kinds of the genus *Asplenium* are *A. normale*, *A. Oldhami*, Hance, which, by the way, Dr. Hance remarked that he could not distinguish from *A. Hancockii*, Baker, and *A. Griffithianum*—the latter also new to China.

The minute *Polypodium flocciferum* and the modest *Davallia pedata* cling to the dry rocks. *Polypodium tritidum* is also a rock plant, but likes a damp situation. *Davallia divaricata* is a most accommodating plant; it can be found on dry rocks in the full glare of the sun or dipping its graceful fronds into the stream in the dense shade. *Polypodium lanceum* and *P. superficiale* hide themselves in wet, dark, cool crevices in company with several species of filmy *Hymenophyllums*. *Asplenium Hancei* and *Aspidium aciculatum* mostly frequent the tops of rocks that are covered with a thick coating of soil. *Aspidium aristatum*, *A. unitum*, *A. molle*, *A. subtriphyllum*, *A. exaltatum*, *A. ciliatum*, and *A. tuberosum* are all common plants that can be met with, on every side. Dwarf trees are often covered with the creeping *Drymoglossum carinosum*.

Amongst the long grass the cosmopolitan *Osmunda regalis* and *Pteris aquilina* are growing in large numbers; the latter plant has a very subdued and retiring look in its tropical home. One would hardly think that this dwarfed thinly-branched plant was the sturdy Bracken of the West. Under similar conditions we find the unique *Brainea insignis*. *Woodwardia Harlandii*, *Osmunda javanica*, and *O. bipinnata*. In the same grassy situation I found the handsome *Hemionitis Griffithii*, hitherto only found in Formosa. In one of the cave-like recesses behind a waterfall I found a semiaquatic *Asplenium* of filmy texture, pronounced by Dr. Hance to be quite new. The fronds are black-green when they are kept constantly wet by the spray. The fertile fronds are very difficult to find in consequence; it was only when the plants were temporarily deprived of their bath spray in the dry season that Nature strove to reproduce the plants by spores. It has graceful fronds from 8 to 16 inches long, with broad, drooping, truncate cuneate pinnae, and is closely allied to *Asplenium Viellardi*. Mett., from New Caledonia. I find that it is easily cultivated if regularly syringed, and if it can weather the trials of transport in a Wardian case it may yet find favour with Fern growers at home.

The vegetation of the rocks is wonderfully varied and interesting. High up in almost inaccessible shelves is the curious *Dischidia chinensis* exposed to the drought and fierce heat of a tropical sun. The dark green rosette-formed *Selaginella involvens* delights in a similar situation, but is also found in the shade between the rocks. The creeping *Pothos scandens*, *Psychotria serpens*, and *Hoya carnosus* spread thickly over the dry hot granite. Large masses of *Pholidota chinensis*, *Eria rosea*, *Coleogyne fimbriata*, and *Bulbophyllum radiatum* luxuriate in astonishing quantities on nearly every boulder. *Acampe multiflora* and *Cymbidium aloifolium* frequent earthy crevices. *Phaius grandifolius*, *Spathoglottis Fortunei*, *Arundina chinensis*, *Limnatis gracilis*, and other terrestrial Orchids, are plentiful among the long grass. *Cypripedium purpuratum* and *Goodyera procera* are occasionally met with in shady hollows.

In the present paper I can only venture to mention a few of the most striking of the trees and shrubs. They would require a volume to themselves. One of the most beautiful of these is a rare *Melastoma*—*Dis-*

socheta Barthii—now extinct in Hong Kong, but common enough at a height of 2000 feet on the neighbouring hills on the mainland. The lovely pink and white flowers are fleshy and wax-like, and form terminal clusters that frequently envelope the plant in a glow of delicate blossoms. I regret to find that it is difficult to propagate. Its apparently limited distribution endangers its existence, for, like many of the rare indigenous plants of the Chinese hills, it is rapidly disappearing before the extirpating axe of the woodcutter.

Another plant of pre-eminent beauty is the *Symplocos decora*, very rare in Hong Kong, but also fairly abundant on the hills of the mainland. It is a small evergreen tree, with dark green Holly-like leaves, and bears dense clusters of white blossoms, sometimes slightly tinged with azure-blue. A sprig of the blossom blended with the dark green leaves has a charming effect in a vase or a specimen glass, or in the hair of a ball-room belle. Such plants as *Photinia prunifolia*, *Stryx odoratissima*, *Homalium fragifolium*, *Magnolia Champinii*, *Turpinia arguta*, *Gordonia anomala*, *Gelsemium elegans*, *Camellia reticulata*, *Marlea begoniifolia*, *Viburnum odoratissimum*, *Eriobotrya fragrans*, *Melodorum glaucescens*, and *Enkianthus quinqueflorus*, make the ravines gay and fragrant with their flowers.

Two trees of very ornamental habit are *Cunninghamia sinensis* and *Podocarpus sinensis*. This latter plant was found originally by the Rev. E. Faber on the Lo Faw mountain, west of Canton, but was not then in flower. I subsequently found a solitary plant with male flowers on the top of Tai Mo Shan, and from my specimens Mr. Hemsley inadvertently named it, not knowing that Dr. Hance had previously named the plant. Quite recently I discovered a number of these plants on the island of Sintoa, west of Hong Kong, from which I hope to get female flowers this year. If it proves to be hardy the beauty of its foliage and the gracefulness of its habit would make it a valuable acquisition as a lawn tree. *A. B. Westland, Botanic Gardens, Hong Kong.*

(To be continued.)

BEES' WAX.

A WRITER on bees in the *Examiner*, a New York religious newspaper, says that bees make wax from honey. He must reason thus; honey sustains the bee, the bee produces wax, therefore wax comes from honey. Before the habits of bees had been studied, it was supposed that wax was collected from flowers, but later investigation shows that that wax is a natural secretion of the bee. It exudes from the body between the rings, in minute scales. These the bee takes in his "hands," works like a piece of dough, and places where it is needed. If comb building is in process, he deposits the piece of wax on the edge of a partly built cell; another bee then attacks it, gives it a twist or a pinch, and smooths it with his mandibles. Sometimes three or four bees will find something to do with that particular crumb of wax. The workers are so many and work with such rapidity, and do individually apparently so little, that the eye hardly perceives, in a short interval of time, that the structure, the comb increases in size, but close the hive, examine the same cell in an hour, and its greater length is seen at once. Evidently wax is present when it is wanted, and absent when there is no use for it. This may not be the case, but appearances favour it. If there be no more room in a hive for comb, no wax, or very little, is needed, but if an empty frame be placed in this hive, the bees begin at once to fill it with comb. If the bees secrete wax in a full hive, what becomes of it? Does the bee dislodge the wax scales on the wings? Sometimes these tiny scales are found in the bottom of the hive, but the quantity found there would build only a fraction of the comb built in one night if space is provided for it.

The wax as it comes from the bee is white, and the comb is white for a while, but the bees use no door-mat, and after 25,000 bees—6 feet a-piece make 150,000 soiled feet—have run over the comb, it becomes yellow, and finally black, or nearly so. Persons who have seen a comb from the brood chamber for the first time are surprised that it is not white—"like wax." The comb in the sample boxes remains white, or nearly so. The bees appear to be more careful in their spurs chamber, but as this surplus room is on the top of the brood comb usually they clean their feet as they ascend to it. But even

this comb would become soiled if left in the hive. On some hives thirty-two surplus 1-lb. boxes are placed, and on the top of these may be placed as many more, making sixty-four in all. The first lot put on are not taken off until the outside boxes are full. This allows the bees to run over many of the boxes after they are capped, and hence it would be better to place a less number of boxes in the surplus chamber, and remove before the comb may be soiled. But this would interfere with the theory that the more room the bees have the better they work, and the less are they inclined to swarm.

If the bees be fed liberally with honey or syrup, they secrete wax more rapidly. The amount of honey fed to produce a pound of wax is not less than 15 lb., hence at the present price of best honey, 25 cents, the cost of a pound of wax, worth to-day about 30 cents, is 3 dols. at least. Notwithstanding the apparent high cost, surplus wax in an apiary is a source of profit. Every bit is preserved, melted down and sold. There has never been too much bees-wax in the market although it is imported from foreign countries. Wax is insoluble in water, and may be melted in water and skimmed from the surface. Cooled in pans of any shape it is ready for the market. But the bee-keeper does not render into wax any comb that can be used again, and it is a very old and black piece that cannot be serviceable. Advertisements read, "Bees on straight worker combs." These straight combs are in harmony with men's ideas, and better for man's manipulation, but the bees may prefer a different arrangement. The writer purchased this spring black bees in a double box hive, that is, one box above another with passage-way between. The upper box was full of comb, and the comb was full of honey. On one side were three straight combs 12 inches wide, and 16 inches long, solid slabs of honey, but the rest of the comb, about two-thirds of the whole, was a labyrinth of alleys, passage-ways, vaulted chambers, and cuddly holes, from which it was difficult to drive the bees even with smoke. Two days after they had been expelled, lingering bees continued to appear. Their home was a most curious structure, and was evidently to supply just what was needed by a numerous household. *George A. Stockwell in the "New England Farmer."*

NUTRITION v. SEXUAL VARIATION.

MR. MEEHAN'S name is so closely connected with the above subject that aught he writes thereon is of more than ordinary value. Every one acquainted with living plants will at once admit the balance of facts to be as Mr. Meehan states them on pp. 600 and 601 of your last issue; but his citation of Hoffmann's paper in the *Botanische Zeitung* for 1885 makes the matter very interesting. It appears Hoffmann found that rich soil, or what is nearly the same thing—that is to say, thin sowing or planting of dioecious species—conduces to the preponderance of female plants, and that the reverse—i.e., poor soil or thick sowing—conduces to the preponderance of males. In the words of Mr. Meehan (p. 600), Hoffmann "sowed seeds of numerous kinds of dioecious plants closely together, so as to give little food to each plant, and the same plants thinly, so as to give each plant nearly all the food it could use." Where they were thickly sowed he counted 283 males to 700 females. In the well-fed (i.e. thinly sowed) lot there were but seventy-six males. This experiment throws much light on the question of sexual fertility in the garden, and accounts in some measure for the temporary success which attends the employment of restricting stocks for fruit trees, root pruning, or by planting gross habitued fruit trees, as Figs for example, in pots or enclosures of masonry, which by limiting their nutriment renders them more fruitful, and that at an earlier age than would otherwise be possible. But this experiment of the German savant interests me more than it otherwise would have done because I have evidence of the principle it involves and inculcates, having been observed and distinctly recorded long before Mr. Meehan and Professor Hoffmann were born. Before me as I write lies a beautiful copy of Thoreld's *Synopsis Stirpium Hibernicarum*, which was published in Dublin in 1727. It is interesting as having been written by Caleb Thoreld, M.D., a native of Cumberland, who settled and practised in Dublin later in the seventeenth century, and his work above mentioned is

generally acknowledged to be the first one ever published in the English language relating to Irish plants. Now, under the head of Cannabis mas, male Hemp, we find the following, which I transcribe as it is written, word for word:—"The male Hemp has the seed, the female only flowers, yet both are procreated from the same seed. The more attentive husbandmen observe that in a fat soil you have more plenty of male Hemp—in a lean soil more of the female; or where sown too thick and so wants nutritious juice it is female." It will, of course, be observed that Thoreld, following the customary language of his time, in reality transposes the sexes in his account, but this does not in the least invalidate his evidence, to wit, that the "more attentive husbandmen" of his day knew as much on this question of nutrition and sexual variability, as does Professor Hoffmann or we ourselves in the enlightened nineteenth century. What can we do to-day more than Jacob did nearly 2000 years before Christ?

Is it not in the thirteenth chapter of Genesis wherein we read that Jacob made a contract with Laban that he should have the speckled, ring-streaked, and spotted amongst the flocks for his own reward; and we read that, after he had culled out all the speckled cattle, he removed a three days' journey with the pure self-coloured herds, and he took rods of green Poplar, Hazel, and Chestnut tree, and partly peeled them, making "the white appear which was in the rods;" and he set these rods near to the drinking places, but he suffered the strongest and finest of the cattle only to drink near the rods, so that the stronger offspring should be his. Any one interested in nutrition and sexual fertility should read this early account of natural selection and predisposing causes of variation attentively, and they will see plainly that Jacob the herdsmen of 3000 or 4000 years ago was as "scientific" as most of us are to-day! Although we may smile in a good-humoured way at Mr. Meehan's innocent assumption that "to American botanists is mainly due the credit of the discovery that, whether a plant be male or female, or a flower on the plant be male or female, is a mere question of nutrition," yet we fully and freely acknowledge all that Mr. Meehan and his co-workers have really effected in the interests of American gardening. But can Mr. Meehan cite a single passage from an American author, or from any author on American soil, who alludes to this question of nutrition and sexual variability anterior to the year 1727? If not, we shall claim that the subject was first discovered by an English doctor of medicine practising in Ireland, and this only to have evidence brought forward that the thing was known to the Egyptians or the Phœnicians, or at least to the Greeks. It was only the other day that Mr. Carruthers told us at the British Association that the cereals of Egypt were as fine to-day as they were 3000 to 5000 years ago, and that the species of plants then common in Egyptian fields are there to-day practically unchanged! This may be true of Egypt, and not true of European kinds, and further the cultivated offshoots from these types may have become changed past recognition, as was the case with the Flax of the Lake dwellers of Switzerland as compared with the Flax of to-day. If it be true, however, it does not prove but that improved forms have been raised over and over again—raised, used, and improved and lost again during the whole period since cultivation first began.

Be this as it may, however, we have the testimony of the fossilised plants, which conclusively prove that both climate and vegetation changes during different epochs in the earth's history. Where are the living representatives of the gigantic Calamities and Lepidodendrons now? If I mistake not the fossil botanists do not, because they cannot, except in very few cases, refer the fossil species of the past to the living species of the present time! If this cannot be done, we have strict evidence of what we call evolution having taken place, just as we have ample evidence that it is taking place all around us to-day. The main fact to decide is, whether evolution takes place or not; and some day we may be able to compute the time necessary for such changes to take place. The cereals and pulse of ancient Egypt may have been very good examples, but no one, as I imagine, could prove that they are finer than the best of improved kinds as now grown in Europe and America. Even if this were true, the excellence of quality of the Egyptian corn might be traced to the fact of the cultivated land of Egypt being renewed every season by the annual overflow of the Nile. *F. W. Burbidge, F.L.S.*

Orchid Notes and Cleanings.

ORCHIDS AT MR. DORMAN'S, LAURIE PARK, SYDENHAM.

THERE are few more enthusiastic amateurs than the owner of this choice collection. November 5 is about the worst time in the whole year to look for Orchids in flower, but I was fortunate to find many plants in great beauty; the Pleione was past their best, but *P. maculata* was very fine; it is the best in the genus. *P. birmannica* is a very pretty and distinct free flowering species; the flowers quite distinct in colour, the sepals and petals being of a pale lilac or purplish colour, the lip pale lilac with a yellow centre. The peduncles are mostly two-flowered.

Oncidium varicosum, which must be classed amongst the very best of the yellow flowered species, was beautifully in flower. There was also a handsome flowered specimen of *O. Regeri*, the flowers of which were quite 2 inches across by measurement; the rich golden-yellow colour of the variety is most lovely. Before the recent importations of *O. varicosum*, this variety was very scarce. I have seen it grown in Teak baskets with 160 flowers on a spike. It may be asserted that all the *Oncidiums* succeed better in baskets than in pots.

The dwarf growing *Cattleyas* were particularly attractive, the best of them being some *C. marginata* of extra fine form. They vary much in colour and still more in the size of the flowers. One very richly coloured variety had flowers 4 inches across. In this variety the maroon-purple lip, with narrow white margin, affords a striking contrast to the pale rosy-purple sepals.

Another of the dwarf-growing type, with a distinct and lovely flower, is *C. dolosa* with rosy-purple sepals and petals, and a much deeper tinted lip. *Lælia Dayana* was also in flower, and is the deepest coloured one of all; the lip is rich purple-maroon. A rather taller growing variety than any of the above was also in flower, *L. Dormaniana*, this is quite distinct from any of the above although it may well be associated with them. It is supposed to be a natural hybrid, between *Cattleya bicolor* and *Lælia pumila*. The sepals are olive-green with dark spots, the lip rich maroon-crimson. All these dwarf-growing species do well in small baskets suspended from the roof, in which position they do not shade the plants below much, as their growths are small. The gorgeous *Cattleya Dowiana* was also in flower. This species is easily grown in the warm *Cattleya*-house, the only difficulty is in learning the knack of putting it to rest. The plants have such an obstinate tendency to start into growth as soon as the flowers fade, or even before, when it is better they should not do until they have taken at least three to four months' rest. Keeping the plants as dry and cool as possible is the only way to prevent it. Several plants of *Cattleya maxima* were furnished with flower-spikes. This is one of the most distinct and beautiful of all the *Cattleyas*, but few growers succeed with it. The right way to treat all these shy-flowering species is to place them close to the glass when they are making their growth, and afford them a decided season of rest and a season of growth. This may be ascertained as much by the active or quiescent state of the roots as by the appearance of the plants. Here is a fine group of *Lycaste Skinneri* alba, some four or five plants of distinct varieties of it in flower. They have pure white flowers, all of them, but differ in the form and in the density of colour of the yellow blotch on lip. Another lovely variety of *L. Skinneri* is in flower. The persistent character of this Orchid, and its easy culture, are strong recommendations in its favour. If those who have not succeeded with it would try leaf-mould in the compost, and a little very weak manure-water, when the plants are making their growth, they would probably have to note an improvement in the look of them. The quaint-looking *Catasetum Christyanum*, with its dark brown sepals and petals, the greenish lip, and singular profile, *Vanda Sanderiana* and many forms of *Cypripedium Spicerianum* were in flower in the warmest house.

The *Cool Houses* were not so plentifully furnished with flowers, but some few striking examples were noticeable, especially fine being *Ondoglossum Inseya splendens*, well furnished with flowers 4 inches across, on two strong spikes. *Cymbidium giganteum*, a good old species of very strong growth, was in flower; this species is well worth growing, if the houses are large, but it would be out of place in a small house. *Lycaste candida*, far inferior to the

white variety of Skinneri, was producing many of its much smaller flowers, which have greenish sepals and white petals. *J. D.*

THE BULB GARDEN.

NEW VARIETIES OF HYACINTHS.

IN recommending varieties of Hyacinths we have learned to be very cautious, because tastes differ. Most people think the largest bulbs produce the largest spikes. This notion is quite wrong. There is, for instance, Norma (single pink), one of the largest bulbs, but which has a spike of inferior size; and on the other side there is Souvenir de T. H. Veen (single dark blue-purple), one of the best varieties in its colour, producing a small bulb, and yet the spike is extra-

double one where two spikes are united together, imitating a single truss.

As to the choice of varieties we quite agree, but advise our correspondent to try another year a few varieties, seedlings of later years, such as Electra, a very pale blue, and the largest flower amongst all colours. When this variety was for the first time shown to us we counted 131 bells on the spike. We may also recommend him to try the Sultan, a very dark purple variety with a dwarf habit and pyramidal form, and Princess Louise, double, dark red, with beautiful large, flat bells, and for a double variety producing an exceptionally large truss. *J. H. Kerstien & Co., Florists and Seedsmen, Haarlem.*

ONCIDIUM SERRATUM.

THAT there is a close relation between flower-buds and leaf-buds is known to every botanist. When a

imbriated, and the result of the investigation has been to fully confirm the previous opinion which I held and expressed. In my somewhat long experience I have found many specimen Conifers suffering from causes which are, if understood, perfectly under control, and if more care were taken by those in charge, be they gardeners, foresters, or amateurs, we should have a much finer display of these ornamental trees. As it is, they are too often miserable specimens only of a magnificent family.

To obtain this success attention is needed in the smallest details and from the very earliest stages. It is seldom that a drooping and suffering specimen can be reanimated, and perfect symmetry and beauty can only be obtained when care is taken in the selection of the plant, the selection of the soil and site, and in the after treatment. It is the common practice to plant these trees and then to leave them



FIG. 121.—*CRATÆGUS PINNATIFIDA* VAR. *MAJOR*. (SEE P. 621.)

ordinarily large. In the *Gardeners' Chronicle* of the 6th inst. we find this variety marked as too popular, and the bulbs miserably small. We are sorry to differ from that opinion, as it was only in 1883 that this was exhibited as a new variety by Messrs. James Veitch & Sons at the Royal Horticultural and Royal Botanic Societies, and it was duly Certificated at both places not so long ago. That it cannot have become popular—and in no case too popular—we feel sure.

We quite agree with the writer, if this variety made a better bulb it would be a great advantage for the future demand for it; but we protest against the wrong practice of selecting only the large bulbs, making the best varieties to grow for show or for potting purposes. This variety never produces a "large" bulb, and even in potting for show purposes, we take care to pick out the smaller ones of this sort, as from our experience we are more certain to have one single truss, and this we prefer to a

student of plants sees the flower-stalk of a *Fourcroya* covered with little green buds instead of flowers he is not astonished beyond measure, and so the appearance of leaf-buds on the branching raceme of *Oncidium serratum*, or on the inflorescence of a *Phalenopsis*, is regarded as an unusual but not as a very marvellous circumstance.

In some cases this production of leaf-buds might be advantageous for propagating purposes. Our illustration (fig. 122) shows a portion of such inflorescence much reduced. It was kindly sent us by Mr. H. James, of Norwood.

TREES AND SHRUBS.

A POST MORTEM ON AN *ARAUCARIA* IMBRICATA (CHILI PINE).

I HAVE been recently called in to investigate the cause of death in a fine specimen of the *Araucaria*

uncared for, upon the supposition that Nature will do the rest; but there can be no more vain delusion than this. These trees require during their growth constant and liberal feeding, and in dry situations mulching, so that sufficient moisture may be retained and keep the fine root-fibres near the surface. The soil, too, must be drained, as this special species will not live long where there is a cold and retentive subsoil.

If such a well-selected specimen is planted and cared for during growth, the probability is that a fine tree will be obtained which will be a pleasure instead of an eyesore, "a thing of beauty" in fact, and a "joy for ever."

If, on the other hand, it is neglected, and in after years steps are taken to reinvigorate it, they will probably fail, even if wisely and scientifically carried out.

I have always held these views, and therefore was glad of the opportunity which offered to confirm them

It is seldom such occurs, as few are disposed to grub up a tree which still shows signs of life, but which nevertheless promises no attribute of beauty.

The tree in question was planted in the year 1851, and had developed into a symmetrical and really beautiful specimen. About four years ago it showed signs of distress, in the lower branches, and gumming set in. An effort was made by those in charge to check this by the application of pitch to the cancerous spot and by top-dressing, but without avail. The disease gradually increased and with greater celerity towards the end. It was evident that the tree no longer obtained nourishment from the roots, and was living only on its own inherent sap. Strange to say, this continued for over a year, and when the tree was felled, or rather grubbed up, the top was still alive and vigorous, the roots and the stem being not only dead but rotten.

The opinion I expressed was that the tree had thrown down a tap-root into a cold and wet subsoil, and also lacked nourishment at the surface. The latter cause I did not place much importance upon, for having lived so long there was no reason why it should not have continued in health had not the

which I have to some extent expressed already:—This tree, and most Conifers, will not thrive on undrained land, where the subsoil is wet and retentive. To reach perfection the soil should be a porous, friable loam, and if not so naturally artificial means should be taken to render it so. The tree by top-dressing at reasonable intervals, and by keeping the surface open, *i.e.* free from turf, should be induced to keep its roots and root fibre near the surface. As time goes on, a trench should be dug 2 feet deep round the tree, 6, 8, or 10 feet from the stem, according to size and age of the tree, and filled with new mould, enriched with a compost of leaves and well-rotted dung. In hot, dry weather the soil for some space round should be well covered with dead leaves or cut grass, so as to prevent too rapid evaporation. A good plan, too, and one that I believe would amply repay the trouble and expense, would be to plant the tree on a base of concrete about 2 feet in diameter; and further, I would plant the tree entirely in new soil, using none that was taken out. When trees of this sort are planted, the invariable object is to obtain a beautiful effect, and therefore no expense or trouble should be spared. *C. E. Curtis.*

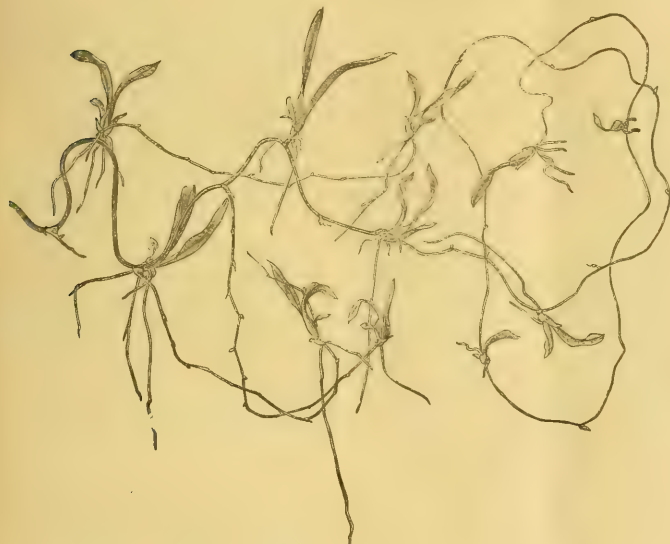


FIG. 122.—PROLIFIC ONCIDIUM: LEAF-BUDS PRODUCED IN PLACE OF FLOWERS. (SEE P. 620.)

tap-root assisted itself from lack of vigour in the lateral roots. On investigation, I found that the upper soil to the depth of about 2 feet was perfectly dry, so dry as to leave one in wonder as to where the nourishment had come from for so long. The roots in this had spread and were well developed, and at one time had evidently possessed much vigour, but were then dead. Digging deeper this came out like a tooth, and it is not a hyperbolic expression to say that it was dripping with moisture. The resistance it had met with had deprived it of its outer skin and left it perfectly white, which in itself proves the moist state of the subsoil. The root was fully 3 feet long.

The soil was a wet sour clay, containing veins of sand and gravel, such as is found more or less throughout the soils of the London and plastic clays, and when it is remembered that on the surface above this there was absolute dryness, it becomes a wonder how the tree had so long found nourishment.

It should be mentioned that gumming had by this time spread over the whole tree. On sawing through the trunk the timber was found soft and fibrous; and even if in health it would not have shown signs of value. I gathered from this investigation the following important facts, and from them have formed the opinions

THE COLORADO SPRUCE.

Under this name is designated the very beautiful blue Spruce, *Abies (or Picea) pungens*, the glaucous form of which was at one time called *Parryana glauca*. It appears from the collectors' notes that the seedlings from the same tree are of all shades, from very blue to dark green, so that it is necessary to select the best, and these naturally command a higher price than the green ones. The tree is quite hardy, and endures the most severe prairie winds at 40° below zero. There is a beautiful plant of this in Mr. Anthony Waterer's nursery at Knapp Hill. We do not know at present what soil suits it best, but we can testify that both the green and the glaucous variety do well as young plants on cold, stiff, wet clay.

*CRATEGUS PINNATIFIDA (Bunge) VAR. MAJOR, N. E. Brown, n. var.**

This is an exceedingly ornamental Hawthorn, of which I have received good fruiting specimens from Messrs. Veitch & Sons, who introduced it from Tartary some years ago. Its flowers in a fresh state I have not seen, but the dried specimens show them

to be of larger size than in many species; it is for the fruit, however, that this plant will be valued, as the berries are of larger size in this variety than those of any other (see fig. 121) in cultivation, and of a fine bright red colour.

There would appear to be two forms of *Crategus pinnatifida*, only differing, so far as I can tell, in the size of the fruit; one of them has small fruit about the size of that of the common Hawthorn or a little larger. This I take to be the typical form described by Bunge; the second form has large fruit, about three-quarters of an inch in diameter—this is Mr. Veitch's plant, and I propose to distinguish it by the varietal name *major*. The leaves of the typical form are often smaller, the lobes narrower, more acute, and frequently cut nearly down to the midrib; but sometimes the leaves are as large and in every respect the same as those of *major*, so that I am led to conclude that this is merely the effect of the different amount of nourishment received by the plants.

The variety *major* I suspect to be a cultivated state of the plant, as its large fruit is used to make jam and jellies, and on the label of one specimen, collected by Dr. Bretschneider, it is stated to be cultivated; another specimen of it, however, collected by Mr. J. Ross, has the following note on the label:—"Fruit of this wild Thorn grows as large as a Plum, acid-sweet, and much used for preserves." Both forms are natives of North America.

The fruits of Messrs. Veitch's plant are Pear-shaped, and this seems to be somewhat the form of the fruit of the dried specimens I have seen; but Koch states that the fruits are either globose or Pear-shaped.

The following are briefly the characters of *Crategus pinnatifida* var. *major*:—A tree with deciduous leaves, stipules large, falcate, acute, toothed, petioles 1½–2 inches long, blade of the leaf 2–3 inches long, pinnatifid, cut from one-third to one-half way down to the midrib into two to four pairs of broad, oblong, obtuse or acute lobes, with serrate margins; peduncles two to four flowered, clustered in terminal corymbs, 2–3 inches in diameter; flowers white, about three quarters of an inch in diameter; fruit Pear-shaped, an inch long and three quarters of an inch thick, bright scarlet-red [dull crimson?]; the eye is open and very deeply sunken, being one-third of an inch in depth. It is well distinguished from all other species of *Crategus* by the long petioles of the leaves, and very large fruit with very deeply sunken eye. *N. E. Brown, Herbarium, Kew.* [This is the plant, specimens of which were lately shown by Messrs. Veitch under the name of *C. tartarica*. ED.]

CRATEGUS LEEIANA.—When looking through a nursery at Downham Market, Norfolk, in October last, I observed a large Hawthorn tree full of clusters of big red berries, which I was informed was *C. Leeiana*. A beautiful ornament to the garden in autumn should not go unnoticed by planters. The Cockspur Thorn when full of its lovely red berries is very beautiful, but the subject of this note is even more so, being brighter in the colour of the berries. *R. C.*

TRADE NOTICES.

ORCHIDS AT MR. WM. BULL'S.

No better answer could be given to those who say that Orchids cannot be grown to perfection in the neighbourhood of large towns, than by pointing to the extensive and healthy collection at this establishment. As we pass through house after house filled not only with large quantities of those showy things which are in general demand, but also with a great variety of rare and curious plants not generally met with, and many of them very difficult to cultivate, we find them all in the best condition possible, clean, sound, and well-rooted; indeed, it is difficult to imagine plants more vigorous than those contained in Mr. Bull's collection, and especially in the large *Cratæa*-house, and that containing the many hundreds of fine specimens of *Odontoglossum vexillarium*, and *Oncidium macranthum*, which most growers would find it difficult to surpass even when their plants are grown in the most favourable and open parts of the country. In town the skill of the grower is no doubt taxed to the utmost, but nevertheless of all plants the Orchids seem to be the least particular as to locality.

In the *Cratæa*-house, which also contains the larger *Lælias*, L. Perrini, that useful November flower, still makes a show with some of the varieties

* *Crategus pinnatifida*, Bunge, in *St. Petersburg Mem. Savants Etang.* 1831, vol. ii., p. 100; *Trans. Russian Hort. Soc.*, 1862, t. 21; Regel, *Gartensflora*, t. 366. *Mespilus pinnatifida*, Koch, *Dendrol.*, vol. i., p. 152.

of *L. elegans*, of which *L. e. Mastersiana*, with its white sepals and petals and broadly expanded crimson lip, proves its superiority over the varieties of *L. e. Schilleriana*, and *L. e. alba* near by; the *L. anceps* too, of which there are many superb white varieties here, are coming in, among those prominent in bud being *L. a. Dawsoni*, *L. a. alba*, *L. a. venusta* and *L. a. Hilli*. Among the *Cattleyas* the *C. Trianae* are well furnished with rising buds, the fine varieties *C. T. princeps*, a very massive dark crimson-lipped variety; *C. T. virginale*, the finest white; *C. T. Imperator*, an improvement on *Russelliana*; *C. T. Victoria*, with white sepals and petals and crimson lip; and *C. T. tyrianthina*, a rich medium-sized flower, being well advanced. The *C. Mendeli* and *C. Skinneri* are well furnished with flower-sheaths, the latter especially so; and the *Laelia purpurata*, of which some grand masses of the true old type are here, are equally well set for flower. In this house a number of plants of *Angreecum sesquipedale* are always to be found in good condition, and the fact is worth recording, as some think it will not grow with *Cattleyas*. Some *Aërides*, *Cattleya aurea*, and *Ansellia africana* are also in bloom. In the vexillarium-house before alluded to is a fine lot of specimens of *Odontoglossum Phalenopsis*, a large lot of *Pilumna fragrans* and *P. nobilis* in bud; and in flower some fine sprays of *Odontidium varicosum*, *Masdevallia tovarensis*, *Vanda cœrulea*, *Odontoglossum ciriosum*, and a number of varieties of *Lycaste Skinneri*, including five of the best varieties of the pure white *L. alba*, one of them having five flowers open—a superb plant.

In the next two warm houses we found in flower *Trichocentrum albo-purpureum*, *Cattleya superba*, many examples of *Odontidium Kramerii*, *O. pumilum*, *Aërides Lawrencei*, a fine lot of *Odontoglossum Rozellii*, including the pure white and the dark violet-marked form, called *nigrum*; *Cypripedium Lawrenceanum*, some of them superb forms; *C. selligeroi*, *C. concolor* *Regnerii*, *C. Spicerianum*, *C. Godefroye*, *C. barbatum biflorum*, *C. barbatum pulcherrimum*, the scarlet *Habenaria militaris*, *Polystachya hypocyrtica*, *Angreecum Leonii*, *A. citratum* (numbers showing flower), *Warrea tricolor*, *Houlletia odoratissima*, *Lycaste plana alba*, *L. Burrittii*, *Calanthe Mylami*, *C. veratrifolia*, *Phalenopsis Stuartiana*; a pretty group of *Cattleya luteola*, another of the blue *Tillandsia Lindenii vera*, and a robustly grown batch of the true white *Cœlogyne cristata* *hebeleuca* or *alba* with strong flowering growths.

The intermediate-houses have a good show of bloom, in which the quantities of *Odontidium tigrinum* and *O. pretectum* are prominent; with them are well-flowered plants of *Miltonia Moreliana*, *M. spectabilis* *bicolor* (just over), *M. candida*, *Odontidium cheiroporum*, *O. unguiculatum*, *Cypripedium Schlimii*, *Odontoglossum canarinum*, *O. ramosissimum*, *Laelia pumila*, *Cœlogyne ocellata* and *C. ocellata maxima*, which latter is twice the size of the former; *C. Massangeana*, *Dendrochilum Cobbianum giganteum*, a fine and fragrant plant—the best of the *Dendrochilums*; and a glowing scarlet group of the best strain of *Sophronitis grandiflora*, which cannot be overrated as a charming winter flower.

The occupants of the cool-houses again call for remark as to their vigour, the long house of *Odontoglossum Alexandræ* and its hybrids, and the others filled with *Masdevallias*, &c., being up to their very best. Few collections can boast such a large quantity of fine old specimens of *O. Alexandræ* and *O. Pescatorei* as this, some of the plants having been grown on here from the earliest importations, and many of them are large established plants. The advantage of these strong bottoms is seen in the strength of the flower-spikes and the size of the flowers of such of them as are in bloom. Besides the white flowered *Odontoglossums* in bloom is a neat group of *O. Rossi majus*, several of the true *O. Inseleyi leopardinum* and *O. I. splendens*, some *O. grande* and *O. Uro-Skinneri*, a dozen or so well-flowered plants of the pretty and delightfully fragrant *Trichosea suavis*, *Pleuronthallis Barberina*, *P. veluticulis*, *Epidendrum vitellinum majus*, *Sophronites cœnea*, some *Mesaspidium vulcanicum*, very useful for its bright magenta-crimson colour; many varieties of *Masdevallia ipea*, also useful for their glowing orange-scarlet tints; *M. Wallisii*, *M. peristeria*, *M. Veitchii*.

The approach to the older houses, through the conservatory filled with Palms and Tree Ferns,

and now brightened with *Chrysanthemums*, is well worth lingering in. The houses themselves contain *Vandas*, the *Cymbidiums*, and others, mostly of the stronger growing kinds, all the plants being clean and healthy, and most of the houses have some flower. In going round we noted in bloom good batches of *Odontidium Papilio* and *O. Kramerii*, *Phalenopsis Esmeralda* and *P. amabilis*, *Vanda suavis*, and in the same house a grand lot of *Chatsworth* and other varieties of *Cœlogyne cristata*; several *Cymbidium Masterii*, a lovely white winter flower; *Maxillaria grandiflora*, *Odontidium excavatum*, *Cypripedium Haynaldianum*, *C. Sedeni*, *C. insigne Chantini*, and *C. insigne var. maculata*, a form intermediate between *C. i. Chantini* and *C. i. var. albo-marginata*; several of the fragrant, clear yellow *Mormodes pa-dinum unicolor*, *Dendrobium bigibbum*, and the first *D. Wardianum* we have seen this season.

We were also tempted into the new plant houses, but as space will not allow our even attempting a passing notice of the many handsome things contained therein, we content ourselves by reiterating the opinion we have formerly expressed respecting the rich and brilliant crimson-scarlet *Impatiens Hawkerii*, and the lovely *Aristolochia elegans*, which appear to be two of the most acceptable and generally useful plants of recent introduction.

CHRYSTANTHEMUMS AT MESSRS. VEITCH & SONS.

The sections of this group grown here are mainly the Japanese and the incurved, with another non-descript class, for which a denomination is wanted—we allude to hybrids of Japanese and incurved varieties, that possess the characteristics of each. The plants are dwarfier than we have noted them in former seasons, and are well furnished with foliage and flower.

A large span-house was set apart for the principal exhibition, and a line of plants stood right and left of the path in the Camellia corridor. Plants of 1885 noted were *Rosy Morn*, a flesh-coloured reflexed variety; *Madame Melanie Fabre*, light rose, and very pretty; *Sievens' Maiden's Blush*, almost too white to be called by such a name; *Bras Rouge*, a flower of deep crimson and golden centre florets; *Souvenir d'Haarlem*, *Mrs. Horsfield*, a large blush incurved, like *Globe* in form, from which it is a sport; *Fleur de Bois*, a deep chestnut-brown, with well reflexed florets, and *Mrs. J. Laing*. The plants of 1886 observed in bloom in the larger collection, and which possessed in most instances well-grown flowers, were *Mons. H. Elliott*, a bright coppery Japanese; *M. Paul de Tours*, a reflexed flower, large, white, with flesh-tipped florets; *Madame la Marquise de Mun*, a lilac reflexed Japanese, very pretty; *Mad. Mathisson*—a fine white Japanese, of much substance that will make a good show flower; *Ornament*, of rich chestnut-red, a Japanese; *Souvenir d'Angeli Amiel*, of the same class, a good thing in white; *Buttercup*, previously mentioned amongst certificated flowers of the year, a rich pure yellow; *Mr. T. S. Ware*, with terete florets, standing out at right angles to the centre, giving it a starry not unpleasant appearance; *Salmones plena*, salmon-pink; *Ruy Blas*, a golden-brown Japanese with florets yellow tipped; *Jupiter*, a bright crimson with gold tipped florets—a well reflexed Japanese; another of this section is *White Ceres* with semi-terete florets; *Mrs. G. Weldon*, a mauve-coloured flower, pretty and full, with florets like those of *Gaillardia Lorenziana*, making this a very distinct variety; *Lady Rosebery*, of beautiful pale rose, also of the Japanese class; and a white sport from *Mad. C. Audiguier*, similar to that in all respects but colour. Two new ones of *Mr. Salter's* raising—*Irene*, a white flower, and *Janira*, of a deep magenta colour, both reflexed Japanese—are desirable sorts. The brilliant golden *Phoenix*, a plant sent out in 1885, was noted in fine flower, as well as many others that are now well known to *Chrysanthemum* growers.

THE ALLUVIAL MANURE COMPANY.

Two samples of the portable manure manufactured by the above company (Market Buildings, 26, Mark Lane, E.C.) have been forwarded to us, which seem to be in an easily applied form. Of the value of the manures we cannot speak, nothing but comparative trials being of any use in testing such materials. We think it is most essential to state the maximum quantity per square rod or acre that should be applied, otherwise serious losses can ensue.

FORESTRY.

NOTES FROM THE COLONIAL EXHIBITION: THE CANADIAN COURT.

(Continued from p. 559.)

THE TULIP TREE.—Amongst the several examples of hardwood timber exhibited, and such as are of particular interest to the British public are the *Tulip-tree* (*Liriodendron tulipifera*), the *Batternut* (*Juglans cinerea*), the white Birch (*Betula alba*), the American Chestnut (*Castanea vulgaris*), and the black Cherry (*Prunus serotina*).

Judging from the specimens of the *Tulip tree* wood here shown one would be led to form a very decided opinion not only of its beauty for the cabinet-maker, but from its firm close-grained texture that its durability would be great. It is very pretty in appearance, remarkably elastic or easily bent, close grained, and lasting, and from which good qualities it is largely used for the finer classes of furniture, for fancy articles, such as desks, boxes, &c., while for panelling and interior work generally it is always used where procurable. From the numbers of fine trees of the *Liriodendron* growing in this country their rapid growth and indifference to any particular soil, combined with the valuable qualities of the wood produced in its native country, should be a warning to us English to plant more extensively than we have hitherto done, so ornamental as well as useful a timber-producing tree. The cost of young *Tulip trees*, fit for immediate planting is not by any means exorbitant, for if taken in quantity, we find that they may be purchased from some of our home nurseries at the trifling cost of rather less than 6d. each.

THE CHESTNUT.

Between the wood of the American Chestnut and that of the best quality produced in this country, I could detect but little difference, indeed I am now inclined to believe from the results of a chat over the matter with a Canadian friend, that our own is the superior. That produced in Canada is usually coarse-grained, but in appearance little different from our own, always very durable, but everywhere difficult to season so as to prevent warping, when converted into boards. It is extensively used for cabinet-work, for railway purposes, and, hereabout's at least, in the making of coffins. For this latter purpose it is in great demand in Wales, and not unfrequently substitutes Oak, though the expense in connection with timber and workmanship are but little different.

CHERRY WOOD,

of which two kinds are exhibited, looked much like that of our native *Gean tree*, being of a light yellowish-red colour, susceptible, from its firm texture, of a fine polish, easily worked, and free from warping. Being rather scarce the wood of the *Cherry* is rarely seen in use, although in the more expensive class of furniture it is frequently employed. The prettiest and evidently the most useful of the Canadian kinds was *Prunus serotina*, or, as it is usually called, the *Waney Cherry*.

THE BUTTERNUT

is, when grown in this country, as well, indeed, as in its Canadian home, a very ornamental as likewise useful timber-producer, although in this respect it is far behind the Black Walnut (*Juglans nigra*), a tree now so commonly cultivated in our own country. For wainscoting, cabinet-making, and various other uses, the wood of the *Butternut* is still in demand, but not nearly so much as in the black form.

This latter is now getting extremely scarce, and sells at a high price in most countries, and it is no uncommon thing to see bands of men going about in various parts of America, where this tree was once fairly abundant, grubbing up the gaired and twisted roots and stumps for veneering purposes.

For the War Department of this country we annually import large quantities of Walnut timber from the Continent, but it is to be hoped that warnings issued long ago will have caused considerable tracts of this tree to be planted, and so lessen, in years to come, foreign importations. We might here advise intending planters of the Walnut not to do so unless in ground of fairly good quality, else failure and not success will crown the effort.

Dampish loam of the very best quality produces the finest Walnut timber, this no doubt, having much to do with the present scarcity of the tree. *A. D. Webster.*

(To be continued.)

The Flower Garden.

PLANTING TREES AND SHRUBS.

THE planting of deciduous trees and shrubs should now engage attention; choose dry weather for the operation, for if the soil clings to the spade and feet it is not in proper order for working. Avoid deluging the soil after planting at this season, it is both unnecessary and detrimental to plants in the open ground. Rhododendrons will not thrive on some soils, and special provision has to be made for them. Wherever chalk and lime abound it is useless to attempt growing these plants without peat and leaf-mould; they will, however, succeed in most loamy, sandy soils that are free from these, if a liberal addition of leaf soil be mixed with the staple. In unsuitable soils it is best to elevate the peat beds considerably above the ground level, and afford ample drainage for the escape of water; as this, when it passes over chalk soil, contains a proportion of lime in suspension. Any ornamental trees and shrubs which are not growing satisfactorily may be improved by cutting a trench 2 to 3 feet wide round them at the extremity of the branches, removing the bad soil to the depth of 2 feet, loosening the subsoil to the depth of a foot and leaving it loose. Fill up with good soil, or a liberal top-dressing may be given by pricking the soil with a steel fork from the top of the roots and clearing it away, and then adding a foot of good rich soil; but preference should be given to the former method, as the roots find ready access to the fresh compost, and however carefully the operation of removing the old soil from the top may be carried out, a certain amount of injury is sure to be done to the roots, besides they do not benefit to the same extent as by the former method.

COLD FITS.

Auriculas.—These must be constantly examined to see that they are not suffering from damp; alpine plants being generally impatient of any stagnation or excess of moisture.

Carnations and *Pinks* should have all the decayed leaves removed. Embrace the opportunity of every sunny breezy day, when the wind is not very cold, to remove the sashes wholly from the foregoing, in order to dry up all superabundant moisture; the hardy subjects sustain far less injury from a few degrees of frost than from damp. On dull days, when there is no fog, the sashes may be raised above the framing altogether, by laying a piece of lath at the top and one at the bottom on the framing, and placing the sashes on the top; this is preferable to simply lifting the sashes at the back.

HERBACEOUS BORDERS.

These should now be cleared of dead flower-stalks, which should not be cut too close to the ground, as during the winter they gather amongst them fallen leaves, which afford protection from frost, as well as ward off heavy rains, especially valuable in the case of Lilies. It is also a good time to transplant herbaceous plants, and also to arrange the borders, as the hardy bulbs are in a dormant state, and less injury is done to the roots. Let the borders be well manured and trenched previous to replanting. *W. M. Baillie, Luton Hoe Gardens.*

PLANTS AND THEIR CULTURE.

THE STOVE.

IN most plant stoves a miscellaneous collection of stove plants is grown, some requiring to be resting, others not, while a portion may still be flowering; it then becomes a difficult matter to manage and keep the house in a healthy state. *Clerodendrons*, *Bougainvilleas*, *Allamandas*, *Aristolochias*, and other plants that are partially deciduous and of a twining nature will take no harm by being kept without water for several weeks; so may also *Hoyas*, *Combretums*, *Medinillas*, *Stephanotis* be kept dry for a time and it will not hurt them if the leaves droop and get a little flaccid. If a larger number of plants be grown than can be accommodated with good positions in the house, the earliest flowering ones may be cut down and placed in less prominent places, when they will supply a quantity of cuttings at an early date, then the old plants may be thrown away. As soon as the early bloomed plants are out of flower other plants should be put in the vacated

places. When the *Gardenias* are about to burst their buds a little bottom-heat will assist them in producing flowers. *Gardenias* should now be brought on in a brisk heat of 70° for later flowering, keeping the plants as near the glass as possible; *G. intermedia* is much the best variety for general purposes. The plants of *Eucharis amazonica* which were put into heat early last month should now be throwing up a fine lot of bloom. A successional lot of plants which have undergone a moderate rest, if put in the forcing-house, will result in a fine show of bloom at Christmas. *Buvardias* of the single and double kinds should now be in full bloom; keep them as near to the glass as possible without actually touching it. To have these to flower freely through the winter they must have a high temperature, and be occasionally watered with manure-water. *Cactus* and *Epiphyllums* that made their growth early will now be showing flowers, and should be kept in a light position; they should come on slowly. *Aphelandras* deserve to be grown generally, as during the next month they are the most showy of plants; they are of little use for cutting, but that is not a misfortune, as they continue to expand fresh flowers for many weeks if the heads are left on the plants. *A. Evans, Lythe Hill, Haslemere.*

FRUITS UNDER GLASS.

FIG-HOUSES.

THE trees in these structures should be got in readiness for forcing without delay, beginning with the trees in the earliest house, and finishing with those in the latest. In pruning the trees cut out as many of last year's shoots as will make room for a like number of those of this year's growth being retained to cover the wall or trellis at 6 inches apart, selecting, of course, for this purpose those shoots which are best furnished with embryo fruits. Care must be taken in washing the shoots with a soft brush and soft-soapy water not to injure these in doing so. The interior of the Fig-house should be cleaned in the way recommended for Peach-houses, and the same remark applies to the surface-dressing of the border. In many places the early crop of Figs is secured from plants grown in pots plunged in a bed of fermenting leaves in a forcing-pit, in which case the surface soil to the depth of 2 or 3 inches should be removed, and be replaced with some of the same description as that recommended for top-dressing Peach borders, prior to plunging the pots, when sufficient tepid water to thoroughly moisten the ball of earth and roots should be given to each plant. Aim at a night temperature of from 50° to 55°, 5° or 10° higher by day with fire-heat, and 10° higher by sun-heat. Damp the trees more or less, morning and afternoon, on bright days. *H. W. Ward, Longford Castle.*

HARDY FRUIT GARDEN.

PLANTING, AND SORTS TO PLANT (Continued).

Apricots.—These to be a success should be planted on lands having a 'south or western aspect, the trees being well protected by blinds, or some other substitute, when in bloom, until a good set of fruit has been secured, and the foliage has grown sufficiently to shelter the young fruits; good varieties are *Frogmore Early*, *Hemskirk*, *Large Early*, *Moor Park*, *Royal*, and *Sorrell's Late*.

Cherries.—In woodland districts it is impossible, without the protection of netting, to preserve the fruit upon the trees until thoroughly ripe. As the trees accommodate themselves to any situation or aspect, providing they are planted in a good soil, they will repay some space on the cooler aspects of walls, or the erection of a trellis, where the trees can be easily netted over when the fruit commences to change colour. Fine varieties are *Belle d'Orleans*, *Frogmore Early*, *Governor Wood*, *Early Rivers*, *Werder's Early Black*, *Kentish Bigarreau*, *Black Eagle*, *Bigarreau Napoleon*, *Black Circassian*, and *Morello*.

Currents worth cultivation are, *Red Dutch* and *Ruby Castle*; white varieties, *Cut-leaved White Dutch* and *Transparent White*; black varieties, *Baldwin's Black* and *Lee's Profific*.

Figs.—It is useless to attempt the cultivation of these out-of-doors unless in the most favourable

aspects, and in well-drained and naturally warm soil. The following varieties are the best:—*Brown Turkey*, *Brunswick*, and *Broughton Place* is also said to be a good one out-of-doors.

Gooseberries.—Although not much appreciated by man on the dessert-table, some of the large Lancashire berries, when eaten just at the right time, are most refreshing. The worst part of this class of Gooseberries is that most of the bushes of the best varieties have such a trailing habit of growth, necessitating their growth on long stems, if of the bush shape, or on trellises or walls. Purchasers wishing to grow these as ordinary bushes would do well to pay a visit to the nursery, if not acquainted with the individual varieties, and select those of upright growth. The straggling sorts do very well tied to stakes like pillar roses.

Nectarines.—As in the case of Peaches, some of the varieties are subject to mildew, and are also too tender for profitable outdoor cultivation. The following varieties do well here:—*Elruge*, *Hardwick Seedling*, *Violette Hative*, and *Lord Napier* for a first early.

Peaches.—A good selection for succession:—*Alexander*, *Early Louise*, *Early Alfred*, *Royal George*, *Dymond*, *Violette Hative*, and *Walburton Admirable*; *Violette Hative* and *Dymond* are the best for extensive planting.

Plums.—Culinary sorts of good quality are *Rivers' Early Prolific*, *The Czar*, *Victoria*, *Mitchelson's*, *Belgian Purple*, *Pond's Seedling*, *Diamond*, *The Farleigh Prolific Damson*, *Wyedale*, *Belle du Septembre*, and *Grand Duke*. Dessert:—*July Green Gage*, *Dennison's Superb*, *Transparent Gage*, *Green Gage*, *Jessons's*, *Kirk's*, *Washington*, *Reine Claude de Jaffray*, *Iceworth Imperatrice*, and *Coe's Golden Drop*. The last-named should be planted extensively on different aspects. *G. H. Richards, Somerby, Ringwood.*

The Kitchen Garden.

GLOBE ARTICHOKE.

FOR protection some light material, such as bracken or straw litter, should be placed around the base of the plants, having first removed the old flower-stems, dead leaves, &c.

CAULIFLOWERS.

In cutting should be gone through every two or three days, and the leaves broken down over them as a protection against light sudden frosts, which are apt to discolour the flowers and render them unfit for use. In the event of anything like a severe frost setting in, all plants showing heads should be lifted with good balls attached to them, and planted in deep frames, where they can be effectually protected; further, all the more fully developed ones fit for consumption can be cut with most of their leaves and stem attached, and placed in a cool shed, or cellar, where they will remain fresh and fit for use for several weeks. Any that might possibly become withered or flabby should be immersed in water a few hours prior to being used. Young plants of these intended for spring work, either in frames or handlights, cannot be too much hardened, and should therefore be fully exposed, and have abundance of air at all times, excepting in frosty weather.

GENERAL WORK.

Any contemplated alterations or improvements in the shape of draining or otherwise should be carried out at once; all digging and trenching should be pushed on, the sites for the principal main crops of next season decided on, and the ground prepared accordingly, bearing in mind that, as a rule, all roots should be grown on ground deeply dug or trenched, and which has been manured for the previous crop, whilst for *Cauliflowers*, *Cabbage*, *Peas*, &c., it cannot be too heavily manured. In the frame ground, for hotbeds and other purposes, should be collected a good heap of fermenting material, consisting of leaves and stable litter; these, after being thrown together and mixed, can be occasionally turned over and thus rendered ready for use.

SALADS.

For this purpose sow *Mustard* and *Cress* in shallow boxes that can be easily moved, continue to bleach *Endive* and *Chicory*, and keep full grown *Lettuces* in frames dry, with plenty of air. Any spare frames may still be utilised for planting *late Lettuce* and *Endive* in. Sow a few *Cucumber* seeds in small pots in heat, to raise young plants for very early planting, also another batch of *French Beans*.

POTATOS.

Where early varieties are grown in pots or boxes, some sets should be placed in shallow boxes, lightly covered with leaf-soil, and placed in heat to assist them to start previous to planting. *John Austin, Willey Court.*

Appointments for the Ensuing Week.

SHOWS, &c.

MONDAY, Nov. 15.	Sheffield and Hallamshire Gardeners' Chrysanthemum (two days). Putney Chrysanthemum (two days). Southend do. (two days). Winchester do. (two days). Brighton do. (two days). Watford do. (two days).
TUESDAY, Nov. 16.	Devises do., in aid of the Gardeners' Royal Benevolent Institution (two days). Teddington do. (two days). Twickenham do. (two days). Caterham Chrysanthemum. Ascot, Sunningdale, and District do. (two days). York do. (three days). Bristol do. (two days). Newport and County do. (two days). Royal Horticultural Society of Ireland Chrysanthemum. Hitchin do. Taunton do. Chiswick do. Hull and East Riding do. (two days). Wimbledon and District do. Sheffield and East Riding Chrysanthemum (two days). Putney Chrysanthemum. Ramsbottom Floral Society. Kettering Chrysanthemum.
WEDNESDAY, Nov. 17.	
THURSDAY, Nov. 18.	
FRIDAY, Nov. 19.	
SATURDAY, Nov. 20.	

SALES.

MONDAY, Nov. 15.	Sale of Dutch Bulbs, at Stevens' Rooms. Sale of Dutch Bulbs and 3000 Lillium auratum Bulbs, at Protheroe & Morris' Rooms. Sale of Nursery Stock, at Friggs' Nursery, Lewisham, by Protheroe & Morris. Sale of Bulbs, Roses, &c., at the City Auction Rooms, Gracechurch Street, E.C., by Protheroe & Morris.
TUESDAY, Nov. 16.	Sale of Nursery Stock, at Cooper's Hill Nursery, Erox, Chertsey, by Protheroe & Morris. Sale of Nursery Stock, at Pennett's Nursery, Tottenham, by Protheroe & Morris. Sale of Dutch Bulbs, Roses, Fruit Trees, and Border Plants, at Stevens' Rooms. Sale of Plants, at Protheroe & Morris' Rooms. Sale of Greenhouse Plants, at the Nursery, Harold's Wood, by Protheroe & Morris. Sale of Orchids in Flower and 5000 Lillium auratum from Japan, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Sale of Fruit Trees, Plants, and Stock, at Laxton's Nursery, Gifford, Sandy, Beds, by Protheroe & Morris. Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY, Nov. 17.	
THURSDAY, Nov. 18.	
FRIDAY, Nov. 19.	Clearance Sale of Plants, &c., and Sale of the Lease, at Chesterman's Nursery, The Mead, Child's Hill, N.W., by Protheroe & Morris. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
SATURDAY, Nov. 20.	Sale of Dutch Bulbs, Roses, Fruit Trees, and Border Plants, at Stevens' Rooms.

Horticulture and the Colonial Exhibition.

THE close of the Colonial and Indian Exhibition, the most generally popular of a series in which all have been more or less successful, suggests some thoughts as to the relation of horticulture in general, and of the Royal Horticultural Society in particular, to these exhibitions. The first of the series—the Fisheries—had little direct relation to horticulture. The all-comprehensive Health Exhibition was more nearly concerned with our art, and from an educational point of view was probably the most important of the series. The Inventions Exhibition contributed but little to horticultural science or practice, or, to put it in the reverse way, horticulture contributed comparatively little to it. The Colonial Exhibition

was different. In that the practical relation of cultural arts and cultural science was more marked. No one can have visited the magnificent exhibits made by Canada, by India, and the various colonies without being impressed by the vastness of the interests with which horticulture, in a broad sense, has to do. The splendid series of timbers from all the colonies, the magnificent displays of cereals, of fruit, of food-products, of substances used in medicine and the arts, must have impressed the dullest with the importance of the practical application of botanical science. The welfare of the home country, the prosperity of the dependencies, was shown in the most conclusive manner possible to be bound up with the progress of botanical science and its applications. Even from the point of view of decorative horticulture—the most showy and the most popular, though intrinsically the least important of all—the show now closed has been most remarkable. Week after week the finest products of horticultural skill, the most remarkable examples of horticultural enterprise, have been put before the public.

We need not stay to mention in detail the persistent efforts of such men as Messrs. WARE and BARR, or the intermittent exertions of those who have contributed so much to the success of the fortnightly displays. Nor need we do more than mention the suggestive exhibits made from time to time by the various colonies. These have told their own tale. From the standpoint of pure science, again, much, very much has been done. To give one illustration only, we may allude to the geographical exhibits of the several courts—New Zealand, the Australian, and South African Colonies. In the conservatories attached to these colonies most instructive lessons in botanical geography have been offered to those who would or could take advantage of them. For many years this phase of the matter has been dealt with at Kew, and if, so far, we have not had a special geographical exhibit, such as that carried out with so much success at Copenhagen by Mr. HANSEN, we have at least had this year an exhibition which more than any other has shown the resources of our Colonies in the way of practical and decorative horticulture, an exhibition such as the world has never before seen.

The Royal Horticultural Society, the acknowledged representative of horticulture in this country, has, no doubt, done much, but we cannot say that it has risen to the level of the magnificent opportunities afforded to it. The Royal Horticultural Society undertook the preservation at Chiswick last winter of many of the plants exhibited. It had a large share in the arrangement of those courts which formed such delightful oases in the midst of the "dry goods stores," and specially it had the superintendence of that series of fortnightly exhibitions which most assuredly contributed so much to the enjoyment and instruction of the visitors. Our readers will know and will appreciate this, but the general public knows little of, and probably cares less for, the part played by the representative Society.

Here it is that the deficiencies of the Society become most apparent. With splendid opportunities it has done comparatively little to impress upon the public the vast importance of botanical science and its applications. Surely this Exhibition afforded an opportunity of demonstrating and driving home to public intelligence the enormous influence of horticulture, taken in its broadest sense, as a factor in the prosperity and welfare of nations. Those who know all the circumstances of the case will be the last to blame the Society, but they will necessarily be those who will the most regret its inability to thrust horticulture prominently before the public and show it in its true position as one of the very foremost factors

in developing the wealth and the physical and material welfare of the people. The show as a show left little or nothing to be desired from this point of view, the deficiency becomes apparent when we see how little was done to utilise the lessons afforded by the show. We learn much, very much, by the eye, but the eye requires training, and the intelligence requires to be awakened, so that the lessons put before the eye may be turned to good account. We cannot say that this has been done. Even the lectures and conferences which were held had comparatively little reference to the varied and multifarious influences of plant culture, and of the knowledge of plants.

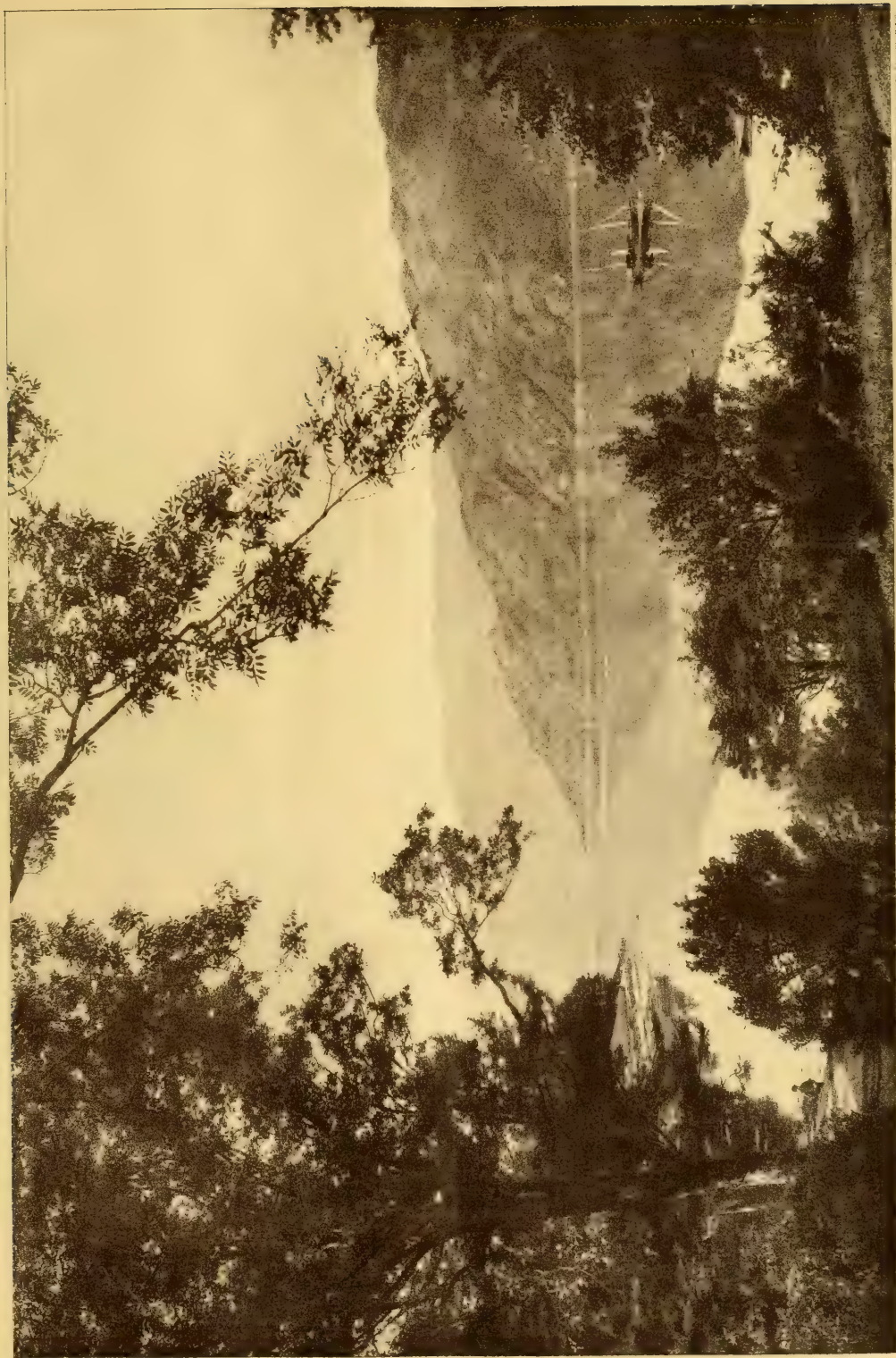
It was a great show truly, but the showmen were neither numerous nor impressive. The literature of the Exhibition, excellent as it was in many ways, was defective from the point of view of horticulture. There has been no general statement of the principles of culture as affected by diversities of climate and controlled by special requirements; there has not been any general survey of the vast resources derived from the vegetable kingdom—such a survey as would naturally come within the purview of the Royal Horticultural Society. We should not have alluded to this matter were it not for the possibility that a portion at least of the present Exhibition will be continued next year. The feeling that a Colonial Institute of some kind should be the natural outcome of this Exhibition is, we believe, general. No one knows for certain, we believe, whether such an Institute will really take shape; no one knows for certain where, if at all, it will find a home; still less can any one forecast the future of the Royal Horticultural Society; but whatever be its fate, wherever its lot may be cast, it is, to our thinking, all-important that the vast importance of practical and scientific horticulture should be brought to the front. When we consider how vast are the interests concerned—nothing less than the supply of the largest share in the food, clothing, residence, and enjoyment of the human race in all climates and in all stages of civilisation—we must admit that the part at present taken in this vast work by the Royal Horticultural Society, and by its sister societies, is pitiful indeed. May the lessons of the Colonial and Indian Exhibition be taken deeply to heart for the profit and advantage of the people.

— THE "GARTENFLORA."—We are informed that this journal, so long edited by Dr. REGEL, and lately by Professor ENGLER and Herr STEIN, of Breslau, is to become the organ of the Verein zur Beförderung des Gartenbaues in d. K. Preussischen Staaten, and will be incorporated with the *Deutsche Garten Zeitung*, under the editorship of Professor WITTMACK. Drs. REGEL and ENGLER will still render assistance as contributors.

— CHRYSANTHEMUMS AT BEECHWOOD PARK, HERTFORDSHIRE.—Mr. GREENFIELD has again kindly consented to show his Chrysanthemums to the public during the ensuing week—15th to the 20th. The collection consists of the most beautiful varieties. Between 500 and 600 plants are grown, including a good number that are trained, which add very much to the interest in the collection.

— PIGEON POST.—M. ERNEST BERGMANN narrates that M. HOOIBREKX, of Hielzing near Vienna, makes pigeons answer the purpose of the telegraph or telephone. Every morning the birds are taken from the suburban nursery into Vienna and if in the course of the day a demand arises for cut flowers or plants from the nursery, the pigeons are despatched with the message from the town. What a pity the pigeons cannot take back the plants too?

— THE AUSTRIAN SCHOOL OF HORTICULTURE.—M. ERNEST BERGMANN contributes to the *Journal de la Société Nationale d'Horticulture* an account of the Austrian Horticultural Society of Vienna. The most interesting part of M. BERG-



THE PHOTO. COURTESY OF THE NATIONAL ANTHROPOLOGICAL ARCHIVES

VIEW FROM THE GROUNDS OF ARDDARROCH.



MANN's account is that which relates to the School of Horticulture established by the Viennese Society. The Society selects the Professors, and directs the course of education. The lectures go on from October to the end of February. They are entirely gratuitous, and are given in the evening, so that young gardeners may attend them. Eighteen hours weekly are allotted to the lectures. The subjects taught include general horticulture, fruit culture, drawing, landscape gardening, mathematics, botany, entomology, natural history, book-keeping, German. At the end of the season an examination is held, and certificates are awarded to the most praiseworthy students. The 1st prizes consist of a travelling allowance of 375 francs, so that the pupil may have the opportunity to learn something of foreign practice.

— "BOTANICAL MAGAZINE."—The November number contains coloured flowers of the following species:—

Streptocarpus Dunnii, Hook. f., t. 6903.—This is the truly extraordinary and by no means unattractive plant which we have had occasion to mention on several occasions, though we must take the opportunity of saying that the attribution of the species to Dr. MASTERS is an error. The notice of the plant was sent to us by a correspondent, and was not drawn up according to botanical canon, hence neither our correspondent nor ourselves can claim the sponsorship of the plant, which is described *secundum artem*, and for the first time, by Sir JOSEPH HOOKER. The present plant, like some of its congeners, produces one leaf only, but this of a length of 36 inches in extreme cases, coarsely toothed and bullate like a Savoy Cabbage. By the side of this horizontally spreading leaf arises an erect panicle of very numerous dull pink flowers, each about 1½ inch long, with long, curved, funnel-shaped tube, and a short, 5-lobed limb with rounded lobes. The plant is a native of the mountains of the Transvaal, and may be seen in the Succulent-house at Kew, forming an edging to the quaint Cacti and Euphorbias with which it is associated in its native country. We repeat that this is one of the most extraordinary plants that have ever been figured in that repository of wonders and beauties, the *Botanical Magazine*.

Karatas acanthoclerata, t. 6904.—One of the "nasteds" Bromeliads, with broad, oblong, obtuse, toothed leaves, the innermost of which are coloured purple.

Achillea rupestris, t. 6905.—A very rare Calabrian species, allied to *A. Ptarmica*. It forms an attractive rock plant, and flowered on the rockery at Kew, in May, 1886.

Tillandsia chrysostachys, t. 6906.—A curious Bromeliad; native of the Andes of Peru. It has tufted leaves, which are oblong, strap-shaped, acute, spineless, and flowers in long-stalked closely-packed spikes, densely covered with overlapping yellow bracts, like the strands of some coarsely plaited rope.

Brodiaea Douglasii, t. 6907.—A pretty species, with long linear leaves, and scapes bearing an umbel of numerous violet funnel-shaped flowers.

— STOCKS FOR APPLES.—Mr. W. MORGAN, Pukekohe, East Auckland, New Zealand, writes:—"How is it that nurserymen in Great Britain do not adopt blight-proof varieties of Apples for stocks, and thus effectually prevent Apple trees from being blighted at the roots? In this colony of New Zealand, the Winter Majetin and Northern Spy are now generally used as stocks, both for grafting and budding, the latter being the common mode of working Apples. These two varieties are not subject to attacks of the woolly aphid, and both being robust growers, they make excellent stocks, though their manner of growth is very distinct. The Majetin throws out roots, which extend a great length from the tree, while the roots of the Spy are one mass of rootlets and small fibres. Of course the Spy is found to be the best for dwarf trees, though some nurserymen prefer it to the Majetin for all kinds of Apple trees, and use it exclusively. Stocks are raised with very little trouble indeed, simply by planting bits of roots in a similar manner to raising white Thorns. When the roots have struck and young plants are about 6 inches high, they are earthed up, the shoots sending out rootlets, and growing vigorously if the land is rich. Some of these would be fit to bud the following summer; but generally they are planted out when a year old, and then they make excellent stocks either for budding or grafting. In using these stocks the great advantage

is that the bottoms and roots of the trees worked upon them remain free from the aphids. And it is not a difficult matter to keep the tops clean so long as the roots are not affected. Years ago, before the introduction of these blight-proof varieties, so bad was the woolly aphid in many districts, that Apple growers almost gave up in despair; but now the extent of Apple plantations is very great, and planting is still going on. I may state that it was a source of great disappointment that so many of the Apples sent from here for the Colonial and Indian Exhibition went bad; but this was owing to the bungling arrangements made by the Government with the direct steamer, no cool chamber having been provided for the fruit. A good opportunity was thus lost of displaying magnificent samples of Apples, such as can be produced here, both climate and soil being highly favourable to their growth and colouring."

— DIPTERACANTHUS AFFINIS.—We are indebted to Mr. JOHN CROOK, of the gardens at Farnborough Grange, for a specimen of this beautiful but little known plant. The plant is a stove shrub, with lanceolate leaves and irregularly funnel-shaped orange flowers about 2 inches long. Mr. CROOK grew it on the roof of the stove. As we hope to be able to give a figure of it shortly, we need say no more on this occasion; but we may express our wonder and regret that the numerous fine winter flowering Acanthads have not found more favour with cultivators. Several of them were in past years grown in the Palm stove at Kew, where they formed a special feature.

— LINNEAN SOCIETY OF LONDON.—A meeting will be held on Thursday, November 18, at 8 P.M., when papers will be read on—1. "Floral Conformation of *Cypripedium*," by Dr. MAXWELL MASTERS; 2. "Recent *Ephemeride*, part v.," by Rev. A. EATON; 3. "Further Contributions to the Flora of Madagascar," by J. G. BAKER; and 4. "Supposed Precedence of *Hivas* in genus *Conus*," by S. HANLEY.

— THE CRACKING OF PEARS.—This unsightly deformity is due to the presence of a fungus, *Fusicorticium pyrium*. M. PRILLIEUX records that this disease may be cured by the use of a solution of sulphate of copper. One kilogramme of sulphate of copper is dissolved in 12 litres of water, to which are added a mixture of 2 kilogrammes of lime in 4 litres of water. The mixture is turbid and of a bluish colour, and is used by means of a small sprinkling brush made of ling, or more elaborate spray apparatus may be employed. The same mixture is very efficacious for the Vine mildew (*Peronospora*), and should be tried for the Potato and Tomato disease.

— OODEYPORE.—Mr. T. H. STOREY, the Superintendent of the Gardens of the MAHARAJA OF OODEYPORE, forwards us a copy of his annual report. Oodeypore is the only station in Rajpootana, and one of the very few places in the native states where the garden establishment is directed by a professional gardener. Mr. STOREY, we believe, was trained in the Edinburgh Botanic Garden. The following extract will suffice to show the different conditions under which gardeners in India have to work from what obtain here:—

"FLYING FOXES."

"There has been a colony of flying foxes, which had taken up their quarters here for the past fifty years, and were quite a nuisance. They seemed to keep up all day a horrible screaming noise. They were hanging on to large Ficus, Mango, and other trees. There were also many swarms of bees, and the foxes had a very poor time of it. The bees appeared to hate them, and used to chase them all round the place. The trees were quite leafless, and to all appearance half dead. On His Highness coming one morning this way, I took the opportunity of speaking to him about them. He told me, if possible, to have them hunted away, an undertaking which, I am happy to say, was successful. I collected all my men and boys, gave them old tin pots, tom-toms, &c., and made them get up on the trees to the very top. When they began beating their tins, the whole of the foxes got on the wing, and kept them so for a few hours, when a few of them took the lead, and the whole flock went off three or four miles away. I expected them back in the morning, and I was not much disappointed, for they were returning to their old place from their night's feed; they must have been disgusted at seeing the men still perched in their quarters. The men

went up the trees at 3 o'clock in the morning, and did not allow them to alight, so off they went, and have not returned. The trees they were on are now covered with leaves and looking well."

— EUCHARIS AMAZONICA.—We often hear from correspondents of losses from disease and of weakness consequent on it, the maladies being various, and attacking at one time the foliage, at others the bulbs. One of the best modes of culture is that of planting in well-prepared beds or borders, enjoying the warmth from hot-water pipes either above or underneath the soil. As an example of this method, Mr. E. WARD, gardener at Hewell Gardens, Bromsgrove, sends us some foliage and flowers of enormous development, and of the utmost vigour. When plants can be kept in such a condition as are these, there can be small chance of the ingress of disease. Bulbs so planted out admit of being rested in the same manner as those in pots.

— PITCHER PLANTS AT MESSRS VEITCH & SONS.—It is hardly possible to see a finer collection of the various *Nepenthes* than can now be witnessed at this nursery, the house in which they are grown being literally crammed with pitchers in all stages of growth and size—from midgets the size of thimbles to others having the capacity of a pint-pot. Some of the more striking are *Rajah*, *Northiana*, *Mastersii*—of this last there is a long row of plants carrying a great number of high-coloured pitchers; *Rafflesiana*, and *Dominy's Intermedia*.

— GARDENING APPOINTMENTS.—Mr. C. FORD, late of Thornton Manor, has been appointed as Head Gardener to Mrs. CHARLES HAZLEHURST, Hulton Grange, Runcorn.—Mr. JOSEPH HUMPHREYS, late Foreman at Woolton Wood, has been appointed Head Gardener to J. KERSHAW, Esq., The Mount, Sedgley Park, Prestwich.

Notices of Books.

Chrysanthemums and their Culture. E. Molyneux. (London: 171, Fleet Street.)

This little book on the best of our autumn flowers, by one of our foremost growers, is worthy the attention of all those who would excel in the exhibition tent, or as growers of the flower for domestic use. The directions, of all kinds are very full we had almost written, too full—for out of the abundance of his knowledge the writer is apt at times to say so much and to give more than the proverbial three courses; so that the tyro would be in difficulty as to the best to follow. As a true practical cultivator above all things he begins at the beginning, by initiating the reader into the secrets of propagation, and does not attempt to write up the history of the plant. By easy stages the subject is led up to the cultivation of plants and flowers for exhibition primarily, and for the decoration of the conservatory and greenhouse, various woodcuts being employed to make clear the writer's meaning. The, to many gardeners, mysterious art of disbudding receives ample attention, diagrams of disbudded shoots being added for fuller explanation.

The lists furnished of varieties for walls, borders, for supplying plants and blooms for market, the heights of varieties, summer blooming varieties, summer treatment and autumn treatment, are all fully and well treated.

And we need scarcely say that all matters pertaining to exhibiting the flower are quite as fully expatiated on, affording the ingenious reader the idea that, after all the labour spent in cultivating the flower, Nature at last requires a large amount of assistance before its toilette can be considered perfect, and the flower is fit to take its place on the exhibition-table.

We think the author is guilty of dogmatism somewhat in the little chapter on the leaves of the plant, in stating that many kinds can be determined by the leaf. That such can be done by an expert who has the means for comparison may be true, but that this can be done by any one with the thousand and one sorts now in the field is matter of much doubt. Soil, the sorts of manures used, the age of the leaf, and its position on the plant, all exercise a modifying influence on its form and colour.

The chapter, "Waiting for the Verdict," is a blemish, and should be left out of the next edition.

HOW DO BULBS DESCEND INTO THE SOIL?

IN Mr. G. Maw's new monograph of the genus *Crocus*, p. 18, fig. 11, there is a diagram showing the way in which young *Crocus* bulbs descend into the soil, year after year, until they reach a convenient depth. The author says:—"The process of the descent of the corm from near the surface to the necessary depth is difficult of explanation, and must be viewed as one of the self-protective phenomena in plant-life, the *modus operandi* of which we do not understand." Another phenomenon described in the same chapter, p. 17, and illustrated on plates A and C, is the ephemeral root, always present in the young seedling, and occasionally reproduced in after years, to which Mr. Maw does not assign any special function.

This ephemeral root, which is almost like a soft, spongy, semi-transparent elongation of the bulb, but pinched in at the point of juncture with its base, is not peculiar to the *Crocus*, but occurs in other bulbs, especially in seedlings of the genus *Scilla*. I fancy I have noticed it to be formed more frequently in old *Crocus* bulbs, when they have been brought near the surface in the process of digging a bed; and I have always thought, rightly or wrongly, that it was an effort of Nature on the part of the bulb, not always successful, to descend to a greater depth. Last spring observing a pan of *Narcissus corbularia* var. *Clusii*, which had been planted very shallow, to be prematurely withering, I examined the bulbs, and found that two or three of them had formed new bulbs beneath, but quite detached from, the old ones, and connected with them by what seemed to be a shrivelled ephemeral root, about half an inch long, which had apparently acted as a sort of umbilical cord to convey the nourishment from the leaves through the old bulb to the new bulb which had formed at its base. Had I known that the process by which new bulbs are formed at a distance beneath the old ones was not well understood I would have investigated it long ago, and hope to do so now next season; but I call attention to it here, hoping that others who are better able to make scientific observations in botany may investigate it. My suggestion is that the ephemeral root may act as a sort of vertically descending stolon, producing a new bulb not quite in the same way as the lateral stolons of *C. nudiflorus* and *C. lazicus*, but forming its central axis within the thickened root. I find *Crocus* seedlings such a nuisance in my borders that I always have the seed-pods pulled off the bulbs in June so I cannot examine *Crocus* seedlings as I should like to do; but as regards the change of depth in successive years in the bulbs of *Scilla nutans*, which is probably analogous, I have often observed the fact whilst planting trees in my woods in winter. The smallest bulbs, which I take to be the produce of the seed shed eighteen months before, in the July of the previous year, are at a depth of 1 or 2 inches, and at the size of a small Pea; the two-year-olds are at an average depth of 4 inches, and at least 70 per cent. of them are curiously elongated, being three times as long as broad. Those three and four years old—for I think some rest contented with the depth reached in the third season's growth, and some take another dive in their fourth season—are 6 or 7 inches deep. Thus the crown of the new bulb is, on an average 1½ inch below the base of the old one, and I feel no doubt that it is formed where it is found. Indeed, on no reasonable theory could it be otherwise. I enclose specimens of bulbs, one, two, three, or more years old, with a rough outline of the depth at which they respectively occur. *C. Wolley Dod*, *Edge Hall, Malpas, November 6*.

[In order to illustrate this communication, we append two illustrations in *Crocus* (figs. 123, 124, p. 628). The new bulbs, as may be seen in Tulips, are formed in a little cavity at the base of the inner surface of a scale or leaf. The base of this leaf-scale, with the enclosed bulblet, grows in a downward direction so that ultimately a tube is formed something like the spur of a Trochæolus but with the bulblet at the bottom. How the leaf grows in this fashion is, we believe, not known—why it does so is probably to protect the bulb from frost or marauding enemies. The so-called "ephemeral" root is met with in many bulbs. It probably acts as a special and accessory storage place for nutriment, which is used up as the bulb grows. We do not think the ephemeral root ever has a bulb at the end of it as Mr. Wolley Dod, if we understand him aright, seems to think, and the structure of this root and of the descending leaf-tube is different. Ed.]

SCOTLAND.

AN EXTRAORDINARY ARDISIA.

THERE is growing at the present time in the Edinburgh Botanic Garden *Ardisia primulefolia*, the most extraordinary species of the family with which I am acquainted. It is almost stemless; its five or six leaves, 4 to 6 inches long by 1½ to 2 inches broad in the individual before us, being supported on a stem barely two inches high, and overlapping the sides of the 5 inch pot in which it was growing, very much in the way of many *Primulas*. Standing clear above the foliage on stout stems were two fine clusters of bright shining scarlet berries of an oval shape, and very ornamental. As it is, it would be an acquisition to the list of ornamental berried plants for winter decoration, its dwarf habit rendering it suitable for positions for which we have nothing of the kind at present.

PAROCHETUS COMMUNIS.

This interesting and pretty plant is turned to excellent account by Mr. Lindsay as an ornament in hanging baskets in the greenhouse. Treated in this way it grows more freely than when planted on the rockwork, or in pots, as it usually is done, and stock is therefore more easily kept up, which was the object Mr. Lindsay had chiefly in view in resorting to this method. But he is very pleased also with its ornamental effect, and intends to continue and extend its use as a basket plant.

RESTIO SUBVERTICILLATUS.

The elegance of this distinct plant should commend it for the cool conservatory. It is rarely seen, perhaps hardly known, in private gardens, but we are certain that if its striking effect as an elegant decorative plant were better known, it would be in demand for the decoration of the cool house. The plant is, roughly speaking, a shrubby Sedge, and belongs to a small order to which it gives its name, closely allied to the *Cyperaceæ*. Its characteristics are most effectively seen in large specimens. X.

THE DRY ROT FUNGUS.

MERULIUS LACHRYMANS (FIG. 125).

THE dry rot fungus is one of the most widespread and destructive of all fungi. It is especially common and well known on the squared timber of ill-ventilated buildings, and from dressed wood it will quickly spread to walls, whether built of stone, brick, or concrete; it will often grow through the mortar of a thick wall, and perfect itself on the bricks both outside and inside. We have seen it growing on damp concrete between the girders of iron fire-proof floors, and seen it spread from wood on to plate-glass, and perfect itself on the latter substance whilst drawing its nourishment from the wood. In wine cellars it will spread from the woodwork and walls to the bins and even to the corks of wine bottles. The mycelium of the fungus will luxuriate between the cork and the neck of the bottle; a slight attack of this sort is said to make the wine "corky."

The dry rot fungus prefers the squared unpolished wood of coniferous trees as a substratum on which to luxuriate, but we have seen it on polished Mahogany, and it will spread from other woods to Teak and destroy Teak-built ships. It is not uncommon on the fallen timber of Pine woods, but, like some other plants, it has long been peculiarly associated with man and his dwellings. It destroys churches, houses, ships, bridges, railway sleepers, telegraph poles, and many other objects. It must not be assumed, however, that the true dry rot fungus is the sole depredator. There are twelve British species of *Merulius*, inclusive of *M. lachrymans*, and several of these appear at times in our houses. We have seen *M. corium* almost as destructive as *M. lachrymans*. In addition to the dry rot fungi it is by no means uncommon to find buildings destroyed by different species of *Polyporus*, *Lentinus*, and other fungi.

Merulius was so named by Fries on account of the shallow pores or wrinkles of the spore-producing surface, and *lachrymans* on account of the drops of moisture, like tears, which stud the fruiting surface of the fungus when growing in full vigour.

The upper part of the accompanying illustration (fig. 125, p. 629) shows a small plant of a dry-rot fungus; the circumference is white or livid in colour,

and thick and fleshy. The whole plant is fleshy and almost meaty when cut. The adour is very strong and Mushroom-like. The livid rim consists of transparent interwoven fungus tubes and cells as illustrated enlarged 400 diameters at C; tubes of this nature and size also form the entire base of the fungus. The fungus cells or tubes break down the substance of the wood upon which they grow and transport the juices of the wood to the fungus for nourishment. The central part of the surface of the *Merulius* is rich reddish-brown in colour and indented with coarse shallow pores or wrinkles, as illustrated in the upper figure. A reddish livid juice is exuded from all parts of this fungus; this juice stains every object with which it comes in contact. A section of the wrinkled surface is shown natural size at A. Every part of the reddish wrinkled surface produces spores, the same portion distils drops of moisture chiefly derived from the wood upon which the fungus grows. By breaking down the substance of the wood and extracting its juices the timber is ultimately left in a state little better than dry sawdust or powder, hence the popular name of "dry rot," a curious name for a naturally wet or "weeping" fungus. If a very small fragment is cut from the wrinkled surface of an example of *Merulius lachrymans*, and a very thin transparent slice is then removed from the exposed surface and examined with a microscope it will be seen, if enlarged 400 diameters, as at B. The coarse transparent tubes of the base of the fungus become much narrower as they gradually grow up towards the brown wrinkled surface, and in the latter position they support tall colourless cells or bladders as shown; each tall bladder throws out four minute horns or spore-supporters at its apex, and on each horn an oval spore of rich brown colour is borne, as illustrated. When the ripe spores fall from their supports on to damp wood in close confined air they germinate and throw out fine mycelial tubes, the tubes penetrate the sweating wood and soon produce a perfect dry rot fungus by drawing from the wood the material necessary for the life and well-being of the fungus. The fungus continues to grow till the supporting timber is completely exhausted and reduced to tinder or dust; the fungus itself now perishes, but not before it has produced myriads of spores which have probably been carried away by currents of air to destroy other damp wood or wood in damp places. The dry rot fungus will under favourable conditions attain a very large size, its dimensions appear, in fact, to be only limited by the size of the object or material on which it grows; we have seen huge thick growths, like large pancakes, a yard or more in diameter. As the growth of the fungus is as rapid as it is exhaustive, it follows that when dry rot once gets a footing in an ill-ventilated building the work of destruction is rapid and complete. Floors rot, roofs fall, gables collapse, and window sashes turn to powder and drop out. As the air of the infested building is full of dry rot spores it is useless to replace old wood with new, for new wood merely supplies fresh food for the fungus. Sometimes improved ventilation is beneficial, but it is impossible to really cure dry rot, and almost if not quite impossible to stop its progress when once well started, as the fungus is always ready to invade various other materials in addition to wood. To keep well clear of dry rot its attacks should be prevented.

Petroleum will quickly destroy the dry-rot fungus, and prevent its reappearance, but it is so extremely dangerous to thoroughly soak a building or ship with petroleum, that the remedy is as bad or worse than the disease. Burnett's mode of preserving timber is by the application of chloride of zinc; this, without injuring the wood, has a tendency to protect it from destruction. Kyan's method (hence the term kyanising) consists of the use of corrosive sublimate, but this material can only be applied effectually on dry (as opposed to wet or damp) timber. Margary's method (hence the term margaring) consists in the application of the sulphate or other salts of copper. Bethell's method, which is the best, consists of "creosoting" the wood, by the application of coal tar or oil of tar. This substance does not get driven out of timber by moisture, whereas all the salts of metals fall in this direction. Coal tar, a material which looks like treacle, is derived from coal in the process of gas-making. When coal tar is distilled, light oils, heavy oils, and pitch (the residuum) are produced: the oils heavier than water are the "creosote" of Bethell. The most effective heavy creosote for timber preservation is

derived from the best Newcastle coals, a less valuable material is distilled from Midland coals. A good deal of our knowledge of wood preservation, as possessed at the present day, seems to have been known in part at least to the ancient Egyptians, who filled the pores of their wooden statues, columns, &c.,—to say nothing of the grand-mummies (1).—with oils and bitumen.

Mr. Boulton states that Fir timber is capable of taking up from 63 to 150 gallons of water to the load of 50 cubic feet, he also states that he has extracted 50 gallons of water from a load of railway sleepers. In the process of creosoting the timber is first made quite dry and the extracted water is then replaced under heavy pressure, by oil of tar. More than one patent has been taken out for "creosoting," and the efficacy or otherwise of creosoted timber depends on the quality and constituents of the oil of tar and the method of forcing it into the pores of the timber.

The proper antiseptic treatment of wood is a subject of the highest importance when studied in reference to the preservation of telegraph posts, railway sleepers, piles for harbours, ships' timbers, and to cases where wood must of necessity be exposed to the action of water, damp earth, or moist air, but in buildings which are designed to be constantly kept dry no creosoting is necessary. In horticultural buildings, however, where the contained air is always moist, the dry rot fungus, or one or other of its allies, often makes sad havoc. Tiles, iron, &c., are now so much used in greenhouses that wood often only occupies a minor place in their construction.

Without some antiseptic treatment it is impossible to prevent the decay of wood when as in ships it is placed in water or as in posts, and piles, buried in the ground, but there is no reason why our public and private buildings should be so constantly destroyed by the dry rot fungus. Without damp stagnant air and wood saturated with moisture *Merulius lacrymans* cannot exist; keep these evils away, and no dry-rot will be seen.

It is very necessary that foundations should be well built with cement on concrete or rock, that all the basements should be thoroughly well ventilated, so that currents of air may be able to pass through windows or other openings. The timber used for building purposes should be perfectly sound and dry. All good builders are aware of the best methods for preventing damp rising from basements, or passing up or through walls; and it is only by the culpable neglect of well-known common-sense precautions that so many public and private buildings are destroyed by the dry-rot fungus.

We are being constantly asked for a "cure" of dry rot, and we often find ourselves without patience to write a reply. It is as impossible to "cure" rotten timber as to "cure" a rotten animal; when advanced in decay both are too far gone for cure. Common sense must be used in the prevention of the attacks of the dry-rot fungus.

Dr. J. Gwyn Jeffreys says (*British Conchology*, vol. i., p. 130, under "Limax") that slugs in cellars wilt at the dry-rot fungus. *Worthington G. Smith, Dunstable.*

HOME CORRESPONDENCE.

Orchid Pruning.—This practice has been advocated by many growers, and no doubt in many cases it is necessary to do so for neatness, as well as to remove useless and decaying bulbs, as in the case of *Cyclopogon cristata*, *Odontoglossum grande*, and others. With some Orchids one might hesitate before doing so, as is the case with *Dendrobium speciosum*, a plant growing here, which has been mentioned in the columns of the *Gardener's Chronicle* in years gone by. However, the plant now measures 3 feet 6 inches in diameter, and flowered every year, on one occasion having from thirty to forty spikes of bloom; the bulbs with leaves on flower year after year, but the most curious part is that some of the bulbs without leaves for many years are showing flower-stems: one bulb has two. Those bulbs with leaves constantly throw two spikes on some of their number. This season the plant promises to be fine, but is not sufficiently advanced to enable me to speak with certainty as to the number of spikes. A companion plant, *Odontoglossum grande*, 2 feet in diameter, had fourteen spikes of bloom, twelve yet remaining. These plants, with others of their class, have to share the treatment of the Vines, under which they do so well. *William Cuttswell, Thorpe Perrow.*

A Japanese Rose Hedge and Plant Protection.—While experimenting at Oakwood I have come upon two notions which I think are worth publishing. The first is a new hedge; we tried a small one in front of the cottage, and this succeeding, we have now made one above a hundred yards long, of Japanese Rose (*Rosa rugosa*); the beauty of its

flowers, fruit, and foliage—the last while green, and afterwards in its golden state in autumn—make it ornamental, while its quick growth and many and close thorns make it useful. The plants of our last hedge are seedlings taken out of a seed-bed not more than 2½ yards square. This hedge has a backing of cut Furze; I expect in three years it will be well grown up. Noton N. 2 is a substitute for snow as a protection for some bulbs and plants. Snow, as is well known, owes its efficacy to the air among it; I have tried many experiments to get something that would take its place. Finding that plants sowed themselves on our gravel walk, and came up better than in the seed-beds, I used a surface of fine sifted gravel with good results, and now believe that for bulbs which it is undesirable to plant very deep, and which must not be frozen, a covering of 3 to 4 inches of sifted gravel stones about 1 inch long would hold air enough to prevent the frost getting down into the ground and be easily removed in spring. With some precious bulbs and deciduous plants I have put a surrounding of bricks edgewise, filling up the enclosed space with these gravel stones; smaller stones may be better: this is a subject for experiment. *George F. Wilson.*

Double-flowering Primula sinensis.—These beautiful-flowering plants being so desirable and valuable for cut bloom, as well as for decorative purposes, we forward you sample trusses of the varieties we now have in full bloom for your inspection. Considering that these plants go on flowering all the winter and early spring months, we have no hesitation in saying that they should be grown largely where cut flowers are in demand. The difficulty of their propagation and culture seems to be a barrier in the way of their popularity; but surely our gardeners can overcome this matter, as they have overcome many others, the more so, the choice cut flowers are now required in every household. *Clark Brothers, Carlisle.* [Excellent samples.—Ed.]

Fuchsia coccinea and Neglected Old Sorts.—I send you some flowers and foliage of *F. coccinea* and *F. magellanica* to show you that they are not one and the same kind. The latter was kindly sent here by the Rev. Dr. Gordon, of Birnie, author of the *Flora of Moray*, whom I knew had the true magellanica through having seen it there some years ago. His own letter, which I forward, will best explain its hardness in the North of Scotland. *Coccinea flexuosa* is from a plant growing on a trellis on the north side of a cottage uninhabited in a flower garden here, and must have been there for at least forty to fifty years. It is mostly cut down to the ground every winter by frost, but always comes up again in spring. It has never received any attention in covering, not even to keep the frost from its roots. I may here remark that I can remember perfectly when *Fuchsia coccinea* was the only one in cultivation. Later introductions were not much known until about 1830, although such varieties as *virgata*, *conica*, *teuila*, &c., were introduced some five or six years previous to that date. *Conica* and *virgata* are both alive here also. They had been planted at the top of a mound of rockwork, which is now covered all over with *Cotoneaster rotundifolia*. The *Fuchsias* grow through it every year and flower freely. Perhaps the true hardiest sort to magellanica is *Riccartoni*; it has survived some of our severest frosts without being cut down. The plants are growing on grass amongst shrubs on the sloping banks of an old quarry. Since the introduction of *F. Venus Victoris*, the first white-petalled variety, hybridising has gone forward with so many improvements that the useful old sorts are now thrown in the shade. *J. Webster, Gordon Castle, Aberdeen.* [As has been mentioned previously, *F. coccinea* was not among them. The true *coccinea* is a Brazilian species, now very rare in this country. See *Bot. Mag.*, t. 5740. *W. B. Hemslay.*]

Abutilons as Climbers.—Probably better pillar-plants than certain species and varieties of *Abutilon* do not exist, yet how very rarely are they to be seen occupying such positions. They are admirably adapted for the back walls of greenhouses. The species suitable for this purpose are *Abutilon tessellatum*, A. Thompsoni, and A. vexillarium. This trio, it scarcely needs to be said, will grow well in almost any position and in any kind of soil. Even under artificial culture they are almost as tenacious of life as our native Mallows; nevertheless, one kind of treatment they are commonly subjected to at present is very inimical to success with them, and it consists in cutting the plants back to insure a bushier and dwarfier form. This practice destroys more Abutilons than do all other hardships they may have to endure. It may be the two former are too robust to be planted as climbers in small houses; the last, however, is well adapted for the smallest of structures where pillars or bare back walls have to be covered. If the fact is not well known, the deciduous habited *Habrothamnus* (*Cestrum*) is suited for pillar work, certainly these more graceful habited plants are more

so. In greenhouse garniture, however, as in other fashions, it would seem to be that one grower adopts the same subjects as another, and it is difficult to convince people that other and better things exist. How frequently do we meet with *Tecoma jasminoides*, the deciduous *Masdevallia suaveolens*, *Solanum jasminoides*, or *Kennedya*, planted against pillars, with the result that fresh young growths rush upward, reach the glass, and there expend themselves, to the loss of any pleasing remains lower down. And even when a truss or two of bloom casually forms on the sparse current year's growth, they are so encircled by foliage and hang so high up as to be barely perceptible against the expanse of sky and light. These species of *Abutilon*, which are not so subject to these drawbacks, certainly deserve increased consideration at the hands of gardeners. *William Earley.*

Adiantum Seedling Edward Henry Walton. —Among your Answers to Correspondents (p. 601) we find you inquire whether this *Adiantum* seedling is likely to reproduce itself from spores. We have only tied one lot of spores, the produce of which were potted last week. We used no particular precaution with the spores, which have come true to character. We think it a very elegant Fern. *E. H.W., Edgemoor Nurseries, Burnley.*

Late Peas.—We gathered our last dish of Peas on November 6 of Ne Plus Ultra. Sturdy I have grown for the first time this season; it is a good late variety, and I intend giving it a further trial next season. Owing to the frost on a strong growing Syrian N. number 8 we registered 7th, therefore all Peas and Beans are now cut off. The varieties that have produced a daily supply from June on throughout the season are, Dickson's First and Best, Veitch's Selected Extra Early, Day's Early Sunrise, William the First, Laxton's Alpha, Champion of England, Criterion, Filbasket, Huntingdonian, Supreme, British Queen, Emperor of the Marrows, and Ne Plus Ultra. *Edward Ward, Howell Gardens, Bromsgrove.*

Grafted Grapes.—Allow me to bear testimony to the correctness of Mr. Warden's remarks at p. 597, respecting the highly-finished bunches of Black Alicante Grapes resulting from a rod inarched on a Buckland Sweetwater Vine in the Clarendon Park vinery. I saw them in September last, and the bunches of large, well-coloured, and heavily-bloomed berries, were symmetrical in outline and averaged about 3½ lb. each, every one of which would do credit to the exhibition-table. Last year I inarched a young rod of Black Alicante on a strong growing Syrian Vine, and which is carrying two bunches this season, the berries of which are larger and more heavily bloomed than those on the parent Vine are. In another late house I have this year inarched Gros Maroc on a Syrian Vine, and on either side of the Syrian Vine, which is bearing a heavy crop of Grapes this year; young pot-Vines of Alwinck Seedling and Muscat Hamburg are inarched, the former on Barbarossa, and the latter on the Raisin de Calabre. I intend taking a bunch or two from the Muscat Hamburg Vine next season, but the Gros Maroc and Alwinck Seedling Vines having been inarched rather late in the season will not be cropped next year. I look forward to securing larger bunches from the Alwinck Seedling and Barbarossa, and the Gros Maroc and Syrian unions, and of quite as good flavour as I could obtain from the respective varieties on their own roots; but I cannot expect to improve the flavour of the Muscat Hamburg Grape by its union with the Raisin de Calabre, if I do the size of bunch. Last spring I inarched a pot Vine of Golden Queen on a Muscat of Alexandria with a view to improving the flavour of the former Grape, which, when grown as it was shown by Messrs. Murray (Culzeau Castle, Maybole) and Hammond (Brayton, Carlisle), in Edinburgh at the September show of last year, is a grand looking Grape. I have Gros Maroc on a Black Hamburgh stock trained up the back wall rather of hip-roof house with very satisfactory results as regards flavour, size, and colour of berries, which latter retain their oval shape. So pleased am I with the result of this Gros Maroc and Hamburg union that last spring I inarched twelve bunches, having then raised several young Vines from eyes for transplanting in a permanent border, towards the end of July following, I inarched Gros Maroc on a Black Hamburg Vine while both were in 7-inch pots, and which, together with two Vines of Gros Maroc on the same roots, Alwinck Seedling, Madresfield, and Muscat Hamburg (the latter at the warmest end of the house, and planted at the time indicated in a newly made outside border). The Vines were heavily shaded from bright sunshine until the roots had taken to the new soil, when shading was discontinued; they were also syringed overhead two or three times a day to keep the foliage fresh. These Vines have all made satisfactory growth during the interval, and next year I hope to take three or four bunches (more or less, according to the strength of the individual Vines) from each rod, and at the same time have an opportunity to note the difference between

the produce of the Vine of Gros Maroc on its own roots and that of the one on the Hamburgh stock, both growing in the same border and under the same conditions. I may here state a fact which, though it is well known to all good Grape growers, is not known so well as it ought to be—that all Grapes, except the Frontignan, and perhaps the Duchess of Buccleuch, are improved in flavour by being grafted on Black Hamburgh and Muscat of Alexandria stocks; but that the two varieties just mentioned deteriorate more or less in flavour when grown on other roots than their own. *H. W. Ward, Longford Castle Gardens.*

Crows and Poisonous Wheat-Dips.—A curious illustration of the sagacity or instinct of the common rook, or crow, came under my notice this morning. I was scattering seed Wheat that had been previously impregnated with Goulding's Wheat-dip, or anti-smut mixture, and then dried out with slaked lime. A flight of crows came for their matutinal meal, and swooped down on what I had sown. I observed them commence unevenly, and after a few moments hesitate, and finally retreat to the headland and remain there. Others came, but the cawing and circling flight seemed to indicate a note of warning. Farmers and gardeners having a home farm might profitably bear this in mind. There is the saving of an animate or inanimate scarecrow in seed, in the evenness of the braird, &c. *W. F. Murphy, Clonmel.*

Winter-flowering Ericas.—Young stock of these indispensable plants now bristling with flower-buds will need close attention in respect to watering, especially if recently purchased from the growers. As they are invariably pot-bound at this season they require a good supply of water. If this is neglected now the result will be seen by-and-by in either undeveloped or malformed flowers. *J. Hudson.*

Ivy-leaved Pelargoniums.—In his remarks on these (p. 533) Mr. H. Dunkin omits what is in my opinion the most satisfactory mode of treating the plants in order to have a good supply of flowers for cutting during the dull months now upon us. That large plants bloom freely when trained on pyramidal trelliswork during the spring and summer months there is no question, but to insure a large amount of bloom from now onwards they do not receive sufficient light. My mode of treating them is to pot into 10 and 12-inch pots during May, and to fix a rough trellis against a wall (exposed to the sun), then train the shoots thinly, and keep all flowers removed until the end of September, when the plants are taken into a Melon pit and the shoots trained along the wires about a foot from the glass. Here they are fed with liquid manure, and the pipes are kept slightly warm, and plenty of air given. Some of the plants cover a space of 6 feet by 4 feet, and have from sixty to a hundred trusses of blooms, which are very useful for cutting purposes. *W. J. Ireland, Nottell Priory.*

Reports of Societies.

ROYAL HORTICULTURAL: Tuesday, Nov. 9.

AFTER the very full exhibitions that have been held in the conservatory at South Kensington during the season now drawing to a close, the show at this meeting was a very scanty one. It was fortunate that the Canadian and Nova Scotian exhibits of fruit and farm and garden produce still remained to occupy the centre and half of the side tables. The miscellaneous exhibits were chiefly Chrysanthemums shown for certificates and a few Orchids and Cyclamens.

Scientific Committee.

M. T. Masters, F.R.S., in the chair.

ORCHIDS, DRAWINGS OF.

A large and beautiful series of pencil-drawings of lips of *Odontoglossum crispum* were shown by Mr. Hensen, of St. Albans, with a view of showing the range of variation. Mr. O'Brien remarked that their forms indicated in many cases the parentage, thus a triangular form was characteristic of Lindleyi; a broad truncate shape that of Pescatorei, &c. This showed that all the forms were results of crossings and natural seedling from crossings.

A Vote of Thanks was awarded to Mr. Hansen.

CYPRIPEDIUM SPECIOSUM, MONSTROUS.

Dr. Masters showed drawings illustrative of fission in the posterior sepal and staminoide; it commenced by furation or partition of the fibro-vascular cord at the base of the ovary, and affected both the above organs.

"JUMPING" SEEDS FROM MEXICO.

Mr. MacLachlan showed specimens of the Jumping Seeds from Mexico, which, when placed on the table, were in frequent movement. The motion was due to the presence of a grub in the disjointed carapels of an euphorbiaceous plant. The insect is closely allied to the Apple moth, *Carpocapsa pomonella*. It was first noticed by Westwood in 1858.

IXIA BULBS DISEASED.

He also showed specimens, received from Scilly, of bulbs possessing channels filled with gummy matter.



FIG. 123.—CROCUS, SHOWING SUCCULENT AND FIBROUS ROOTS. (SEE P. 626)



FIG. 124.—CROCUS, SHOWING CONFORMATION AND MODE OF GROWTH OF THE PLANT. (SEE P. 626.)

No trace of fungi or animal life could be detected. Mr. O'Brien said he was familiar with a similar condition in Crocuses, and attributed it to wet. Mr. Murray suggested defective nutrition, and would report on a further examination of the bulbs.

PRIMULA CAPITATA.

Mr. Wilson showed a specimen of a very large form grown from Himalayan seed. He observed that

there were now three forms in cultivation, a short, intermediate, and now this new tall form. Mr. Henslow had examined the flowers and found them to be the "short-styled form," but with the anthers dwarfed to a height no greater than the ovary, apparently indicating the fact that the staminal whorl tends to degenerate when great vigour is assumed by the plant; the pistil and large reddish stigma appeared to be quite perfect.

CANADIAN INSTRUMENT FOR PRESSING FRUIT.

He also exhibited a sample of a strong galvanised iron instrument for squeezing juice for jellies, &c., sold in the Canadian department of the Exhibition.

SYCAMORE ROOT, HYPERTROPHIED.

Mr. Henslow exhibited a dense mass of root-fibres which had completely filled a water-pipe; he also showed a slender thread-like Turnip root, about 6 feet long, which had been extracted from a field drain.

ANTIRRHINUM MAJUS AND A. ORONTIUM, PELORIA OF.

The same gentleman showed specimens with illustrations of dissections of these "regular" flowered Snapdragons, both occurring in gardens at Penmaen-mawr; also "sleeve-like" flowers of *Calceolaria*, in which the corollas had become regular.

JERUSALEM ARTICHOKE IN BLOSSOM.

The secretary also exhibited a blossom received from Wilts, and observed that in warm autumns it often forms buds, but does not usually blossom.

MONSTROUS ORCHIS.

Mr. Henslow exhibited a dried specimen in which the interior ovary was replaced by a long stalk, the perianth consisting of three small pointed sepals, within which were two anthers on opposite sides of a depression with a corrugated rim, the processes on the borders resembled the gland-like processes corresponding to the usual abortive stamens.

PRODUCE OF FLUG-GRAFTED POTATOS.

Mr. Henslow communicated specimens of tubers and drawings of others, raised this year from a tuber, one of the produce which resulted from Mr. Worthington G. Smith's experiments in 1885. The tuber planted last March weighed 6½ oz., and the produce was 6½ lb. The results of Mr. Smith's experiments were remarkable for the contorted state of the tubers. Many of this second year's crop were similarly bent, but ten tubers were oval (3 by 2 inches), and of a good shape. The cross was between Magnum Bonum and Early Border.

TOMATOS ATTACKED BY PERONOSPORA INFESTANS.

Mr. W. G. Smith exhibited Tomatoes attacked by the common Potato disease, as well as Potatoes attacked by the Potato smut, *Tubercinia scabies*, which produced wart-like pustules all over it. It was the first occasion on which this disease had been exhibited.

HYBRID BEGONIAS.

In reference to the remarks of Mr. Meehan in the last number of the *Gardeners' Chronicle*, Messrs. Veitch exhibited their Begonia John Heal. This was a hybrid out of a South American tuberous kind by the pollen of the East African *B. socotrana*. The plant is intermediate in several particulars between its parents, but its special peculiarity is that all the flowers are male flowers, and that they are retained on the plant for several days instead of falling off speedily. Moreover another hybrid, raised between the pollen of this variety and an ordinary tuberous Begonia, produced a tuberous Begonia which also bore male flowers only.

MASDEVALLIA ACHROCORDONIA (Rehder, f.).

A plant, flowering for the first time, was exhibited by Mr. S. Courtauld, of Braintree. It appears to be somewhat intermediate between philippinensis and Schlimii. A Botanical Certificate was awarded it.

PLANTS FROM THE BOTANIC GARDENS, CAMBRIDGE.

Mr. J. Lynch showed *Escallonia revoluta* with small white flowers, being a perfectly hardy species; *Passiflora foetida*, remarkable for the leathery stipules and sepals, and *Euphorbia punicea*, with brightly coloured bracts.

MALFORMED LILY, &c.

Mr. Lynch also showed a flower of *Lilium longiflorum*, in which the segments of the flower were separate to the base, and a specimen of *Lonicera mucropoda*, in which the stem was twisted spirally, so that the leaves were placed in one continuous line.

CORYLUS COLUMNA, WITH FOLIACEOUS BRACTEOLAS.

A specimen was shown by Dr. Masters, in which

the two usually small bracteoles had grown out to a considerable size.

FIGS.

Dr. Masters showed leaves from a tree growing on the Roman walls at Reculver, and said to have been introduced by the Romans; but it was a form of *F. o. wild Fig*, and he thought it more likely to have been introduced by the ecclesiastics of the Middle Ages. Mr. Barron had identified the Fig as the Black Provence. He also showed a leaf from Cardinal Pole's Fig from Lambeth Palace, lately described in the *Gardeners' Chronicle*.

Floral Committee.

Present G. F. Wilson, Esq., in the chair, and Messrs. Shirley Hibberd, W. Wilks, H. Bennett, W. Bealby, G. Duffield, H. Herbst, T. Baines, W. Holmes, C. Noble, H. Ballantine, J. Dornay, H. M. Pollett, J. O'Brien, Hugh Low, E. Hill, A. F. Lendy, G. Gaul, and H. Cannell.

Sir Trevor Lawrence, Bart., M.P., showed *Angræcum aviculare*, a graceful species, carrying racemes of white flowers, the spat 4 inches long and curved. Messrs. J. Veitch & Sons, Chelsea, showed *Opilismenus albidus*, a variegated Panicum-like grass, very dwarf, the foliage an inch and a half in length and acutely pointed. The colour is white with a green band running longitudinally through the middle of the leaf. *Amaryllis Lady Mayoress*, crimson, with reticulations of the same on a suffused pink ground, each segment having a broad band of white in the middle of it; *Calanthe hybrida*, a strong grower, with white flowers; *Zygopetalum leopoldinum*, a small established plant with a new break or two, and one flower; this has sepals and petals of an inch long, green, spotted with brown, the lip purple, margined and dotted with white. *Masdevallia glaphyrantha*, a small flower of dull purplish crimson, the tails 2 inches long, and yellow tipped; the plant bore one flower. A number of new varieties of *Chrysanthemums* were also shown, comprising some of the best kinds mentioned in our account of the flower at this nursery (p. 622). *Amasonia punicea* was likewise shown in bloom.

Mr. Head, Superintendent, Crystal Palace, showed *Clerodendron nutans*, a strong growing stove shrub, with straplike foliage 6 inches long by 1½ inch wide; the shoots furnished with terminal pendulous clusters of single five-petalled flowers, white, with light brown calyx. This is a showy, graceful, uncommon looking subject, worthy the regard of gardeners.

Messrs. Cannell & Sons, Swanley, showed cut blooms of *Chrysanthemums*, of which the following were the best:—*E. Molyneux*, red-chestnut of bright hue, the reverse of the forets being orange; *Rose Favourite*, a tender pale flesh, very handsome; *Admiral Sir T. Symonds*, of brilliant yellow, semi-double, the disc showing an orange colour; *Jane*, a white thread floret, and the same characteristics as the preceding; *Mrs. Cannell*, another semi-double, of a white colour, with an open disc; *Lucie* (Cullingford), red-chestnut colour; *Lady Duke*, a mauve-coloured thread-petalled flower; *Thorpe Junior*, yellow, the centre florets crumpled—a flattish, reflexed kind; *Mr. J. Mathews*, of an orange colour, with flat florets; *C. L. Teesdale*, a flesh-coloured flower, very pale of hue, with the centre florets yellow; *Neatness*, a quilled pompon, well deserving of its name. With the exception of the last named, the above were of the hybrid Japanese section.

Mr. Wright, gr. to E. H. Watts, Esq., Devonhurst, Chiswick, showed *Chrysanthemum Thomas Wright*, a white sport from Queen of England, beside Empress of India, to show its superiority to that variety.

Messrs. Heath & Sons, nurserymen, Cheltenham, showed two varieties of *Ixoras*, *Bestii* and *splendens*, but which, however, were not in a condition for us to be able to speak as to their merits.

Mr. Ross, gr. to Sir G. Macleay, Pendell Court, Blethingley, showed *Pontederia crassipes* var. *delicata*, bearing a stout flower-stalk, surmounted with a head of pale lilac flowers.

Mr. H. Simpkins, gr. to R. J. Measures, Esq., Cambridge Lodge, Chesham, showed a two-flowered *Cypripedium insignis*, a bloom of *Cattleya marginata*, with fine markings on sepals and petals; *C. Gaskelliana autumnalis*, and *Lælia prestans* rosea.

Mr. W. Holmes, Frampton Nursery, Hackney, showed a soft rose-coloured Japanese *Chrysanthemum*, *Couquette de Castle*; the flowers are tubular and slightly reflexed—a very large and beautiful flower, and as to colour remarkable.

Mr. W. Bull showed *Lady Avenel*, white and mauve; *Madame Ghys*, of a light mauve; a Japanese *Anemone*, and other *Chrysanthemums*.

Mr. Robert Owen, Boyne Hill Nurseries, Maidenhead, showed cut blooms of various *Chrysanthemums*, reflexed and incurved kinds, and also blooms of the annual *C. marginata*, Cloth of Gold, of pure yellow.

Mr. J. C. Cowley, gr. to F. G. Faure, Esq., Studley House, Hammersmith, showed *Cypripedium Lavinæ-cæmæ* and *C. Leeanum superbum*, the latter having superer developed flowers.

Mr. R. Clarke, florist, Twickenham, staged a neat lot of plants of *Cyclamen* in flower, consisting of his fine strains of crimson, white and crimson, and other colours. A Bronze Banksian Medal was awarded.

Fruit Committee.

Present: T. F. Rivers, Esq., in the chair; and Messrs. H. Veitch, J. Smith, G. Norman, J. Burnett,

G. T. Miles, J. E. Lane, J. Woodbridge, W. Warren, A. Sutton, R. D. Blackmore, H. Weir, P. Crowley.

1. Messrs. Lane & Son, nurserymen, Great Berkhamsstead, showed their Apple Prince Albert, receiving a Cultural Commendation; a similar award was made to Mr. Rouppel for three varieties of Apples.

A seedling Grape, named Miss Clarke, was exhibited by E. Woodall, Esq., of Scarborough, which the committee desired to be examined more fully on another occasion.

Messrs. J. Veitch & Sons, showed Apple Bismarck, and a few miscellaneous items of minor importance were shown.

FIRST-CLASS CERTIFICATES.

To Mr. Head, for *Clerodendron nutans*.

To Mr. Ross, for *Pontederia crassipes* var. *delicata*. To Messrs. Cannell & Sons, for *Chrysanthemum La France*.

To Messrs. Cannell & Sons, for *Chrysanthemum* (decorative) *Admiral Sir T. Symonds*.

To Messrs. Cannell & Sons, for *Chrysanthemum* (decorative) *Jane*.

To Messrs. Cannell & Sons, for *Chrysanthemum* (decorative) *Mrs. Cannell*.

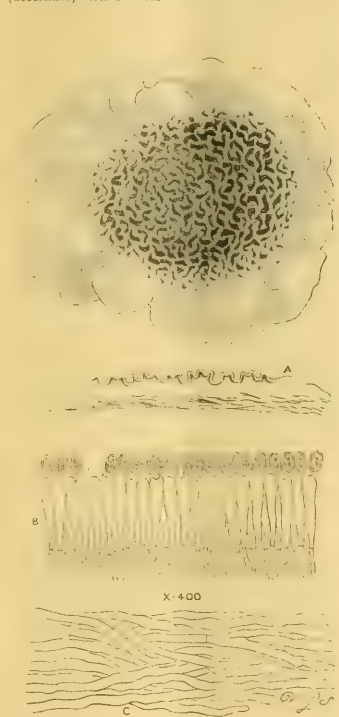


FIG. 125.—DRY ROT: MERLINUS LACHRYMANS (SEE P. 624).

To Mr. Holmes, for *Chrysanthemum* (Japanese) *Cogin Castle*.

To Sir Trevor Lawrence, for *Angræcum aviculare*.

To G. F. Wilson, Esq., for *Primula capitata* major.

To Messrs. J. Veitch & Sons, for *Chrysanthemum* *White Ceres*.

To Messrs. J. Veitch & Sons, for *Chrysanthemum* *gloriosum*.

To Messrs. J. Veitch & Sons, for *Chrysanthemum* *Phœbus*.

To Messrs. J. Veitch & Sons, for *Amaryllis Lady Mayoress*.

CHRYSANthemum SHOW AT THE CRYSTAL PALACE: Nov. 5 and 6.

PREPARATION was made here for a large display of cut blooms and plants, but the realisation fell somewhat short of the anticipated number of exhibits. We heard of some exhibitors who came and saw but did not stay to conquer or to be defeated, ignominiously beating a retreat with their intended exhibits. This is hard on the arrangers of shows, who prepare space according to announced demands. With regard to the quality of the blooms we can but repeat that which we stated last week. Most of the incurved varieties are smaller in size than in good years, and the flowers seem in many cases unable to

close up quite fully in the centre. To the general public who are mostly not "kenners" the beautiful and quaint forms and colours of the Japanese and reflexed kinds and refined form of the incurved afford all the gratification that is sought for, leaving to the connoisseurs all discussion as to perfect form and proper size.

The groups were, we think, rather in excess of what we usually find here, and were mostly composed of nicely bloomed plants, chiefly of the Japanese section, although a few consisted of incurved kinds only. The smaller flowered sections, as pompons, and pompon *Anemones*, were not so numerous, but those that were observed were of the useful dwarf habit, and were quite bouquets of flowers.

CUT FLOWERS.

Forty-eight blooms, twenty-four incurved and twenty-four Japanese.—The 1st prize fell to Mr. Gibson, gr. to J. Wormald, Esq., Morden Park, Mitcham, who had the following in first-class order:—*Princess of Wales*, two flowers, *Golden Queen*, *Golden Empress*, *Hero of Stoke Newington*, *Jeane d'Arc*, and *Empress of India*; the Japanese were *Grandiflora*, *Mrs. Burnett*, a fine pale flesh-coloured variety, *Comtesse Beauregard*, *Jeane Delaux*, *Val d'Andorre*, *Thunberg*, *Elaie*, *Boule d'Or*, *Fernand Feral* and *Baron de Prailly*. The 2d prize was taken by Messrs. W. & G. Drover, Farnham, Hants, who had two good flowers of *Val d'Andorre*, two of *J. Delaux*, *Gloriosum*, a beautiful yellow, the colour of *Soliel Levant*, of which kind a good bloom was also seen in his stand. Mr. J. McKenzie, gr. to F. S. W. Cornwallis, Esq., Linton Park, Maidstone, took the 3d prize with large flowers, but wanting in finish; *Isabella Bott*, a pale flesh-coloured sort, *Alfred Salter*, *Empress of India* and *Golden Empress* were the finest of the stand of incurves, and F. A. Davis was the best Japanese. In the stand taking the 4th prize, Mr. M. Sullivan, gr. to D. B. Chapman, Esq., Downshire House, Roehampton, had two very fine Japanese in *Martha Hardy* and *Mad. de Sevir*.

Eighteen incurved varieties, distinct.—Messrs. Drover, Farnham, took the 1st prize, the best flowers being *A. Salter*, *Empress of India*, *Queen of England*, *Mr. W. Shipman*, *Princess of Wales*, *G. Glenny*—small but of good form, *Baron Beust*, *Beauty*—a fine pale lilac; all were fairly good flowers, but small. Mr. Horsefield, gr. to Lord Haytesbury, Haytesbury, Wilts, was 2d, the best specimens on the stand being *Queen of England*, *Jeane d'Arc*, *Princess of Wales*, and *Isabella Ward*. The 3d prize fell to Mr. Spring-bitt, Holly Nursery, Chessnut, the best blooms being *Lord Wolsley*, *John Salter*, *Mrs. Heale*, and *Jardin des Fontaines*.

Twelve incurved varieties, distinct.—This class, always well contested, brought a good number of competitors, Mr. J. Gore, gr. to Captain Taylor, Glenleigh, Hastings, taking the 1st prize; *Golden Empress of India* was, perhaps, the finest bloom, but the following were not far behind it:—*Princess of Wales*, *Empress of India*, *Lord Wolsley*, *Lord Alcester*, *Novely* (a good French white), *Lady Harbridge*, and *Hero of Stoke Newington*, the remainder being of medium merit. The 2d prize was taken by Mr. J. Wyatt, gr. to J. Percy, Esq., Braddenhurst, Caterham Valley, with a nice stand of even blooms, *Pink Venus*, *John Salter*, and *Nil Desperandum*, being the finest.

Six incurved, one variety.—Here Mr. Wyatt took 1st, with a fair-sized well-built flower, the centre well filled, of *Lord Wolsley*.

Eighteen Japanese varieties, distinct.—The 1st prize was awarded to Mr. J. Munro, gr. to C. J. Cean Paul, Esq., Cambridge House, Twickenham Meadows; the flowers were nearly up to full size, but were mostly flat on the top; the best were Mr. J. Laing, F. A. Davis, *Marguerite Marroux*, *Madame B. Rendatler*, *Comte de Gerniny*, *Comtesse Beauregard*, *Madame C. Audiguer*, *Val d'Andorre*, *Baron de Prailly*, *Criterion*, and *Bouquet Fait*. The 2d prize was taken by Mr. E. Willis, gr. to Mrs. Pearce, The Firs, Bassett, Southampton; Japanese, *Triomphe du Nord*, *Val d'Andorre*, *Thunberg*, and *Madame C. Andiguer*, being the finest specimens.

Twelve Japanese varieties, distinct.—This was the warmest contested class, seventeen lots being shown. The 1st prize was awarded to Mr. H. Shoemith, gr. to the Rev. Canon Hodgson, Saltwood Rectory, Hythe, a fine showy collection, consisting of *Val d'Andorre*, *Marguerite Marroux*, *Boule d'Or*, *Mons. Ardene*, *Maiden's Blush*, *Madame B. Rendatler*, *Fernand Feral*, *Madame Andiguer*, and *Mlle. Lacroix*. Mr. F. Moore, gr. to Blendon Hall, Bexley, was 2d; in his stand the finest were *Mons. Delaux*, *Thunberg*, *F. A. Davis*, *Comtesse Beauregard*, and *Comte de Gerniny*.

Twelve *Anemone*-flowered varieties, not less than eight varieties, or more than two of a sort, Japanese not being admissible.—Mr. Sullivan, Roehampton, took the 1st prize with middling examples; the best of them were *Reine des Avelons*, of a pretty mauve colour; *Glück*, *Lady Margaret*, a very large one; *Marguerite d'Anjou*, *Fleur de Marie*, *Georges Sand*,

and Empress. There were fifteen competitors in this class.

Twelve reflexed, not less than eight, and not more than two of any variety.—The competition ran very close between the two first competitors, but eventually F. W. Flight, Esq., Cornisties, Twyford, was awarded the 1st prize, the fine flowers in his stand being Cullingfordi, Emperor of China, Madame Tezier, Chevalier Damage, King of Crimsoms, Peach Christine, Dr. Sharp, Cloth of Gold; the 2d going to Mr. Wills, Bassett—Cloth of Gold, Chevalier Damage, Cullingfordi, Mrs. Forsyth, and Dr. Sharp, being his best. Sixteen competitors entered this class. F. W. Flight, Esq., took the 1st prize for twelve pompons, and Mr. J. Gore that for twelve pompon Anemones.

THE GROUPS.

The collections arranged for effect on not less than 100 square feet, consisting of incurved varieties only, with pompons permissible as face plants, made a good show; but as far as brilliant colour was concerned, the preference must be given to groups of corresponding dimensions composed of Japanese varieties. All were shown more or less, and contributed largely to the beauty of the show. The groups were formed at salient corners, on either side of the nave.

The competition for six trained specimens was contested by only one person—Mr. Cherry, gr. to Mrs. Gabriel, Norfolk House.

The class for six trained Japanese varieties was competed for by only two persons; and the other remaining minor classes for small numbers of pot plants failed to get well responded to.

Some fairly well bloomed Chinese Primulas, red and white, were staged, but call for no comment.

Carnations by Mr. C. Edwards, Pine apples by F. W. Smith, Esq., and a few Begonia (tuberous) blooms from Messrs. John Laing & Co., comprised the remainder of the exhibits.

The names of exhibitors not mentioned in the foregoing who took prizes will be found in the annexed list of awards.

CUT FLOWERS (OPEN.)

Twelve incurved varieties, distinct.—2d, Mr. J. Wyatt, gr. to J. Perry, Esq., Braddenbury, Caterham Valley; 3d, Mr. E. S. Cole, gr. to W. Pethick, Esq., J. P., Woodside, Sneyd Park, Bristol.

Six incurved, one variety.—2d, Mr. M. Russell, gr. to Dr. C. F. Lewis, Broomfield, Henfield, Sussex; 3d, Mr. A. Holmes, gr. to A. B. Hill, Esq., South Road, Clapham Park.

Eighteen Japanese varieties, distinct.—3d, Mr. H. W. Ward, gr. to the Right Hon. the Earl of Radnor, Longford Castle, Salisbury.

Three Japanese varieties, distinct.—3d, Mr. E. S. Cole, gr. to W. Pethick, Esq., J. P., Woodside, Sneyd Park, Bristol.

Six Japanese, one variety.—1st, Mr. C. Gibson, gr. to J. Wormald, Esq., Morden Park, near Mitcham; 2d, Mr. A. Elphick, gr. to J. Clutton, Esq., The Orchard, Reigate; 3d, Mr. H. Shoemist, gr. to Rev. Canon Hodgson, Saltwood Rectory, Hythe, Kent.

Twelve reflexed, not less than eight varieties or more than two of one sort.—1st, F. W. Flight, Esq., Cornisties, Twyford (gr. to Mr. W. Neville); 2d, Mr. E. Wills, gr. to Mrs. Pease, The Firs, Bassett, Southampton; 3d, Mr. C. Gibson, gr. to J. Wormald, Esq., Morden Park, near Mitcham.

Twelve Anemone-flowered, not less than eight varieties or more than two of one sort, Japanese not admissible.—1st, Mr. M. Sullivan, gr. to D. Chapman, Esq., Downshire House, Roehampton; 2d, Mr. F. Moore, The Gardens, Blendon Hall, Bexley; 3d, Mr. C. Penford, gr. to General Sir F. Fitzwygram, Dart, M. P., Leigh, Dart, Devon.

Twelve pompons, distinct, three blooms of each.—1st, F. W. Flight, Esq., Cornisties, Twyford (gr. to Mr. W. Neville); 2d, Mr. G. Duncan, gr. to C. T. Lucas, Esq., Warnham Court, Horsham; 3d, Mr. J. Gore, gr. to Captain Taylor, Glenleigh, near Hastings.

Twelve pompon Anemone, not less than eight varieties or more than two bunches of a sort, three blooms of each.—1st, Mr. J. Gore, gr. to Captain Taylor, Glenleigh, near Hastings; 2d, Mr. J. Howes, Tulse Hill House, Upper Tulse Hill, Brixton; 3d, Mr. E. Chadwick, gr. to E. M. Nelson, Esq., Hanger Hill House, Ealing.

Six Japanese Anemone, not less than three varieties or more than two of a sort.—1st, Mr. C. Gibson, gr. to J. Wormald, Esq., Morden Park, near Mitcham; 2d, Messrs. W. & G. Drover, Fareham, Hants; 3d, Mr. H. W. Ward, gr. to the Right Hon. the Earl of Radnor, Longford Castle, Salisbury.

Twelve single, distinct, three blooms of each.—1st, Mr. E. Chadwick, gr. to E. M. Nelson, Esq., Hanger Hill House, Ealing; 2d, no competition; 3d, no competition.

POT PLANTS (OPEN).

Collection, arranged for effect, in group not less than 100 square feet, incurved varieties only (may be

faced with pompon).—1st, Mr. J. Townsend, Providence Nursery, Gardeners' Lane, Putney; 2d, Mr. N. Davis, Camberwell; 3d, Messrs. J. Laing & Co., Stanstead Park, Forest Hill.

Collection, arranged for effect in group not less than 100 square feet, Japanese varieties only (may be faced with pompon).—1st, Mr. G. Edwards, Balham Nursery, London; 2d, Messrs. J. Laing & Co., Stanstead Park, Forest Hill; 3d, Mr. N. Davis, Camberwell.

AMATEURS.

Collection arranged for effect in group not less than 50 square feet, any sort (amateurs only).—1st Mr. W. Webster, gr. to Mrs. Croll, Mavis Bank, Grange Road, Upper Norwood; 2d, Mr. J. Howes, Tulse Hill House, Upper Tulse Hill, Brixton; 3d, Mr. F. Ball, gr. to H. Doulton, Esq., The Woodlands, Tooting Common.

Six trained specimens, incurved varieties, distinct, grown in pots not exceeding 12 inches.—1st, Mr. E. Cherry, gr. to Mrs. Gabriel, Norfolk House, Streatham; No other competitor.

Four trained specimens, incurved varieties, distinct, grown in pots not exceeding 12 inches.—1st, Mr. C. Portway, gr. to B. B. Portall, Esq., Davenport House, Upper Tooting; 2d, Mr. G. Kinson, gr. to L. Luters, Esq., Claremont, Alleton Park, West Dalwich; 3d, Mr. W. Griffin, Gothic Lodge, Charles Street, Sydenham.

Six trained specimens, Japanese varieties, distinct, grown in pots not exceeding 12 inches.—1st, Mr. A. Tomalin, gr. to G. White, Esq., Oakwood, Croydon; 2d, Mr. C. Portway, gr. to B. B. Portall, Esq., Davenport House, Upper Tooting.

Four trained specimens, Japanese varieties, distinct, grown in pots not exceeding 12 inches.—1st, no competition; 2d, no competition; 3d, Mr. W. Griffin, Gothic Lodge, Charles Street, Sydenham.

Six trained specimens, pompon varieties, distinct, grown in pots not exceeding 12 inches.—1st, Mr. C. Portway, gr. to B. B. Portall, Esq., Davenport House, Upper Tooting; 2d, withheld; 3d, withheld; extra prize, C. Mr. E. Cherry, gr. to Mrs. Gabriel, Norfolk House, Streatham.

Twelve Chinese Primulas, reds.—1st, Mr. J. Rodbourn, gr. to Baroness Heath, Coombe House, Croydon; 2d, withheld; 3d, withheld.

Twelve Chinese Primulas, whites.—1st, Mr. J. Howes, Tulse Hill House, Upper Tulse Hill; 2d, Mr. J. Rodbourn, gr. to Baroness Heath, Coombe House, Croydon; 3d, Mr. J. Little, gr. to D. Link, Esq., Fairlight, The Avenue, Beckenham.

KINGSTON AND SURBITON: Nov. 9 and 10.

It is well for this Society that it has so capacious a building as the Drill Hall into which to place its considerable number of exhibits, but if the show continues to grow at its present rate, it is evident that ere other ten years have elapsed some expansion of the Drill Hall will be needed to accommodate it. In every part the staging or floor space allotted to the exhibits was packed and the arrangement so good and effective that as a floral *coup d'oeil*, the show could not have been excelled. Without exception, the Kingston, if not the largest, yet remains one of the very best and most striking of all our Chrysanthemum exhibitions.

On this occasion Chrysanthemum groups were of very good quality. Trained plants were more than usually numerous and good. Cut flowers were shown in great numbers, and if the incurved kinds lacked the fine quality seen in previous years, at least they were good for the season, whilst the Japanese flowers were exceptionally fine and beautiful.

Fruit, too, was excellent—Apples and Pears always are shown well here; whilst a couple of new classes for black and white Grapes brought good competition and some capital exhibits.

CUT FLOWERS.

The premier class here is that for the Challenge Vase, the present one being the fourth one offered, and competed for the first time. The absence of Mr. Molyneux, who has won the two previous vases left the competition all the more open, and it was with considerable satisfaction that we saw that capital grower, Mr. Gibson, gr. to J. Wormald, Esq., Morden Park, placed 1st. His twenty-four Japanese blooms comprised good samples of J. Delaux, Criterion, Baron de Prailly, Golden Dragon, Madame Lacroix, grandiflora, Madame C. Audigier, Fernand Feral, and Meg Merrille's. The best incurred in the twenty-four blooms were Princess of Wales, Empress of India, Golden Empress, Lord Wolsley, Princess Teck, John Salter, Refulgence, and Yellow Perfection. Mr. Coombs, gr. to W. Turke, Esq., Teddington, came 2d, having of Japanese fine Soleil Levant, Boule d'Or, Madame C. Audigier, Flamme de Ponch, Bouquet Fait, and Rose Poulette. Messrs. W. & G. Drover, Fareham, were a good 3d—a strong posi-

tion out of eight lots in competition, and their stands held many capital flowers. Mr. C. Beckett, Juniper Hill, Dorking, was 4th.

A good class was one for twelve Japanese and twelve incurred, limited to growers within the Poor Law district of Kingston. There were six lots staged, and Mr. W. Smith, gr. to J. F. Schwann, Esq., Wimbledon, was a good 1st with leading kinds; Mr. G. King, gr. to Mrs. F. E. Escher, was 2d; and Mr. Coombs 3d. In Mr. Smith's stand was a very elegant reflexed, thread pealed flower of Madame Andiguer, showing not only remarkable quality, but also how remarkably this fine kind will vary in form.

Only four lots were shown in the class for twenty-four incurred blooms. Mr. Coombs coming 1st; Mr. Woodgate, Warden House, Kingston, and Mr. G. Lane, Mayfield, Chatham, were 2d and 3d. The best blooms in the stands were: Jeanne d'Alc., Prince Alfred, Baron Buxat, Lord Wolsley, Mrs. Heale, Lady Slade, Princess of Wales, Novelty, Jardin des Plantes, Empress of India, and Barbara.

There were five lots of twelve blooms. Mr. R. Cawte, gr. to J. P. Robinson, Esq., coming 1st; Mr. Thorne, gr. to C. A. Flower, Esq., Walton, and Mr. Carter, gr. to Alderman Evans, were 2d and 3d. The blooms here were chiefly repetitions of those already named.

Mr. C. Slade, gr. to Lady Rwater, Richmond Park, had the best six blooms, fine but flatish flowers of Golden Queen, Empress of India, Go'den Empress, Lord Alcester, Lord Wolsley, and Prince Alfred.

With six blooms of one kind, Golden Empress, like lumps of butter, came from Mr. Munro, Cambridge House, Twickenham; fair Jeanne d'Arc coming 2d and 3d.

An interesting class was that for six blooms, open only to those growers who had not previously taken a prize at the show. There were nine lots staged, the best coming from Mr. C. Lane, Mr. Thorne coming 2d, and Mr. Hawkes, Kingston, 3d; some very good blooms indeed were shown in this class, which was one of great promise.

Turning now to the Japanese classes a remarkably fine lot of bloom was found in the one for twenty-four, there being no fewer than eight lots. Here Mr. King was 1st, with some grand flowers, including Mr. C. Audigier, Criterion, Baron de Prailly, Mons. Astorg, Artquin, Elaine, Val d'Andorre, F. A. Davis, Joseph Mahood, Mrs. Barnett, Middle Lacroix, John Laing, and Soleil Levant, a thoroughly first-rate lot of blooms; Mr. Child, gr. to Mrs. Slade, Claygate, was 2d, having in his stand the Daimio, Alba plena, Mons. N. Davis, a chestnut reflexed flower; Thunberg, and Japonaise, all excellent; Mr. Munro was 3d.

There were nine lots in the class for twelve Japanese.—Mr. W. Smith, Mr. Holden, Escher, and Mr. Duncan, Horsham, taking the prizes with excellent flowers.

With six Japanese of one kind Mr. King came 1st with Mad. C. Audigier, fairly good.

In the newcomers' class for six Japanese, nine lots being staged, Mr. Waite, Escher, was a good 1st, with some excellent blooms of Comte de Gernminy, Elaine, Fanny Bouchard, Bouquet Fait, Mad. R. Rendatier, and Mad. D'Arc.

With six reflexed flowers there were six stands of a dozen. Mr. Carpenter having the best blooms—all really good—in Cloth of Gold, Chevalier Damage, Mr. Forsyth, Pink and Golden Christine, Dr. Sharpe, and King of Crimsoms; Mr. Coombs was 2d, including in his stand good blooms of his new kind, Amy Furze, King of Crimsoms, and Beau de Nord; Mr. A. Carter was 3d.

Anemone-flowered kinds were well shown, the best coming from Mr. Gibson, who had capital Fleur de Marie, Lady Margaret, Mrs. Pethers, Acquisition, and Georges Sand.

Only two lots of Japan Anemones were staged, Mr. Child having some superb blooms of Madame Clos, Madame Berthe Pigny, Fabias de Maderanz, Madame Cabrol, and Souvenir Dorothe Souille; Mr. Carpenter was 2d.

Of pompon kinds only one lot was staged in the open class, from Mr. Clark, gr. to A. Nagle, Esq., Kingston—fairly good flowers in bunches. This falling off in the pretty pompon class is much to be deplored.

With Anemone pompons Mr. Coombs was 1st with good trebles of Mr. Asie, Regulus, Madame Montels, Marie Stuart, &c.; and Mr. Clark was 2d. There were numerous entries in small local classes, the which do not here call for mention.

Certificates of Merit were awarded to reflexed Amy Furze, a large, full, almost conical flower, rather paler than Pink Christine, a sort of fawn-white, shown by Mr. Coomb. Also to Messrs. Jackson & Son, for Moonlight, a Japanese which may be well described as a white Madame Audigier, and a capital addition to the white Japanese incurred flowers. Also for Ralph Brocklebank, a lemon-coloured sport from Meg Merrille's, but having all the sprawling looseness of that old variety. This was shown by Mr. R. Brocklebank, of Liverpool.

PLANTS IN POTS.

The groups and specimen plants formed a great feature of the exhibition, in several cases the plants being such as are not often seen. There was a large and close competition in the class for the best collection of *Chrysanthemums* to occupy not more than 50 square feet; quality and effect to be the leading features. The groups were of very meritorious productions, especially that of Mr. W. Smith, gr. to J. F. Schwann, Esq., Wimbledon, which received the highest award. The general appearance was one of compactness, and the bloom very large, of good form and the colours brilliant. The arrangement was certainly creditable, and great taste was displayed in blending and balancing the colours. There were some fine specimens of Mrs. Dixon and Val d'Andorre. The 2d prize was awarded to Mr. C. Orchard, gr. to W. M. Campbell, Esq., Coombe Ridge, for a group inferior to the 1st only on account of the want of size in many of the flowers, the colours being quite as brilliant as in the former. Mr. H. H. Pitches, gr. to Mr. C. F. Magee, Saratoga, was 3d; his group being weak in the arrangement, the quality good.

Mr. G. King, gr. to Mrs. Fawcett, Escher, had the best six trained incurved specimens, and carried off the premier award in the class with excellent plants, about 5 feet in diameter, all elegantly trained and well flowered, they included five specimens of Mrs. Dixon, John Salter, Lady Hardinge, and George Glenny. Good cultivation was evidenced, and the plants were heavily laden with blooms of good form. The 2d prize fell to Mr. C. Beckett, Janiper Hill, Duxing, whose specimens would have looked much better away from those of Mr. King. He had as his finest plants Mrs. Dixon, George Glenny, Prince of Wales, and Mr. G. Rundle. With smaller plants of good quality Mr. H. Trussler, gr. to G. Shand, Esq., took 3d.

In the class for three similar specimens the 1st honours were awarded to Mr. R. Cawte, whose plants of Mrs. G. Rundle, George Glenny, and Mrs. Dixon, especially the last, were very creditable. This exhibitor also had the best single trained specimen incurved, taking the 1st prize with a neatly trained and well flowered Mrs. G. Rundle. With the same variety Mr. King was a close 2d.

Three distinct standards were best shown by Mr. C. Beckett, the varieties being Chinaman, Mrs. G. Rundle, and Mrs. Dixon, all good plants, meriting the award, and far outdistancing their competitors.

In the class for three trained Japanese, there was a close competition between Mr. R. Cawte and Mr. C. Beckett, the highest award eventually being taken by the former exhibitor. In both cases fine plants were shown, bearing a profusion of large, light, and clear blooms. Mr. Cawte's plants were Ophio, Mr. Blanc, and Mdm. B. Rendall, while those in the 2d prize lot were Mdlle. Lucroix, M. Tarin, and Chinaman. Mr. G. King was awarded the 3d prize for creditable examples.

Mr. Cawte and Mr. King were 1st and 2d in the order of their names for a single trained Japanese plant. Mr. Cawte's plant of Peter the Great was well flowered but rather too stiffly trained. The flowers of La Nymphe, the plant shown by Mr. King, were not of uniform size, owing to their being so many on the plant.

For six trained specimen pompons, Mr. Cawte was again to the fore, showing remarkably good plants of Marguerite de Coi, Rosinante, Miss Nightingale, and Adèle Priset, each one having numerous clear and large flowers; Mr. J. Child, gr. to Mrs. Slade, Claygate, was a close 2d with lightly trained plants, having as his best good samples of Rosinante, Fanny and Prince of Orange; a close 3d was made by Mr. C. Beckett, with not quite so floriferous plants were shown in the 1st and 2d prizes. The plants throughout this class were above the average. This last competitor had the best single trained pompon variety being Fanny; the training was light, and the cultivation good. For a good plant, but more stiffly set up, Mr. Read was 2d; and he also took the highest award in the class for three trained specimens, with well flowered medium sized plants.

There were some plants in pots shown by cottagers, which reflected great merit on the cultivators; they, however, do not call for particular comment.

MISCELLANEOUS.

There was good competition for the prizes offered for a group of miscellaneous plants, arranged for effect, not to exceed 20 square feet. The best group was set up by Mr. G. Fittell, gr. to G. R. Geaves, Esq., Twickenham. This was a fine group, very lightly and tastefully arranged; it consisted chiefly of *Crotons*, *Dracenas*, various *Palms*, *Caladiums*, &c., on a light green ground formed by *Adiantums*, the whole being edged by a dark green moss which completely hid the pots, and contrasted with the colour of the Ferns. Additional elegance and lightness was lent by the judicious placing of *Ericas*, *Bouvardias*, *Chrysanthemums*, and a few plants of *Cypripedium*

insigne. Mr. H. Trussler was 2d, for a very similar group, but containing more flowering plants, the arrangement not being so light as in the other. Mr. R. Cawte was 3d, with good plants.

Various decorative plants were well shown, and included *Capicums*, *Primulas*, *Cyclamens*, &c.

Messrs. Hooper & Co., Twickenham, exhibited a small collection of their winter-flowering *Carnations*, which was Commended by the judges.

FRUIT.

This was well represented, especially as regards Grapes. The best three bunches of black Grapes came from Mr. Griffin, gr. to Miss Chrysty, Coombe Bank; the standard consisted of three fine bunches of Black Alicante, well and evenly finished, and of a good colour. Mr. W. Smith was 2d, with larger bunches of the same variety, but not so well finished; Mr. Dockerill, gr. to G. W. Palmer, Esq., Reading, was 3d, with good small bunches; he was the most successful exhibitor of white Grapes, his Muscat of Alexandria being of a rich colour, the bunches and berries large. Mr. Smith was a close 2d with this same variety.

Mr. George, 10, Victoria Road, Putney, showed a basket of Grape Gros Colmar (not for competition), which were very large in the berry.

Apples were best shown by Mr. J. W. Reed, his fruit being clean and sound, a very pretty Apple in his collection was Small's Victoria, of a rich golden yellow colour.

Mr. Rogers, gr. to S. C. Wilde, Esq., Cheam, received the 1st prize for Pears, his collection of four dishes containing two of cooking Pears. It seemed rather peculiar that it should have received the award when there were several lots of good dessert Pears as in the 2d prize lot of Mr. Lamb.

NATIONAL CHRYSANTHEMUM SOCIETY: Nov. 10 and 11.

THE season for the Chrysanthemum in the Home Counties culminated in the very fine show held at the Aquarium, Westminster, on the days named. As a whole the show is one of the largest, if not quite the largest, held here, in which the Chrysanthemum held the field. We cannot say that more skill is shown this year in the cultivation of the specimens observed in pots, but it must be allowed that the greater numbers of the Japanese varieties shown, and their greater showiness as compared with other kinds, add much to the brilliancy and interest of the show. The works of distorted art seen in the growing of pompons and others on enormous shields of wire and sticks, and gradually giving way to a more common sense way of growing the plants, consequently there were but few seen, and it is likely we shall see still fewer another season.

Cut blooms were not so large as usual, but were, on the whole, of excellent quality. The minor competitions show a decided increase on former years, and the competition in the big classes shows no waning.

The vegetable collections shown were numerous, as were the competing and non-competing classes in fruits, some of the best amateurs and trade growers showing largely.

Grapes in different varieties were plentiful, and comprised some excellent examples, especially of Gros Colmar and Barbarossa.

Groups of foliage plants were well represented, and plants for dinner-table decoration were conspicuous by their numbers.

POT PLANTS.

Groups of Japanese Chrysanthemums, 60 square feet, and not less than twenty varieties.—1st, Mr. G. Edwards, Balham Nurseries, a compactly arranged group, consisting of well bloomed plants of well known kinds, fairly well feathered with foliage, and ranging in height from 3½ to 5 feet; 2d, Mr. J. Townsend, Providence Nursery, Gardeners' Lane, Putney, a lot of well flowered plants of from 2 to 6 feet in height, the colours well varied; 3d, Mr. W. Brown, St. Mary's Nursery, Richmond, with plants of greater height than the former, smaller flowers, leggy, and bare of foliage, but bright with plenty of bloom.

Group of Chrysanthemums, Japanese varieties, excluded other conditions similar to those of previous class.—1st, Mr. G. Stevens, nurseryman, Putney, with plants loaded with good bloom, well chosen as to colour, the front of the group well filled with pompon varieties; 2d, Mr. J. Townsend, a group of tall plants, having large well developed flowers and abundant; 3d, Mr. J. H. Whitey, gr. London Cemetery Company, the plants of medium quality only.

Nine trained specimens, large flowered varieties in pots, not exceeding 12 inches.—1st, Mr. Monk, gr. to Mr. W. Fowler, Forest Nursery, Leytonstone, whose plants consisted of Mrs. G. Rundle, J. Salter, Dr. Sharpe, the finest bloomed specimen in the show; Lady Hardinge, Golden G. Glenny, Mrs. G. Glenny,

and Prince of Wales. 2d, Mr. R. Bass, gr. to Miss A. Cotton, The Pastures, Leytonstone, a creditable display, but showing too evidently the art of the trainer; 3d, Mr. J. Weston, gr. to Dr. Martineau, South Road, Clapham Park, whose plants were furnished with very fine large blooms, especially the sorts Lord Alcester and Princess of Wales.

Four standard trained specimens, large-flowered varieties, in pots not larger than 12 inches.—1st, Mr. J. Mitchell, gr. to Mrs. Arbuthnot, Bogen Place, Bexley, with two tall and two dwarf plants, viz., Margot, Berlier Rendall, Bouquet Falt, and G. Glenny; 2d, Mr. F. Moore, Blenheim House, Bexley, the varieties Jardin des Plantes and Mrs. Rundle being the best, the plants being trained as globular-headed standards; 3d, Mr. Gilbey, gr. to B. Booth, Esq., The Cazanoves, Upper Clapton—plants of 4 feet in height, and full of flower—Source d'Or and Dr. Macary being very fine.

Six trained specimens, Japanese, in pots less than 12 inches.—1st, Mr. W. Monk, with Elaine, Tokio, and Mon. C. Hubert as his best, at 4 feet in height, and Mdlle. Savin, Parosol, and Source d'Or as the lesser-sized plants—all had flower and foliage down to the pot. 2d, Mr. R. Bass, with large pyramids, well furnished with bloom, La Chameuse and L'Isle des Plaisirs being the choicest; 3d, Messrs. J. & G. Drain, Southgate Nursery, with well flowered plants of but 2 feet in diameter.

Four trained specimens, large-flowered, Japanese or pompons.—2d, Messrs. J. & G. Drain, with plants of neat growth, not formally trained, and well furnished with foliage and flower.

Six trained specimens, pompons.—1st, Mr. R. E. Reeve, gr. to J. J. Elliott, Esq., Hadley House, Hadley Green, Barnet—splendid specimens of culture, 18 feet in circumference, and well flowered; sorts consisted of *Sour Melaine*, *Golden Cedo Nuli*, *Cedo Nuli*, *Fanny*, *Marguerite de Coi*, and *Mrs. Andromeda*. 2d, Mr. P. Gilbey: the best were *Sour Melaine*, *Aurora Borealis*, and *St. Michael*—dwarf trained and well flowered.

AMATEUR CLASSES.—CUT BLOOMS.

For twelve incurved, distinct.—1st, Mr. F. Bingham, 3, Bethune Road, Stoke Newington, the finest of the stand being Queen of England, J. Salter, Empress of India, Lord Wolsey, Golden Empress, Hero of Stoke Newington, Nil Desperandum, Mrs. Rundle, and Princess of Teck; 2d, Mr. J. J. Hillier, 13, Percy Road, Wandsworth, whose blooms were symmetrical, but below the others in size.

For six incurved, distinct.—1st, Mr. F. Bingham, a creditable stand, consisting of some of the same varieties as appeared in his class for twelve varieties; 2d, Mr. J. J. Hillier, the blooms of Mrs. Shiman, and the fine yellow Mr. Bunn, and Princess of Wales being very nice.

For twelve Japanese, distinct.—1st, Mr. J. J. Hillier, the best being the new kind—Glorious, Val d'Andorre, Dormillon, Rosa superba, and Boule d'Or; 2d, G. Walker Esq., 12, Lingford Road, Wimbledon, Flamme de Pouch and Marguerite Marouch were the finest.

For six Japanese, distinct.—2d, Mr. J. J. Hillier; 3d, Mr. G. Jordan, gr. to Rev. H. A. Berners, Harkstead Rectory, Ipswich—both of these competitors staging fair sized blooms.

METROPOLITAN CLASSES.

These are instituted to encourage metropolitan growers, and were the means of bringing many very fair flowers to the show.

For twenty-four incurved, in not fewer than eighteen varieties, or more than two of one variety.—1st, Mr. G. Langden, gr. to Mrs. Minerve and Adams, Brook House, Clapton, with superior well moulded blooms of leading kinds; 2d, Mr. S. Gilbey, also showing good blooms of perfect form, if a little undersized.

For twelve incurved, distinct.—1st, Mr. Langden; 2d, Mr. Nichol, gr. to W. T. Ogden, Esq., Verandah House, Clapton Common.

For six incurved Mr. S. Gilbey was 1st, A. Salter and J. Salter being fine blooms; Mr. Langden was 2d.

Twelve Japanese, distinct.—Mr. Gilbey took 1st here, with well chosen kinds, somewhat small; and Mr. Davis the 2d.

Mr. Beach, gr. to J. Seligman, Esq., Hereford House, South Kensington, was 1st for six Japanese varieties—good blooms of handsome kinds.

A few groups of Ferns were shown, the 1st prize being taken by Mr. Challis, gr., Albion Lodge, Park Lane, Stoke Newington, ordinary kinds, nicely grown, constituting the group; Mr. Davis, gr. to C. C. Payne, Esq., Cedar House, Stamford Hill, taking also 2d prize in the class for foliage plants.

FRUIT AND VEGETABLES.

Six dishes of dessert Apples, distinct, fit for table.—1st, Mr. G. Duncan, gr. to C. T. Lucas, Esq., Warnham Court, Horsham, the sorts shown consisting of *Blenheim Orange*, *Court Pendu*, *Cox's Orange*, *Golden Russet*, *Ribston* and *King of Pippins*,

all very fine highly coloured fruits; 2d, Mr. C. Ross, gr., Welford Park, with Cornish Aromatic, very fine and large; Gravenstein, Lady Alice Eyre, a seedling of Mr. Ross' raising, but which, being unripe, lost him the 1st place. 3d, Mr. W. C. Jacobs, Petworth, with varieties exceeding all others in colour.

Six culinary Apples, distinct.—1st, Mr. McKenzie, gr., Linton Court, Maidstone, with Emperor Alexander, Pomona, and Gloria Mundi, being very fine; 2d, Mr. C. Ross, the Mère de Ménage and Stirling Castle being larger than is often seen.

Six dishes dessert Pears, distinct.—1st, Mr. W. Allan, gr. to Lord Suffield, Gunton Park, with fine examples of Marie Louise, M. Louise d'Ucelle, Beurré Bosc, B. Diel, Gou Moreau, &c.; 2d, Mr. C. Goldsmith, gr. to Mrs. A. C. Hoar, Kelsey Manor, Rockingham, the Pittaston Duchess and Beurré Clairgave being large and perfect.

Three bunches of white Grapes.—1st, Mr. J. Roberts, gr. to Messrs. Rothschild, Gunnersbury Park, Acton, with Muscat of Alexandria, solid bunches of a fine amber colour; 2d, Mr. Chalk, gr. to G. Read, Esq., Westwood, Salisbury—the bunches loose and attenuated, colour good.

Three bunches of black Grapes.—1st, Mr. J. Harvey, gr. to J. Waters, Esq., Mrs. Kyns, Pearshurst, Sussex, with fine large-bunched Gros Colmar, fine in colour, but not too large in berry; 2d, Mr. Smith, gr. to W. H. Sewell, Esq., Warren Hill, Loughton, excellent in size of bunch, but wanting a little in colour; 3d, Mr. J. Wing, gr. to — Shepherd, Esq., Rouppell Park, Streatham, with examples that showed good colour and medium-sized berries and bunches.

Collection of Grapes, to consist of twelve bunches, in not less than three varieties.—1st, Mr. J. Harvey, showing three bunches of Barossa of fine colour, and weighing 14½ lb. three of Gros Colmar, of a weight of 12½ lb.; and three of Black Alicante, of the weight of 11 lb. All of these Grapes possessed every good point, and were much admired. 2d, Mr. J. H. Goodacre, gr. to the Earl of Harrington, Elvaston Castle, showing Black Alicante, Golden Queen, Gros Colmar, with immense berries, and Mrs. Pearson, nice medium-sized bunches; 3d, Mr. W. Allan, whose examples of Mrs. Pince were very credible.

SPECIAL PRIZES BY MESSRS. WEBB & SONS.

For the best collection of vegetables, six distinct kinds.—1st, Mr. S. Haines, gr. to Lord Radnor, Coleshill House, Highworth; the examples of Wroxton Onion, Student Parsnip, James' Intermediate Carrot, and Autumn Giant Cauliflower were very fine. 2d, Mr. May, gr. to Capt. Le Blanc, Northam House, Barnet, the Lapstone Kidney Potato and May's Brussels Sprouts being amongst his best things; 3d, Mr. Beckett, Cole Hatch Farm, Amersham, the Sutton's Prize-taker Leek and Walker's Exhibition Onion being the finest of the exhibit.

MESSRS. SUTTON & SONS' PRIZES.

For a similar collection.—1st, Mr. C. Waite, gr. to Hon. W. P. Talbot, Glenhurst, Esher, the best being Rousham Park Onion, Sutton's Prize-taker Leek, Perfection Tomato, and New Intermediate Carrot; 2d, Mr. May, with his variety of Brussels Sprouts and others; 3d, Mr. A. Miller, gr. to W. N. Long, Esq., M.P., Rood Ashton Park; 4th, Mr. Haines.

For twelve dishes of Potatoes Mr. E. S. Wills, gr. to R. A. Cartwright, Esq., Edgecote, Banbury, took 1st, for clean samples of approved kinds, and Mr. Jacobs a similar award for the best six dishes.

MISCELLANEOUS.

A large collection of Apples was shown, not for competition, by Messrs. G. Bunyard & Co., Maidstone.

Messrs. Sutton & Sons, Reading, showed a collection of a hundred dishes of old varieties of Potatoes, twenty-four dishes of such as are of their introduction, and seven of seedlings under number. Of the latter Nos. 236, a roundish flat, with a suspicion of pink in the eyes; 215, a kidney said to have the true nutty flavour; and 251, a flattish round, of medium size—all of which will appear in commerce next year—are promising kinds.

Messrs. H. Cannell & Sons, Swanley, showed large numbers of Chrysanthemums of all sections, many of them new ones of their raising, also blooms of Begonias; and Mr. N. Davis several new varieties of Chrysanthemums.

Some very charming bouquets of wild and cultivated flowers in a dried state, but retaining perfectly their natural colours, were shown by Mrs. J. Binns, Southam. These bouquets are made flat, and are interspersed with Fern fronds, grass awns, and other slender material, each bouquet being arranged as a vignette within an oval or square frame, the latter, in some instances, appearing consisting of Fir cones, Oak galls, nuts, &c.

Mr. Robert Owen, nurseryman, Boyne Hill, Maidenhead, exhibited Chrysanthemums of various classes, also C. marginatum.

Mr. W. Holmes showed a group of foliage plants

and Chrysanthemums, receiving a Silver Medal for the same.

Mr. Crute made a large show of his new garden pottery, both of the ornamental and purely useful kinds of ware.

Manure dealers and purveyors of garden requisites of all kinds had several stands.

CUT FLOWERS, INCURVED (OPEN).

The leading class for cut blooms was that for twenty-four incurved, not less than twenty-four varieties, and not more than three blooms of any one variety. In this class Mr. C. Gibson, gr. to J. Wormald, Esq., Morden Park, Surrey, was placed 1st with a lot of blooms decidedly superior to any shown amongst the eight stands competing in this class, and he was placed 1st and the award registered. Soon after, it was found that Mr. Gibson had staged four blooms of Golden Queen instead of only three, and he had to be disqualified for what was in reality an unfortunate oversight. He had remarkably fine blooms of Golden Queen, John Salter, Princess of Wales, Hero of Stoke Newington, Nil Desperandum, Barbara, Mrs. Dixon, George Glenny, Princess Beatrice, Jeanne d'Arc, Princess Teck, Golden Eagle, Mabel Ward, Refulgence, and Lord Wolsley. The disqualification of Mr. Gibson resulted in Messrs. W. & G. Drover, nurserymen, Farnham, being placed 1st, and they staged very good blooms of Emily Dale, Lord Wolsley, Queen of England, Alfred Salter, Golden Empress, Mrs. W. Shipman, Nil Desperandum, Hero of Stoke Newington, Lord Alcester, John Salter, Beverley, Prince Alfred, Mabel Ward, Princess of Teck, Princess of Wales, Jardin des Plantes, White Globe, Cherub, Angelina, Lady Hardinge, Baron Beust, and Mrs. Halibutson. 2d, Mr. J. R. Wildman, Oaklands Grove Road, Clapham Park, S.W., with Alfred Salter, Empress of India, Venus, Lady Slade, George Glenny, Lord Alcester, John Salter, Prince of Wales, Prince Alfred, Lord Wolsley, Refulgence, Mr. Bunn, Mrs. Dixon, Golden Beverley, and Antonelli.

In the class for twenty-four incurved varieties, distinct, there were three collections. Mr. J. R. Wildman was placed 1st, with nice and fresh, but rather unequal blooms of Empress of India, Lord Wolsley, Nil Desperandum, Prince Alfred, Guernsey Nugget, Venus, Antonelli, Eve, Barbara, Novelty, Refulgence, Mrs. Dixon, George Glenny, Lady Slade, Mr. Bunn, and Mrs. W. Shipman; 2d, Mr. E. Sanderson, St. Mary's Road, Halesden Park, N.W., with larger and more even blooms, in a few cases a little *pasté*. Still many thought they should have won the 1st honours. He had in excellent form Golden Empress, Jeanne d'Arc, Empress of India, Antonelli, Lady Carey, Golden Perfection, Nil Desperandum, Mr. Bunn, Golden Eagle, Captivation, Princess of Teck, and Mr. Brunlees.

In the class for eighteen incurved varieties there were eight collections, and any exhibitor who at the Royal Aquarium had previously taken a 1st prize for forty-eight, thirty-six, or twenty-four cut blooms of incurved flowers was excluded. The 1st prize went to Mr. J. Martin, gr. to C. N. Kidd, Esq., West Hill House, Dartford, who had in capital form Princess of Wales, Empress of India, Prince Alfred, Golden Empress, Lord Wolsley, Lord Alcester, John Salter, Mr. Brunlees, Mrs. W. Shipman, Princess Beatrice, Prince of Wales, Golden Empress, Queen of England, 2d, Mr. J. Horsfield, Heytesbury, Wilts, with only just inferior blooms of Queen of England, Empress of India, Lord Alcester, Jeanne d'Arc, Golden Empress, Beverley, White Venus, Baron Beust, Barbara, Lady Hardinge, Mrs. A. Shipman, and Prince Alfred.

In the class for twelve blooms, distinct, there were ten collections, and here Mr. J. Doughty, gr. to Mrs. Tomlin, Angley Park, Cranbrook, Kent, was an admirable 1st, with very fine blooms of Lord Alcester, Empress of India, Golden Empress, Queen of England, Prince Alfred, Jeanne d'Arc, Alfred Salter, Princess of Teck, Hero of Stoke Newington, Mrs. Heale, Mrs. W. Shipman, and Lady Hardinge; 2d, Mr. H. Shoesmith, gr. to the Rev. Canon Hodgson, Saltwood Rectory, Hythe, with Lord Wolsley, Golden Empress, John Salter, Queen of England, Princess of Wales, Jeanne d'Arc, Mrs. Heale, Emily Dale, Hero of Stoke Newington, Cherub, Princess of Teck, and Jardin des Plantes.

Then came a class for six blooms for those who in any previous year had not taken a prize for cut flowers, and as there were fourteen competitors there was evidently no lack of new aspirants to fame. The best came from Mr. D. Hill, gr. to T. D. Brookman, Esq., Bradborough Park, Hythe, Kent, who had very fine blooms of Empress of India, Princess of Wales, John Salter, Princess Teck, Jeanne d'Arc, and Nil Desperandum; 2d, Mr. Howe, gr. to H. Tate, Esq., Park Hill, Streatham, who had Golden Empress, Queen of England, Princess Alexandra, Lord Wolsley, Mr. Brunlees, and Prince Alfred; 3d, Mr. J. Philpot, gr. to C. T. Pearson, Esq., Osidge, Southgate.

The class for six blooms of any one variety brought six competitors, and here Mr. J. W. Springbett,

Holly Nursery, Cheshunt, was placed 1st with six faultless blooms of Princess of Wales; Mr. C. J. Salter being 2d with Lord Wolsley, very fine; and Mr. H. Shoesmith 3d, with Empress of India.

CUT FLOWERS: JAPANESE.

These were not only numerous, but so marvelously fine, that visitors clustered about the stands admiring the rich colours and varied forms.

There were ten competitors in the class for forty-eight blooms, not less than twenty-four varieties; and not more than two blooms of any one sort, and here Mr. C. Gibson was 1st with superb examples of Madame Carol, Mdlle. Lacroix, Japonaise, Grandiflora, Baron de Prailly, Comtesse de Beauregard, Boule d'Or, Maiden's Blush, Meg Merlie, Glorioso, Jeanne Delaux, Fernand Feral, Thunberg, Roseum pictum, Elaine, Golden Dragon, Mons. Boronet, Val d'Andorre, White Dragon, L'Adorable, Comte de Gerniny, Mons. Astorg, Duchess of Albany, Hiver Fleur, Album striatum, and Marguerite Marrouch. 2d, Mr. J. Ridout, gr. to T. B. Haywood, Esq., Woodthatch, Reigate, with very fine examples of Val d'Andorre, Peter the Great, Mons. Ardenne, Mons. Astorg, Grandiflora, Japonaise, John Laing, Criterion, Dormillon, Jeanne Delaux, Marguerite Marrouch, Flamme de PUNCH, Madame Rendaller, Jupiter, Soleil Levant, Boule d'Or, Fair Maid of Guernsey, Madame de Sevin, Madame Feral, and Mlle. Lacroix.

In the class for twenty-four varieties, distinct, there were seven competitors; and here Mr. J. Child, gr. to Mrs. Slade, Claygate, Esher, was 1st, with a very fine lot of blooms, consisting of Comtesse de Beauregard, Mons. Astorg, Baron de Prailly, Thunberg, Val d'Andorre, Mdlle. Lacroix, Galathée, Fair Maid of Guernsey, Fernand Feral, L'Incomparable, The Daimio, Boule d'Or, Fanny Bouchart, Mons. F. A. Davis, Mons. Delaux, Duchess of Albany, Japonaise Album plenum, Hiver Fleur, Madame de Sevin, Peter the Great, Jupiter, and Napoleon; 2d, Mr. H. Shoesmith, with large and well developed blooms of Fernand Feral, Marguerite Marrouch, Madame G. Sand, Bertha Rendaller, Hiver Fleur, Fair Maid of Guernsey, Triomphe du Nord, Mons. Ardenne, Golden Dragon, Japonaise, Elaine, Flamme de PUNCH, Madame J. Laing, &c.

The best twelve blooms brought fourteen competitors, and they were very good throughout. Here Mr. Fred. Moore was a good 1st with admirable blooms of Fair Maid of Guernsey, Mons. Astorg, Ceres, Baron de Prailly, Thunberg, Triomphe de la Rue des Châlets, Soleil Levant, Comte de Gerniny, F. A. Davis, John Laing, Criterion, and Mons. Delaux; 2d, Mr. W. R. Strong, Wellington College, with Maiden's Blush, F. A. Davis, Marguerite Marrouch, Meg Merlie, F. A. Davis, Fanny Bouchart, Belle Poule, &c.

In the class for six white blooms, one variety, Mr. G. Duncaan, gr. to C. Lucas, Esq., Warnham Court, Horsham, was 1st, with wonderful flowers of Fair Maid of Guernsey; 2d, Mr. H. Shoesmith, with Mdlle. Lacroix; 3d, Mr. J. R. Wildman, with Elaine.

The best six of any other colour were Yellow Dragon, very fine indeed, from Mr. C. Bick, gr. to P. Narborough, Esq., Summerfield House, Elstree; Mr. G. Duncaan was 2d with Japonaise; and Mr. H. Shoesmith 3d, with Jeanne Delaux.

In the class for six varieties for those not having in any previous year taken a prize for cut blooms of Chrysanthemums, there were eighteen competitors, and here Mr. C. Bick was 1st with capital blooms of Belle Poule, Mons. Astorg, Madame J. Laing, Mdlle. Moulis, Thunberg, and Jeanne Delaux; 2d, Mr. J. Hewitt, gr. to H. B. Mackesson, Esq., Hillside House, Hythe, Kent, with Madame C. Audigier, Marguerite Marrouch, Grandiflora, Triomphe de la Rue des Châlets, L'Adorable, and Mons. Ardenne.

Mr. G. Stevens, St. John's Nursery, Putney, offered special prizes for the best six blooms of Chrysanthemum, Maiden's Blush, and here Mr. P. Sadler, gr. to C. Lambert, Esq., Oak Hill Place, Streatham, was 1st with some excellent flowers; Messrs. W. & G. Drover, Farnham, being 2d; and Mr. J. Wright, Middle Temple Gardens, 3d.

REFLEXED CHRYSANTHEMUMS.

In the class for twelve bloom, not more than two varieties of each variety, there were seven competitors, and some charming blooms were staged; the best stand came from Mr. F. Moore, gr. to W. C. Pickersgill, Esq., Blendon Hall, Derby, who had very fine blooms of Mrs. Forsyth, Cloth of Gold, Garibaldi, Feast Christine, Golden Christine, Felicity, Cullingford, very fine; Dr. Sharpe, and Phidias; 2d, Mr. E. Wills, with Cloth of Gold, Mrs. Forsyth, King of Crimsons, Chevalier Dmoege, Cullingford, and Phidias.

ANEMONE-FLOWERED CHRYSANTHEMUMS.

In the class for twelve, large-flowered varieties, Japanese forms excluded, Mr. F. Moore was

ist with Laing's Anemone, very fine; Acquisition, Mrs. Petters, Lady Margaret, Fleur de Marie, King of Anemones, Glück, Minnie Chate (?), Sunflower, Empress, Princess Louise, and Georges Sand. A protest was entered against the 1st prize being awarded to this stand, on the ground that it contained a bloom of Miss Chate, a Japanese variety, but it was overruled by the judges, on the ground that they were not at all certain that it was the variety named. 2d, Mr. Sullivan, gr. to D. B. Chapman, Esq., Downshire House, Roehampton, with fine blooms of Lady Margaret, Mrs. Petters, Fleur de Marie, Glück, Laing's Anemone, Georges Sand, Empress, and Prince of Anemones.

There were three stands only of six blooms of Japanese Anemone-flowered varieties, not less than three varieties, and here Mr. J. J. Hillier, 33, Priory Road, Wandsworth Road, was 1st with Triomphe du Nord, Ratapoi, Madame Cabrol, Madame Clos, and Scour Dorothe Souille; 2d, Mr. A. Ives, with Madame Bernthé Pigny, Minnie Chate, Scour Dorothe Souille, Duchess of Edinburgh, and Souvenir de l'Ardenne.

There were six collections of Anemone-flowered pompons, three flowers in a bunch, and here Mr. R. Whitby was 1st, with Regulus, Mrs. Wynne, Astaire, Miss Nightingale, Antonius, Madame Chalonge, Rose Marguerite, Magenta King, Astrea, Mons. Astie, Perle, Marguerite du Coi. 2d, Mr. M. Butcher, gr. to W. G. Cusins, Esq., The Priory, Hadley, with a very good lot also, but owing to the deficient light we were unable to obtain the names.

POMPON CHRYSANTHEMUMS.

Shown in stands of twelve bunches, three flowers forming a bunch, these were very pretty in leaf, and the stands competed. The best came from Mr. J. Gore, who had Black Douglas, Tossaint Maurist, President Fremy, Marabout, Prince of Orange, Golden Mille Marthe, Adele Presette, Mons. Hoste, Glück, Mille Marthe, and Madame Victor. 2d, Mr. Butcher, with Golden Mille Marthe, Fimbratium, St. Michael, Prince of Orange, President, Scour Melaine, Adonis, La Vogue, Charles Dicks, Marabout, Cendrillon, and Mille Marthe.

NEW CHRYSANTHEMUMS.

A Silver Medal was offered for the best stand of twelve blooms of new Chrysanthemums, in not less than six distinct varieties, and this was awarded to Mr. G. Stevens, St. John's Nursery, Putney, who had, in good form, Maiden's Blush, Madame la Marquise de Mun, John Stevens, St. Angele Amiel, Lady Matheson, Mille Marthe Clos, and William Stevens, all Japanese varieties. Five other stands competed.

A large number of these were submitted to the Fine Arts Committee of the National Chrysanthemum Society during the day, E. Sanderson, Esq., President, presiding.

First-class Certificates of Merit were awarded to Mr. F. A. Davis, Chrysanthemum Nursery, Camberwell, for hybrid pompon Sanspareil, golden-bronze with lemon centre, large and good shape, with broad petals and a distinct incurved form; pompon Seapen, pale chestnut flushed with magenta, large, full, and somewhat reflexed; Japanese Snowstorm, a white variety; the Great Peter, the Great, slight sulphur centre, large and full, appears a fine decorative variety; also to Mr. Ives, gr. to E. C. Jukes, Esq., for the same; for Anemone-flowered La Marguerite, purplish-magenta with golden centre, good colour and shape; and Croesus and Chardonnet, two reflexed varieties with handsome fimbriated petals, appearing as if they were the commencement of a new race—the former pale chocolate-brown with yellow centre, the latter dull reddish-purple. The same award was made to Mr. Jones, nurseryman, Lewisham, for Mrs. H. J. Jones, a golden sport from the Japanese, Ethel, the flowers pale gold, and very handsome. To Messrs. Henry Cannell & Sons, nurserymen, Swanley, for hybrid pompon Egyptian Gem, light magenta-purple, full, and of excellent form; and Japanese Anemone Ratapoi, reddish-brown, with orange centre, distinct and good. To Mr. William Holmes, Hackney, for Japanese Conquiste de Castille, delicate pink, dwarf in growth; very pretty as a decorative variety. To Messrs. James Veitch & Sons, Royal Exotic Nurseries, King's Road Chelsea, for reflexed Chrysanthemum, Madame Vivand Morel, very like a Dahlia, with broad white petals, and a sulphur centre; to St. Angele Amiel, a white Japanese, with full flowers of narrow petals; and Paul Dutour, white, with lilac base—a beautiful Japanese variety.

The following were Commended—Pompon Osiris, pink, tipped with lemon, and pale golden centre, good shape, and very pleasing—from Mr. Wright Temple Gardens; and Hybrid pompon Aureole, soft pinkish-lilac, with large reflexed flowers—from T. S. Ware; Mrs. Cannell, an incurved Japanese ivory white, with sulphur centre—from Messrs. H. Cannell & Sons, which the committee would like to see again. The best arranged epergne of single or semi-single Chrysanthemums came from Mr. W. Brown, St.

Mary's Grove Nursery, Richmond; 2d, Mr. E. Chadwick, gr. to E. M. Nelson, Esq., Ealing; and 3d, Mr. H. J. Jones, Hope Nursery, Lewisham.

MANCHESTER HORTICULTURAL IMPROVEMENT SOCIETY.

THE annual meeting of the Manchester Horticultural Improvement Society was held on Thursday, Nov. 4, in the Memorial Hall, Albert Square. Mr. Bruce Findlay, the President, was in the chair.

Mr. Robert Tait, the honorary treasurer, submitted his financial statement for the past year. He was pleased to find the Society had a small balance, and he hoped the new session would end with a larger amount than it had now.

The statement was adopted by the meeting. Mr. Bruce Findlay was unanimously re-elected President for the coming year; Mr. Robert Tait, treasurer; Mr. W. B. Upjohn, honorary secretary; and the following gentlemen again form the committee of the Society: Messrs. William Elton, J. Briddon, F. Robinson, J. S. Butterworth, and E. G. Hughes.

The President then delivered an address. He took as his subject Horticulture, which, he said, whether regarded as an art, a science, pursuit, or a profession, now occupies more of the attention of the educated classes than at any previous period. Horticulture is the parent of agriculture inasmuch as it determines on a small scale the value of those principles upon which a more extended cultivation of the soil depends. It essentially consists in subjecting living organisms to the wants, tastes, and caprices of man, who obliges the plant he wants, or admires in its natural condition, to live where he pleases, however far from its native haunts; and who requires the plant which he does not want or admire in that condition to change its form, colour, or habits, and assume such as will render it valuable to him or beautiful in his eyes. The tendency to produce a variable offspring is inherent in the constitution of every plant, and is indeed a necessity of its existence. There is no such thing as an absolute repetition of the parent in the progeny. Nature supplies the gardener with varieties, and all he can do is to exert his skill in deciding which of them is best suited to his wants, again selecting from its progeny which is still better suited, and so on till his wants are satisfied. It is to this inherent power of variation and its apparent universality that the attention of horticulturists is now directed in a very marked manner. Every gardener knows how difficult it is to keep the progeny true to its parents, that the same garden variety does not originate in two independent nurseries, and that the race of a plant raised in Belgium differs from the race of the same plant raised in France, Holland, or England. There can be no doubt that vegetables as well as animals and plants are liable to an almost unlimited diversification, regulated by climate, soil, nourishment, and new commixtures of already formed varieties.

Mr. Findlay referred briefly to the state of horticulture at the present time in this country. He could go back for a period of thirty-five years, and he was bound to say that in some branches of plant culture little or no progress has been made. Where are the magnificent collections of Cape Heaths that used to be exhibited by Fairbairn of Clapham, Kollinson of Tooting, Edes of Exeter, and others of the kind? They are not to be met with in these days. Where are the magnificent specimen Azaleas that used to be the glory of our exhibitions? They do not exist. Then, again, there were the New Holland plants formerly shown by Mrs. Lawrence of Exling Park, Mr. Collier of Dartford, and several other exhibitors. One seldom sees well-grown specimens of this class of plant now. One season for this is, that the attention of gardeners has been directed to other channels, and another, no doubt is that, owing to the commercial depression, the class of plants to which he referred have not received that special attention accorded to them in former days. He believed on the whole that horticulture has made rapid strides in this country during the past fifty years. Next year is the jubilee year of the Queen's reign, and a paper on the progress of horticulture during that period would be a subject pregnant with interest. He hoped that the subject would be taken up by some member of the Society.

A vote of thanks was passed to the President for his address.

Obituary.

MR. THOMAS GIBBS.—It is with deep regret we have to announce the sudden death of Mr. Thomas Gibbs, head of the well known firm, Thomas Gibbs & Co., Seedsman by Royal Warrant to Her Majesty the Queen, and by appointment (April 3, 1844), to the Royal Agricultural Society of England. The deceased was but fifty-eight years of age, and within an hour of his death was in his usual health. He will be succeeded in the business by his only son, Mr. Arthur Gibbs.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 10, 1886.

MONTH AND DAY	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRIC DEDUCTIONS FROM GIBBS'S TABLES 1st Edition.		WIND.	RAINFALL.
	Mean Reducing to 32° Fahr. at 4 ft. above ground.	Difference at 4 ft. above ground.	At 5 ft. above ground.	At 10 ft. above ground.	At 15 ft. above ground.	At 20 ft. above ground.	At 25 ft. above ground.	Dew Point.	Difference of Sat. and Obs.		
Nov. 4	30.21	—	57.50	53.00	51.00	49.50	48.00	46.00	83	S.W.	0.00
5	30.27	—	52.50	51.00	51.00	46.50	44.50	41.50	66	S.W.	0.40
6	30.85	—	50.40	46.30	43.80	42.80	41.80	38.80	56	S.W.	0.10
7	30.41	—	39.40	36.50	36.50	34.40	33.35	33.35	83	N.W.	0.10
8	30.55	—	35.40	30.00	26.00	26.00	24.30	24.30	84	S.W.	0.00
9	30.12	—	41.50	35.35	30.40	28.40	28.40	28.40	98	E.S.E.	0.10
10	30.23	—	57.60	53.30	53.30	53.30	51.40	47.40	95	E.N.E.	0.37
Mean	30.31	—	49.40	47.30	46.30	44.30	42.70	40.70	92	S.W.	0.08

- Nov. 4.—Fine and bright; cloudy night.
5.—Wet and generally overcast; fine night.
6.—Rough and stormy day, with frequent squalls.
7.—Mist in early morning; generally overcast.
8.—Fine and bright throughout.
9.—Fine till 11 A.M., wet and dull afterwards.
10.—Rain till afternoon, fine but dull afterwards.

LONDON: Atmospheric Pressure.—During the week ending November 6, the reading of the barometer at the level of the sea decreased from 30.16 inches at the beginning of the week, to 30.07 inches by the afternoon of November 1, increased to 30.33 inches by the morning of the 3d, decreased to 29.87 inches by 1 P.M. on the 4th, increased to 29.90 inches by the evening of the same day, decreased to 28.97 inches by the morning of the 6th, and was 29.26 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.83 inches, being 0.34 inch lower than last week, and 0.13 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 61° 8' on October 31; the highest on November 6 was 46°. The mean of the seven high day temperatures was 54° 5'.

The lowest in the week was 32° 1' on November 3 and 6; the lowest on November 1 was 51° 2'. The mean of the seven low night temperatures was 43° 1'.

The greatest range of temperature in one day was 16° 8', on November 3; the smallest was 7° 3' on the 1st. The mean of the seven daily ranges was 11° 4'.

The mean daily temperatures were 55° 3' on October 31, 54° 3' on November 1, 50° 9' on the 2d, 45° 9' on the 3d, 45° 8' on the 4th, 46° 5' on the 5th, and 44° 5' on the 6th. These were all above their averages with the exception of the 6th, which was 0° 6' below, by 8° 9', 8° 1', 4° 9', 0° 1', 0° 2', and 1° 1' respectively.

The mean temperature of the week was 49°, being 0° 7' lower than last week, and 3° 2' above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 104° 5' on November 4. The mean of the seven readings was 72° 8'.

Rain.—Rain fell on five days to the amount of 1.20 inch.

ENGLAND: Temperature.—During the week ending November 6, the highest temperatures were 61° 8' at Blackheath, 61° 5' at Cambridge, and 60° at Truro, Sheffield, and Leeds; the highest at Newcastle was 55°, at Liverpool 56° 9', and at Sunderland and Preston 57°. The general mean was 58° 9'.

The lowest in the week were at Wolverhampton 52° 5', at Nottingham 33°, and at Truro and Sheffield 35°; the lowest at Brighton was 40° 8', at Preston and Newcastle 40°. The general mean was 53° 2'.

The greatest ranges of temperature were at Nottingham 26° 5', at Wolverhampton 26° 1', and at Cambridge 25° 5'; the least ranges were at Newcastle 15°, Preston 17°, and at Liverpool 17° 7'. The general mean was 21° 7'.

The mean of the seven high day temperatures was highest at Truro and Plymouth 56° and at Leeds 55° 2'; and lowest at Newcastle 51° 1', and at Sheffield and Sunderland 51° 8'. The general mean was 53° 7'.

The mean of the seven low night temperatures were highest at Brighton, 46° 9', at Plymouth, 46°, and at

Truro and Bristol 44°.4; and were lowest at Wolverhampton, 38°.7, at Hull 40°.6, and at Sunderland 41°.7. The general mean was 43°.1.

The mean daily range was greatest at Wolverhampton, 14°.7, and at Nottingham and Leeds 12°.4; and least at Brighton, 7°.9, at Preston 8°.2, and at Newcastle 8°.6. The general mean was 10°.6.

The mean temperature was highest at Plymouth, 50°.4, at Brighton 50°.2, and at Truro 49°.5; and was lowest at Wolverhampton, 45°.3, at Hull 45°.9, and at Sunderland 46°. The general mean was 47°.8.

Rain.—The largest falls were 2.39 inches at Sunderland, 2.13 inches at Truro, and 2.14 inches at Liverpool; the smallest falls were 0.43 inch at Sheffield, 0.50 inch at Nottingham, and 0.80 inch at Cambridge. The general mean fall was 1.34 inch.

SCOTLAND: Temperature.—During the week ending November 6th, the highest temperature was 59° at Perth; the highest at Edinburgh was 53°.5. The general mean was 56°.

The lowest temperature in the week was 31°.5 at Perth; the lowest at Paisley was 37°.8. The general mean was 35°.7.

The mean temperature was highest at Greenock, 47°.4; and lowest at Dundee, 44°.9. The general mean was 46°.5.

Rain.—The largest fall was 2.41 inches at Greenock; the smallest fall was 0.45 inch at Dundee and Perth. The general mean fall was 1.1 inch.

JAMES GLAISHER, F.R.S.

Errata (in week ending October 30).—The general mean greatest ranges of temperature, for 53°.8 read 16°.7; and the general mean daily range of temperature, for 6°.5 read 7°.8.

Enquiries.

"He that questioneth much shall learn much."—BACON.

HAUTOBIS STRAWBERRY.—Can any of the readers of the *Gardeners' Chronicle* inform me if the old-fashioned unfertilised Hautobis Strawberry is still in cultivation; if so, where it can be had? There is one variety here, but not what is wanted. It is of a greenish-grey colour when ripe, and very little flavour with it. The name of it is not known here. P. J. B.

Answers to Correspondents.

NOTICE.—Owing to pressure on our space several reports of *Chrysanthemum Shows* are deferred till next week.

ADDRESS OF MR. R. CUTLER, SECRETARY TO THE GARDENERS' ROYAL BENEVOLENT INSTITUTION: F. C. No. 50, Parliament Street, Westminster, London, S.W.

BOOKS: *W. M. Mushrooms for the Million*, by J. Wright, published at the office of the *Journal of Horticulture*, 171, Fleet Street. Price 1s. X. Darwin on *Movements of Plants*, and on *Insectivorous Plants*, are to be had from John Murray, Albemarle Street.

BROCCOLI: *W. W.* The name of the place whence the photograph came was so indistinctly written that we must be pardoned for making the mistake in the spelling of it.

CHRYSANTHEMUMS: *MRS. FORSYTH AND CULLINGFORD: Enquirer.* According to the National Chrysanthemum Society's ruling, these are reflex varieties.

CINERARIAS ROTTING: *A. Z.* The decay may be caused by over-rich soil combined with too much water. We noted the drainage of the pots might have been better, and the flowers of sulphur and powdered charcoal, dusting the plants round about their base, and do not let the stream of water, when watering them, strike the rootstock, but pour the water at the side of the pot.

CORAL PLANT: *W. M. P. & Co.* Several plants go under this name, but we think you mean the Coral-tree, a variety of which (pink galls) is used in sub-tropical and other styles of bed planting.

ERGO: *C. P.* This is caused by a fungus which attacks the grain. It is a poison to cattle and to human beings if taken in quantities. We do not know how to prevent it, but all the specimens that can be got at should be burned.

EUCHARIS: *G. F. W.* Name from *eu*, something special; and *charis*, charm. The proper name is *E. grandiflora*. It is a native of New Granada, where it was originally discovered by M. Triana. It was first described by Messrs. Planchon and Linden in vol. ix. of the *Flore des Serres*. See *Gardeners' Chronicle*, December 8, 1855, p. 804.

GALLS OF ABIES BOBILS: *T. Z.* These are the result of the attack of a cocculus-like insect, akin to that which produces American gall on Apples. You will find an account, with figures, in our number for July 29, 1882, p. 109. Paraffine emulsion applied with a spray-producer will kill the insect.

HERBACEOUS OR NO? *J. C.* The Iberis of which you send such fine flowering specimens is certainly not an herbaceous plant.

INSECT: *J. T.* Next week.

NAMES OF PLANTS: *H. W. 1.* Asplenium Trichomanes; 2. A. Cystopteris, probably *C. fragilis*; but the specimen is not in condition; 3. herbaceous plant, his *Tricystis hirta*.—*A. S.* 1. Solanum, but we do not know the species.—*A. W.* 1. *Eiker*, *Cotoneaster frigidus*.—*R. E. H.* Probably *Aerides virens*.—*F. T.* A pale form of *Cattleya Gaskelliana*; will probably develop into a good thing.—*A. B.* A very distinct and pretty variety of *Odontoglossum crispum*.—*J. H. M.* *Cypripedium javanicum*, *Coleogyne fimbriata*.—*A. C.* *Odontoglossum tripudians*.—*R. B. W.* A very fine specimen indeed of *Laelia autumnalis* var. *rubens*. The *Cymbidium* is *C. Mastersii*.—*Z. T.* A variety of *Ficus edulis*. A native of New Caledonia.

LAELIA CRISPA—LEAF DISEASED: *J. H.* Probably caused by excessive moisture, and little air.

MEALY BUG ON VINES: *Old Subscriber.* You may get rid of it by using the paraffine emulsion on the Vines in winter, washing all the woodwork, walls, &c. with the same; and shovelling out the top soil. Then paint the woodwork and limewash the walls. Use much diluted spirits in the summer time if bug should appear.

ROSES TO GROW OUT-OF-DOORS FOR MARKET: *Viridis.* The following, or any of them, could be used for the purpose in the South, but the Teas would not be suitable north of York.—*Anna Alexieff*, H.P.; *Beauty of Waltham*, H.P.; *Celine Forestier*, Noiset; *Charles Lawson*, H.P.; *De la France*, Tea; *Général Jacqueminot*, H.P.; *Gloire de Dijon*, Tea; *Ho-mère*, Tea; *La Boule d'Or*, Tea; *La France*, H.P.; *Souvenir de la Malmaison*, B.; *Madame Falcot*, Tea (fine bud); *Maréchal Niel*, T.N.; *Marie Baumann*, H.P.; *A. K. Williams*, H.P.; *Captain Christy*, K.P.; *Niphets*, Tea (the best white); *Mrs. C. Wood*, H.P.; *Marshall Prevost*, H.P.; *Senator Vaisse*, H.P.; *Victor Verdier*, H.P.; *Marie Ducher*, Tea; and *Innocente Pirola*, Tea.

COMMUNICATIONS RECEIVED: *J. Carter & Co.*, T. L. C. B. H. J. Cook, T. P. J. F. T. W. J. Wilkinson.—*N. E. B.*—*W. S.*—*J. J. D.*—*H. J. R.*—*J. J. A. D.*—*W. J. V.* & Sons.—*J. F. W.*—*B. H. T.*—*W. R. K.*—*Subscribers*.—*H. R.*—*W.* (next week).—*William*.—*Prince Tristram*, Bordighera.

Markets.

COVENT GARDEN, November 11.

No alteration; market still remains quiet. *James Webber*, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. d.		s. d. d.
Apples, ½-sieve	.. 1 6-3 6	Pears, per dozen	.. 1 0-1 6
Grapes, per lb.	.. 0 6-6 2	Pine-apples, Eng. lb.	1 6-2 0
Kiwi, per 100 lb.	.. 1 0-1 0	St. Michael, each	.. 1 0-1 0
Lemons, per case	.. 18 0-3 0	Plums, ½-sieve	.. 0 9-2 0
Melons, each	.. 1 0-2 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. d.		s. d. d.
Artichokes, per doz.	.. 4 0-..	Minat, green, bunch	0 4-..
Asparagus, each	.. 0 8-..	Mushrooms, punnet	1 6-2 6
Beans, Kidney, lb.	0 8-..	Mustard and cress, punnet	.. 0 4-..
Beet, red, per dozen	0 8-2 0	Onions, per bushel	.. 3 0-..
Brussels Sprouts, lb.	0 4-..	Parsley, dozen bunch	3 0-..
Cabbages, per bunch	0 6-..	Potatoes, per cwt.	.. 4 0-5 0
Carrots, per doz.	3 0-..	Spinach, per cwt	4 0-5 0
Cauliflowers, per doz.	3 0-..	Spinach, per bushel	3 0-..
Celery, per bundle	1 6-2 0	Tomatoes, per lb.	0 9-..
Cucumbers, each	0 6-..	Turnips, bunch	.. 4 0-..
Endive, per dozen	.. 2 0-2 0		
Herbs, per bunch	0 3-..		
Lettuce, per bunch	.. 1 0-1 6		

POTATOS:—Per Kent Regents, 8s. to 10s.; Schoolmasters, 7s. 6d.; Beauty of Hebron, 10s.; Magnum Bon. to 8s. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. d.		s. d. d.
Aralia Sieboldii, per doz.	.. 6 0-13 0	Evergreens, in var., per dozen	.. 6 0-24 0
Begonia, per dozen	0 12-0	Ficus elastica, each	1 6-7 0
Boragias, doz.	9 0-12 0	Ferns, in var., dozen	4 0-18 0
Chrysanth., per dozen	4 0-12 0	Foliage Plants, var., each	.. 2 0-10 0
Cyperus, per dozen	4 0-12 0	Marguerite, per dozen	.. 6 0-12 0
Dracena terminalis, per dozen	.. 30 0-60 0	Mignonne, per doz.	4 0-6 0
Erigeron, per doz.	12 0-24 0	Mirabelles, per doz.	.. 12 0-18 0
Ericaria, doz.	12 0-18 0	Palms in var., each	6 0-21 0
—hymenalis, doz.	18 0-24 0	Pelargoniums, scarlet, per doz.	.. 3 0-6 0
—reginians, doz.	8 0-12 0	Solanums, per dozen	9 0-12 0
—various, doz.	9 0-24 0		
Eunonymus, in var., per dozen	.. 6 0-18 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. d.		s. d. d.
Arum Lilies, 12 blms.	4 0-6 0	Marguerites, per 12 bunches	.. 3 0-6 0
Azaleas, 12 sprays	0 6-1 0	Mignones, per doz.	.. 1 0-3 0
Begonia, per dozen	0 12-0	Pelargoniums, per 12 bunches	.. 0 9-1 0
Boragias, doz.	9 0-12 0	—scarlet, 12 bunches	3 0-6 0
Camellias, 12 blms.	3 0-6 0	Primulas, single, 12 bunches	.. 4 0-6 0
Carnations, 12 blms.	3 0-6 0	Pyretums, per doz.	.. 4 0-6 0
Chrysanth., 12 blms.	0 4-6 0	Roses, Tea, per doz.	.. 0 9-1 0
—12 bunches	.. 1 0-4 0	—red, per dozen	.. 0 9-1 0
Daisies, common, 12 bunches	.. 4 0-6 0	Staphanotis, 12 sprays	0 6-1 0
—double, 12 bunches	.. 4 0-6 0	—Tropaeolum, 12 bunches	.. 0 6-1 0
Gardenias, 12 bunches	3 0-6 0	Tuberose, 12 blms.	1 0-1 6
Gladioli, 12 sprays	0 6-1 0	Violets, 12 bunches	.. 1 0-1 6
Heliotropes, 12 sprays	0 6-1 0	—white, 12 bunches	.. 3 0-4 0
Jasmine, white, bun.	0 6-0 0	—Czar, Fr., bunch	1 3-1 6
Lapageria, 12 bl.	12 0-2 0		
—white, 12 blooms	0 4-0 0		
Lilium longiflorum, 12 blooms	.. 4 0-6 0		

WHOLESALE BULB CATALOGUE.

Contains List of all Varieties of ENGLISH, DUTCH, and FRENCH-GROWN BULBS.

Prices (Very Low) may be had on application.

Special Quotations for the following in quantity:—100,000 SINGLE DAFFODILS. (sieved.)

50,000 NARCISSUS PŒOTICUS (Pheasant)

50,000 NARCISSUS (Double White)

CHIONODOXA LUCILIE, large, English-grown.

100,000 SCILLA SIBIRICA, rich blue; blooming same time as the Snowdrop.

10,000 HYACINTH—S., mixed, all colours; fine sample, very cheap.

100,000 CROCUS (Yellow).

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FERNS A SPECIALTY.

An IMMENSE STOCK IN SPLENDID CONDITION. ILLUSTRATED CATALOGUE, containing "Hints on Fern Cultivation," &c.

SMALLER CATALOGUE, of over 1300 species and varieties, including Descriptive "List of New, Rare, and CHOICE FERNS," and "HARDY NORTH AMERICAN FERNS," free on application.

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Strong Roots, 4s. per 100. P. 1s. in small pots, 16s. per 100; ditto in large pots, 25s. per 100. Descriptive LIST free.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

CUTBUSH'S MILL-SPAWN.—TRACK MUSHROOM

SPAWN.—Too well known to require description. Price 6s. per bushel (extra per bushel for postage), or 6d. per cake; free by parcel post, 12.

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FRUIT TREES, SEVENTY-FOUR ACRES.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, and other FRUIT TREES as Standards, Dwarfs, Pyramids, Bushes, Cordons, and Trained Trees in great variety.

VINES, excellent Canes, 1s. 6d. to 1s. 10d. Orchard Fruit Trees in pots, PEACHES, APRICOTS, NECTARINES, &c. from 5s. FIGS from 3s. 6d.

DESCRIPTIVE LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.

RICHARD SMITH & CO., WORCESTER.

Extract from the "Lady's Pictorial" of 23d Oct., 1886.



"Most of our readers are already familiar with the beauty and merit of the **Darlington Dress Fabrics** Manufactured by Messrs. **HENRY PEASE & Co.'s** Successors, at the Mills, **Darlington.**

"The Novel Patterns and Designs especially prepared for the present season are exceptionally successful, both as regards colour and texture, and we can thoroughly recom-

vince our readers that they deserve the highest praise.

"It is impossible to over-estimate the immense advantages of obtaining goods in this manner direct from the original manufacturers, since there remains literally only one man, and therefore only one profit, between the wool-producing animal and the person who eventually wears the woollen goods. Where there is only one profit to be made, as in this case, it is clearly evident that the purchaser must benefit largely, since there is no middle man to swallow up the intermediate gains. This being so, our readers will do well to make the most of their opportunity, and write at once for Patterns, which are naturally greatly in demand at the present season of the year.

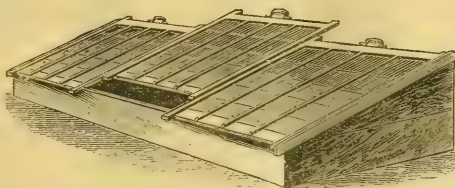
"We must mention as specially appropriate just now the **Darlington Cross-warp Serges**, the all-wool *foules*, and the **Gold Medal Cashmeres**, for these materials, together with all the other **Darlington Dress Fabrics**, are fine and soft in texture, artistic in colouring, and entirely novel in design."

HENRY PEASE & CO.'S SUCCESSORS, DARLINGTON. [Established in 1752.]

All Parcels are Carriage Paid, and any Article can be Changed within Seven Days.

Boulton & Paul, Horticultural Builders, Norwich.

Boulton & Paul's CUCUMBER FRAMES are always in stock, ready to be sent away on receipt of order. They are made of best, sound, red deal, sawn from the best trees in the forest to our special requirements, and seasoned in a proper manner. The **FRAMES** are of 1½ in. boards, 24 in. high in front, bolted at the corners, and easily taken to pieces if required. The **LIGHTS** are 2 in. thick, with iron bar across and one handle at the top, and the whole painted four coats. The **Glass** is **ENGLISH**, 21-oz. weight. **PACKED** and sent, **CARRIAGE PAID**, to any station in England and Wales, to Dublin, Belfast, Londonderry, Cork, Glasgow, and stations equivalent. Cases are allowed in full when returned.



No. 75.—Cucumber and Melon Frame. All sizes in Stock

CASH PRICES,
Including Use of Packing Cases.

	Length.	Width.	Price.
2-LIGHT FRAME ..	8 feet by 6 feet	£3 5 c	
3 " " "	12 feet by 6 feet	4 12 6	
4 " " "	16 feet by 6 feet	6 0 0	
5 " " "	20 feet by 6 feet	7 7 6	
6 " " "	24 feet by 6 feet	8 15 0	

Smaller Frames are made. See **LISTS**, Post-free, of Greenhouses, Heating Apparatus, Garden Implements, Water Carts, Pumps, and everything required for Gardens and Pleasure Grounds, post-free on application.

ESTIMATES for Greenhouses free on receipt of particulars.

LADIES and **GENTLEMEN** may be appointed in any part of the kingdom.

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W. RICHARDS,

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1886.

Please send me "THE GARDENERS' CHRONICLE" for _____ Months,

commencing _____, for which I enclose P.O.O. _____.

Please Note that all Copies Sent Direct from this Office must be paid for in advance.

THE UNITED KINGDOM:—12 Months, £1 3s. 10d.; 6 Months, 11s. 11d.; 3 Months, 6s.; Post-free.
FOREIGN SUBSCRIPTIONS (excepting India and China):—Including Postage, £1 6s. for 12 months. India and China, £1 8s. 2d.

P.O.O. to be made payable at **No. 42, DRURY LANE, London, to W. RICHARDS.**

Cheques should be crossed "DRUMMOND."

G. C.
Nov. 13, 1886.

DOUBLE TUBEROSES.—Extra fine. MORLE and CO. offer the above cheaper than any House in the Trade. The principal Covent Garden Market growers purchase regularly of us, which is the best proof of quality. For price per 100, 1000, or 5000 write for Special LIST. 1 and 2, and 162, Fenchurch Street, E.C.

ONE THOUSAND ONE HUNDRED AND FIFTY CHOICE FLOWER ROOTS for One Guinea, carriage paid to any address. For contents see Bulb CATALOGUE from MORLE and CO., Wholesale and Retail Seedsmen and Bulb Importers, 1 and 2, and 162, Fenchurch Street, E.C.

DUTCH and other FLOWER ROOTS.—MORLE and CO.'S Choice BULBS gained 1st and 2d prizes last season in competition with others costing double the money. Everything best quality, at lowest prices. See CATALOGUE, free.—1 and 2, and 162, Fenchurch Street, E.C.

Myrobella.

PRUNUS MYROBALANA, or CHERRY PLUM.—The best stuff for Mendocino Old Fences, or Making New Ones. Grows last in poorest soils. Much stronger than Whitecherry. It is also an excellent stock for the Plum. A sample hundred, 2 1/2 feet, sent on receipt of 6s., 50 for 3s. Full further particulars of EWING and CO., Sea View Nurseries, Havant, Hants.

PALMS, for Table and Conservatory Decoration.—20 inches high—*Latania borbonica*, 12. 6d.; *Seafortia elegans*, 11. 6d.; *Areca lutescens*, 12. 6d.; *Phoenix reclinata*, 12. 6d.; *Euterpe edulis*, 12. 6d.; *Corypha allax*, 11. 6d.; six for 3s. or 12. 6d. per dozen. **COCOS WEDDELLIANA and KENTIAS**, 2s. to 5s. each. **PALMS**, fine healthy plants, 12 inches high—*Latania borbonica*, *Seafortia elegans*, *Phoenix tenuis* and *Phoenix reclinata*, 6d. each, or 4s. per dozen. Packages and delivery free. Large PALMS, 3 feet to 6 feet high, 5s. to 50s. each. GARDENER, Holly Lodge, Stamford Hill, London, N.

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GROWN BY

WM. RISLEY, Maritzburg, Natal.
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THE CAPETOWN BOTANIC GARDENS are Booking Orders for BULBS, deliverable in January and February. Trade LIST on application. Collections at our selection only made up for Retail Customers.

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COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4 bushel bags, 6d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks 25s.; sacks, 4d. each.
BLACK FIBROUS PEAT, 5s. per sack; 5 sacks 22s.; sacks, 4d. each.
COARSE SILVER SAND, 12. 6d. per bushel; 150 per half ton, 26s. per ton in 8-bushel bags, 4d. each.
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SPHAGNUM MOSS, 8s. 6d. per sack.
MANURES, GARDEN STICKS, VIRGIN CORN, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Price LIST.—H. G. SMYTH, F.R.H.S., 21, Goldsmith's Street, Drury Lane (late 174, Coal Yard), W.C.

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Quality, THE BEST in the Market. (All sacks included.)
PEAT, best brown fibrous .. 5s. per sack; 5 sacks for 22. 6d.
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PEAT, extra selected Orchard .. 5s. 6d. .. 5 sacks for 25s.
LOAM, best yellow fibrous
PREPARED COMPOST, best .. 12. per bush., 3s. per sack.
LEAF MOULD, best only (sacks included.)
PEAT MOULD
SILVER SAND, coarse, 12. 6d. per bush., 14s. half ton, 24s. ton.
RAFFIA FIBRE, best only 12. per lb.
TOBACCO CLOTH, finest imported .. 8d. lb., 2s. lb. 18s.
TOBACCO PAPER .. (Specialist) 8d. lb., 2s. lb. 18s.
MUSHROOM SPAWN, finest Mulltrack .. 5s. per bushel.
SPHAGNUM MOSS, all selected, 2s. per bush., 6s. per sack.
CHUBB'S "PERFECT" FERTILISER, the Best Food for all kinds of Plants, Flowers, Fruits, Vegetables, &c. Tins, 12. 6d. Bags—7 lb., 3s.; 14 lb., 5s.; 28 lb., 8s.; 56 lb., 14s.; 112 lb., 22s.
VIRGIN CORN, best quality only—14 lb., 3s.; 28 lb., 5s. 6d.; 56 lb., 10s. 6d.; 112 lb., 17s. (per bushel.)
HORTICULTURAL CHARCOAL, best quality only, 5s. 6d. per sack, 11s. each; 10 sacks, 9s.; 15 sacks, 13s.; 20 sacks, 17s.; 30 sacks, 25s.; 40 sacks, 30s. Truck-load, loose, free on rail, 25s. Limited quantities of G., special quality, granted, in sacks only, 2s. each. Terms, strictly Cash with order.

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FAWKES' Slow-combustion HEATING APPARATUS.—Most efficient and cheapest in existence. Requires no sunk stockhole and no brick setting. Will last all night without attention. Will burn house coals, therefore costs next to nothing for fuel. Any one can fix it. A domestic servant can stoke it.

Boilers Delivered Carriage Paid From £2 10s.

Numbers in use all over the country.

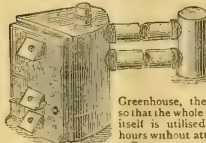
Only Slow Combustion Apparatus of the kind.

Beware of inefficient incomplete Apparatus, which will not last all night.

Full particulars and Prices of every sized Apparatus, and numerous Testimonials for last three seasons, showing enormous success, sent free on application.

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THE LOUGHBROUGH GREENHOUSE HOT-WATER APPARATUS.



This is the simplest, cheapest, and most powerful apparatus made. It requires no brick setting, no stock-hole, and no hot-water filter for fixing. The Boiler stands in the Greenhouse, the front only being outside, so that the whole of the heat from the Boiler itself is utilized. It burns over twelve hours without attention, at a nominal cost. Price, as engraving, with Boiler, open feed system, 12 feet of 4-inch hot-water pipe, and patent joints complete, £4 4s. Delivered free to any station. Discount for cash. Cost of apparatus complete for Greenhouses as below, delivered free with pipes cut and fitted ready for fixing:—
10 x 6 feet .. £4 14 0 10 x 10 feet .. £7 0 0
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Proportions & prices for other sizes. Estimates free.
Illustrated LIST, with full particulars of these and every description of Fuel, Gas, and Oil Heating Stoves free.

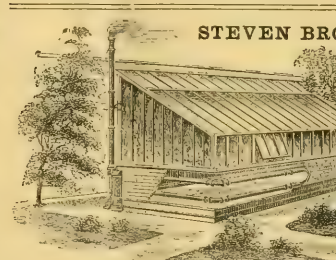
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Stock List and Prices on application. Quote Chronicle.



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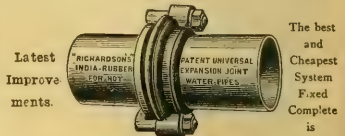
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OBTAINED
175° OF HEAT
& CONSUMED LESS FUEL &
PRODUCED MOST HEAT PER BUSHEL OF FUEL
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The best and Cheapest System. Fixed Complete is

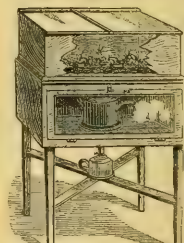
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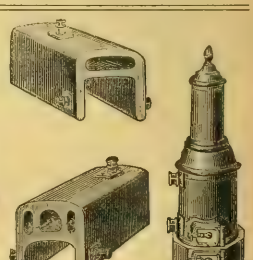


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No. 1, 3 feet 6 inches high by 2 feet 6 inches long, by 1 foot to inches wide, £1 17s. 6d.
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Packing, 5s.

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NEW ARCHANGE MATS, PETERSBURG MATS, of all qualities. **RAFFIA FIBRE**, of best quality, &c. All these goods at Lower Prices than any other firm. Supplied to the Trade only by **MARENDAZ and FISHER**, James St., Covent Garden, W.C.

ASTON CLINTON STRAW MATS.—The Warmest Coverings for Pits and Frames. Sizes:—6 ft. 6 in. by 3 ft. 9 in., at 2s.; 6 ft. 6 in. by 4 ft. 6 in. at 2s. 6d.; 6 ft. 6 in. by 7 ft., at 3s. 6d. Apply to **Mrs. MOLIQUE**, Aston Clinton, Tring, Bucks.



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A large quantity of all descriptions and sizes in stock, at the lowest possible prices.
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ANTHRACITE SMOKELESS COAL.

The Gwaun-Gae-Gurwen Colliery Co. (Ld.),
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Established Half a Century.

The largest producers of Anthracite Coal in the United Kingdom, supply the purest Anthracite for Horticultural purposes.
COLLIERY OFFICE:—LLANELLY, SOUTH WALES.
London Offices and Depot, 3, Mileage Station, Paddington, W.—The G. C. & C. Co. will be pleased to furnish on application the names of Coal Merchants from whom their Coal can be obtained, as inferior Anthracite is often sold as theirs to new buyers. References permitted to some of the first Horticulturists in the country.

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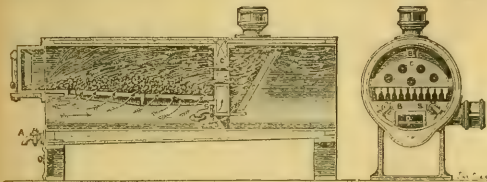
Terra-Cotta! Portable! For Coal!
ROBERTS'S PATENT,
for Greenhouses, Bedrooms, &c.

GREENHOUSES Heated 24 Hours for about One Penny, without attention. **ROBERTS'S PATENT TERRA-COTTA STOVES** for COAL give pure and ample heat with common coal, or coal and coke. For Greenhouses, Bedrooms, &c. Pamphlet, Drawings, and authenticated Testimonials sent. See in use at Patents'.

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SILVESTER'S PATENT STEEL TRENTHAM BOILER.



HOT-WATER PIPES AND FITTINGS
of every description.

Saddle, Vertical, and other Boilers.

Improved Ventilating Arrangement
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All kinds of **HOT-WATER HEATING APPARATUS** erected complete.

HYDRAULIC RAMS AND PUMPING MACHINERY FOR ALL PURPOSES.

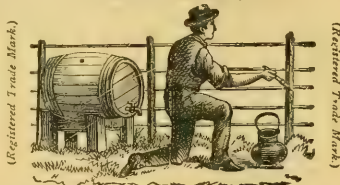
STABLE AND HARNESS ROOM FITTINGS, ENGINES, BOILERS, and MACHINERY.

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ARCHANGEL, TAGANROG, PETERSBURG, and DUNNAGE MATS, at the lowest prices. **RAFFIA FIBRE,** new arrival, at reduced price. **SEED BAGS and SACKS, ROPES, LINES and TWINES, TARP-AULINS and HORSE CLOTHS.** Prices on application.
JAMES T. ANDERSON, 149, Commercial Street, London, E.

HILL AND SMITH'S BLACK VARNISH
for Preserving Ironwork, Wood, or Stone.



This **VARNISH** is an excellent substitute for oil paint or any outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of forty years ago by the Advertisers, its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requiring no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of most of the Nobility and Gentry, from whom the most flattering testimonials have been received.
Sold in Casks of about 30 gallons each, at 11. 6d. per gallon, at the Manuactory, or 11. 8d. per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

From ALFRED LOWE, Esq., *The Kyrie, Aberley Lodge.*
"Some twenty years ago I used your Black Varnish, and shall be glad if you will forward me a cask, as I consider it the best thing known for the preservation of all outdoor work, either wood or iron, that requires to be painted."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

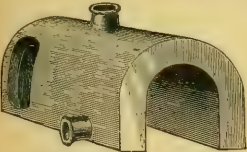
Large Illustrated CATALOGUE on Penwork, Hurdles, Field and Entrance Gates, &c., sent free on application to

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THE THAMES BANK IRON COMPANY,

UPPER GROUND STREET, LONDON, S.E.
(TELEGRAPHIC ADDRESS—"HOTWATER," LONDON).



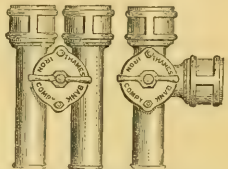
CAST-IRON SADDLE BOILER,
with Waterway End.
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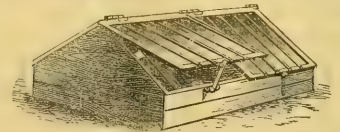
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JOURNEYMAN.—Age 21; seeks engagement under Foreman. Respectable, intelligent, and most useful y.ing man. Abstainer.—**MR. LEWIS**, Bickacre Gardens, Jourley, Lancashire.

JOURNEYMAN, in a Nobleman's or Gentleman's establishment.—Age 24; seven years' experience. Good references.—**Butby preferred.—W. GREEN**, Kingshorpe, Northampton.

IMPROVER; age 19.—C. PUZEY wishes to recommend a young man as Improver in a good establishment. Three and a half years in present situation.—**C. PUZEY**, Scampton Gardens, Kilmington, York.

COWMAN, assist in garden on a Gentleman's Estate.—Married; good Poultry man. Four and a half years' experience from present employer.—**W. COLLYER**, Dennis Road, East Molesey.

CLERK, SHOPMAN, or TRAVELLER.—Age 26; ten years' experience. Thoroughly conversant with all branches of the Trade. First-class references from past and present employers.—**G. H.**, James Meredith, Seedsmen, Finsbury Square, War in general.

SHOPMAN (HEAD), MANAGER or TRAVELLER.—Advertisement for eighteen years' experience in all branches of the Trade, desires re-engagement. Good judge of Clovers, Grasses, and Agricultural Seed Trade generally. First-class references.—**Age 33.—W. WEBBER**, College Street, St. Albans, Herts.

Seed Trade.

SHOPMAN, or ASSISTANT.—Age 22; at present in first class Scotch house. Excelle references.—**T. C.**, Dicksons & Co., 1, Waterloo Place, Edinburgh.

Seed Trade.

SHOPMAN, or ASSISTANT.—Age 25; nine years' experience in all departments. Presently first counter hand in a Scotch house. First-class references.—**D. C. FLETCHER**, 212, Eglinton Street, Glasgow.

To the Seed Trade.

SHOPMAN (ASSISTANT).—Age 20; six years' experience. Well acquainted with all departments of the business.—**G. H. Gardeners' Chronicle Office**, 41, Wellington Street, Strand, W.C.

HANDYMAN, on Gentleman's Estate or Nursery.—Well up in Greenhouse Building, Garden Lights, Barrows, Painting, and Glazing.—J. N., 26, Colina Street, Blackheath, S.E.

TO FLORISTS.—Wanted, a re-engagement by a thoroughly experienced young Lady; five years' experience.—**W. G. I.**, 14, High Street, Kensington, W.

TO FLORISTS.—A young Lady, experienced, seeks a situation in a Florist's.—G. C., 59, Ingrave Road, Clapham, London, S.W.

TO FLORISTS, or FRUITERS or FRUITERS.—A young man, thoroughly experienced. Good references.—**F. C.**, 5, High Street, Kensington, W.

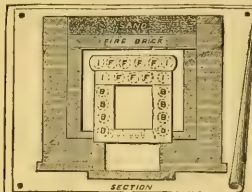
HOLLOWAY'S PILLS.

Wrong made Right.—Every day that any bodily suffering is permitted to continue renders it more chronic or dangerous. Holloway's purifying, cooling, and strengthening Pills are well adapted for any irregularity of the human body, and should be taken when the stomach is disordered, the liver deranged, the kidneys inactive, the bowels torpid, or the brain muddled. With this medicine every invalid can cure himself, and those who are weak and infirm through imperfect digestion may make themselves strong and stout by Holloway's excellent Pills. A few doses of them usually mitigate the most painful symptoms caused by undigested food, from which they thoroughly free the alimentary canal and completely restore its natural power and action.

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HORTICULTURAL BUILDERS,

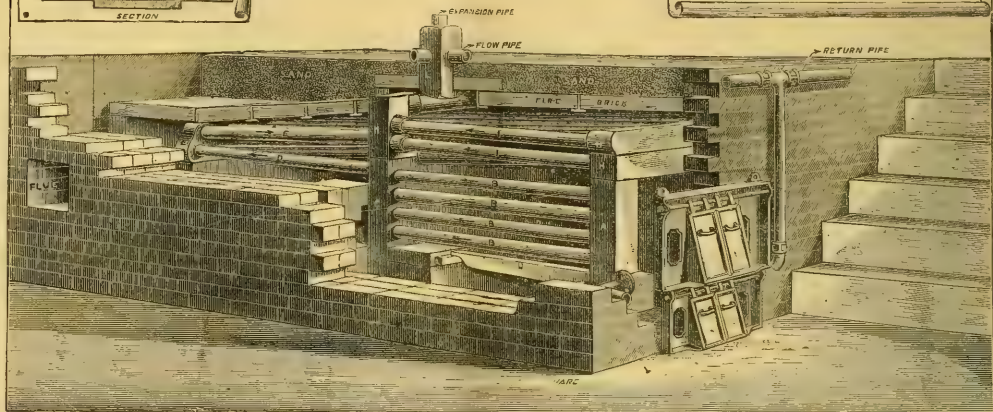
BEESTON, NOTTS.



THE "CHILWELL NURSERIES" BOILER
REGISTERED

EXPLANATION

WATER PASSED THROUGH THE RETURN PIPE INTO THE BOX A, THENCE THROUGH PIPES BBBB TO BOX C, THENCE THROUGH PIPES DD TO BOX E, THENCE THROUGH PIPES FFFF, FFF TO BOXES HH, THENCE THROUGH PIPES IIII TO BOXES KK, AND THENCE INTO BOX L.



THE BEST BOILER FOR GREENHOUSES.

WHAT THE NURSERYMEN SAY:—

From Messrs. J. R. PEARSON & SONS, Chilwell Nurseries, Notts.

"The 'Chilwell Boiler' has given us unqualified satisfaction from the first, being the most powerful and economical we have yet tried. The draught is so good that we can burn any kind of fuel, and get up the heat in less time than with any other boiler, while it is at the same time under perfect control."

From Mr. EDWIN COOLING, Mile Ash Nurseries, Derby.

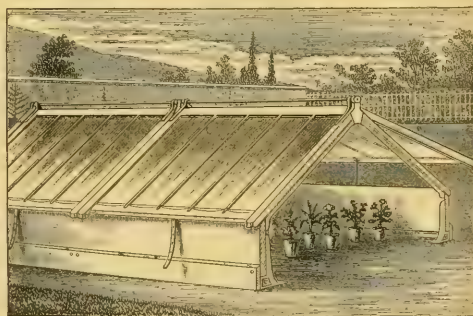
"I am very pleased with the new Boiler. It does its work admirably, and heats the water in less time than any boiler I have ever had. Your boiler is doing the work of ten fires, and doing it much better, with less than a quarter of the labour in stoking. It has been severely tested during the late hard weather, and proved

quite equal to its work. We find it easy to manage, quick in its action, and very economical."

N.B.—This is a 12-feet Boiler, heating 5100 feet of 4-inch pipe.

From Messrs. W. BARRON & SON, Elvaston Nurseries, Derby.

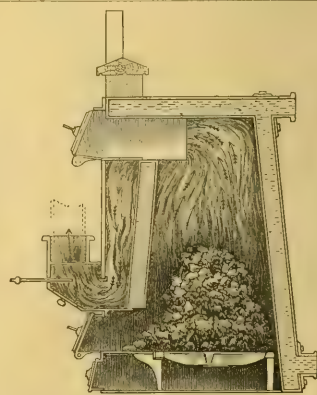
"The 12-feet Chilwell Nurseries Boiler is very satisfactory. It heats seven houses, containing 3000 feet of pipe, which formerly required three boilers, thus effecting a considerable saving in labour and fuel. The water heats and circulates much more quickly than from a saddle boiler, and the fire can be banked and left for hours without further attention. During the late severe weather we have never touched the fire between 10 P.M. and 6 A.M."



SPAN FRAME on Iron Standards, 5 feet wide.

ONE GOLD, THREE SILVER
MEDALS,
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Price LIST on application.

GARDENERS' CHRONICLE.

THE
Established 1841.

No. 673—VOL. XXVI. { NEW SERIES. } SATURDAY, NOVEMBER 20, 1886.

{ Registered at the General } Price 6d.
{ Post-office as a Newspaper. } POST-FREE, 5d.

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*** * OUR ALMANAC for 1887.**
Secretaries of Provincial and Metropolitan Horticultural Societies are invited to send us, as soon as possible, the Dates of their Meetings and Exhibitions during the ensuing year, so as to ensure their insertion.

Now Ready, in cloth, 16s.
THE GARDENERS' CHRONICLE,
Volume XXV, JANUARY to JUNE, 1886.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

BIRMINGHAM AND MIDLAND COUNTIES CHRYSANTHEMUM, FRUIT, and FLORICULTURAL SOCIETY.
THE TWENTY-SIXTH ANNUAL EXHIBITION OF CHRYSANTHEMUM FRUIT, &c., will be held in the Town Hall, Birmingham on WEDNESDAY and THURSDAY, November 24 and 25. J. HUGHES, Secretary.
Metchley Lane, Harborne, Birmingham.

PINE PLANTS for SALE.—Thirty-six Charlotte Rothschild, and Twenty Smooth Cayenne, clean healthy stuff, in 6-inch pots; all well rooted. Apply for particulars to
DICKSON, BROWN & TAIT, Seed Merchants, Manchester.

RASPBERRY CANES to SELL.—The famous "Carnations" Producers are the best croppers. Read *Market Lane Express*. Also a large quantity of choice sorts of PLUM TREES, DAMSON TREES, and GOOSEBERRY BUSHES, at per 100—Apply to ALBERT BATH, Sevenoaks, Kent.

CHARLES SHARPE and CO., SEED MERCHANTS, Steaford, having now completed Harvesting their selected Stocks of SWEDISH, TURNIPS, MANGELS, and other varieties of Agricultural, Kitchen Garden and Flower Seeds, will have much pleasure in making Special Offers to the Trade on application.

ROSES (Strong Dwarf)—best H.P. kinds, 45s. per doz. red-twigged variety, 12 to 14 feet, 25s. per 100; **TREE CARNATIONS,** 12 best sorts, 45s. per 100; **strong Spruce FIRS,** for Christmas Trees, a 10 to feet, 45s. per 100.—W. JACKSON, Blakewood, Kidderminster.

EIGHTY THOUSAND CLEMATIS, (in Pots, of all the finest Double and Single Varieties, some of the flowers of which become to inches across, and are every shade, from pure white to the darkest purple, for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.—RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

LIMES—ELMS—LIMES.
STANDARDS for Avenue or Street Planting, straight stems, fine heads, good roots.
LIMES, best red-twigged variety, 12 to 14 feet, 14 to 16 feet.
ELMS, English, tree, 12 to 14 feet, and 14 to 16 feet.
Very cheap by the dozen or hundred.
JOHN PERKINS and SON, Billing Road Nurseries, Northampton.

SEAKALE for Forcing, superior selected Crowns, 9s. per 1000; under 500, 10s. per 1000. Orders to be accompanied by Cheque or Post-office Order.—ALFRED ATWOOD, Grower, 51, Shillington Street, Battersea, S.W.

WANTED, the ADDRESS of Mr. JAMES BRYDENE, formerly Gardener to Sir V. R. Corbet, Bart., Acton Reynald, Shrewsbury.
Please reply to G. E. HARRIES, Saddler, Shrewsbury.

MESSRS. FRED. HORSMAN and CO., ORCHID IMPORTERS, Colchester, beg to announce that their new interleaved CATALOGUE of Orchid Specialties is now ready, and will be forwarded post-free on application to FRED. HORSMAN and CO., Colchester.

SPIREAJAPONICA, fine imported clumps, 12s. 6d. per 100.
LILY of the VALLEY (German Crowns), very fine. Low offers on application.
WATKINS and SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, W.C.

ROSES—ROSES—ROSES.—The finest Dwarf Plants of the leading Exhibition varieties, at 6s. per dozen, package included. Special prices for quantities. The Trade supplied.
A. U. GORRINGE, 75, Termisus Road, Eastbourne.

ROSES—ROSES—ROSES.—The best and cheapest in the world. Forty choice Perpetuals for the Purchaser's selection from the best varieties. **AT-LA-LOGUES** free on application. Ten acres of Roses, 100,000 grand plants to select from.
JAMES WALTERS, Rose Grower, Exeter.

EXHIBITION OF CHRYSANTHEMUMS.
—Now on View, all the recent Novelties, many promising Seedlings, and all old Standard varieties; the most complete Collection of the Trade.
LISTS Gratis on application. Inspection cordially invited.
JOHN LAING and CO., Nurseries, Forest Hill, S.E.

FLOWERING SHRUBS.—LILAC, MOCK ORANGE, WEIGELA, ALMOND, ALTHEA, BERBERIS, CHERRY, CYTISUS, HYDRANGEA, HYPERICUM, MEZEREUM, RIBES, SPIREA, RHUS, VIRBURNUM, &c. 5s. per dozen, 20s. per 100. Descriptive LIST free.
RICHARD SMITH and CO., Nurserymen, Worcester.

AZALEAS and CAMELIAS in bud, at 1/6 prices. Apply to
LOUIS ECKHAUTE, The Nurseries, St. Dennis-Western, near Ghent, Belgium.

LILY of the VALLEY.
Good clumps for forcing, 12s. and 18s. per d. ven.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

PRIVET.—A Large Stock of exceedingly fine bushy oval-leaved Privet, 4 to 6 feet high. Price on application to
T. JACKSON and SON, Nurseries, Kingston-on-Thames.

TO THE TRADE.—Green EUONYMUS.
splendid, well-grown stuff; 1 foot, 12s.; 1½ foot, 16s.; 2 feet, 24s. per 100; very strong and bushy.
A. U. GORRINGE, 75, Termisus Road, Eastbourne.

GRAPE VINES (Black Hamburgh), extra strong, short jointed, and well ripened Planting Canes, 3s. 6d. per 100; but back to 10s. 6d. per 100.
GEORGE MORRIS, Gardener, Shardlow, Derby.

MESSRS. GREGORY and EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied.
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SQUELCH and BARNHAM, North Row, Covent Garden, London, W.C., REQUIRE any quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatoes, Cucumbers, choice Flowers &c.

SQUELCH and BARNHAM, giving constant attention to all consignments, are thus enabled to obtain the HIGHEST MARKET PRICE.

SQUELCH and BARNHAM, ACCOUNT SALES sent daily, and CHEQUES forwarded weekly. BANKERS and TRADE REFERENCES.

BASKETS and LABELS supplied.
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A. HILL and CO., 52, Hart Street, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity. A. H. & Co., giving personal attention to all consignments, are thus enabled to obtain the highest market prices. All Cheques forwarded weekly. Bankers and Good Trade references. Boxes and Labels supplied.

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WISE and RIDES are Cash Purchasers of good and well-packed Blooms of the following:—EUCHARIK, STIPHOLOTIS, ROSES, ORCHIDS, really fine Specimen Flowers of CHRYSANTHEMUM, &c. Send samples and state quantity to
WISE and RIDES, Covent Garden, W.C.

WANTED, a few Thousand Dwarf BRIER STOCKS from Cuttings. Sample and price to
J. CHAL and SON'S, Crawley, Sussex.

THE BEST NEW CULINARY

PEAS for 1887 are
ECKFORD'S "MAGNIFICENT."
ECKFORD'S "VICTOR."
ECKFORD'S "DIGNITY."
In sealed packets only. For particulars vide *Gardeners' Chronicle*, October 30, page 550. Descriptive LIST on application. Now being sent out by
WILLIAM BULL, F.L.S., Establishment for New and Rare Plants and Seeds, 536, King's Road, Chelsea, London, S.W.

Notice.
King's Acre Nurseries, Hereford (Established 1785).
JOHN CRANSTON begs to announce that, having PURCHASED THE BUSINESS, together with the most valuable portion of the stock, from "Cranston's Nursery & Seed Company (Limited)," these Old-established Nurseries will, on and after NOVEMBER 1, 1886, be carried on by him under the name of
"JOHN CRANSTON and CO."
King's Acre, Hereford.—October 1, 1886.

Dissolution of Partnership.
JOHN R. BOX, for the last ten years Co-partner with JOHN LATOUC, at Forest Hill, S.E., has PURCHASED THE BUSINESS known as the East Surrey Seed Warehouse (established upwards of 57 years), North End, Croydon. CATALOGUES in a few days.

Dissolution of Partnership.
JOHN LAING and CO., of the Stanstead Park and other Nurseries and Florists, Forest Hill, S.E., have DISSOLVED PARTNERSHIP, as and from October 31, 1886. All DEBTS due and owing by the Firm will be RECEIVED BY, and all DEBTS due to the Firm will be paid by, the Firm, in conjunction with his two sons and with the assistance of all the Foremen and other Heads of the various Departments.

Now is the time to Plant
New Descriptive LIST FREE.
RICHARD SMITH and CO., Nurserymen, Worcester.

Just Published.
OUR SPECIAL IRIS LIST, No. 85; containing all that is best and most beautiful; offering great advantages to the purchaser.
NEW PLANT and BULB COMPANY, Lion Walk, Colchester.

DESCRIPTIVE CATALOGUE.—Roses, Fruit Trees, Rhododendrons, Conifers, Deciduous and Evergreen Trees and Shrubs, Climbing Plants for walls, &c. Forest Trees, Azaleas, Camellias, &c. Free on application to
H. LANE and SON, The Nurseries, Berkhamsted, Herts.

A Specialty.
RHODODENDRONS, grown in sandy loam.—Thousands of Rhododendron ponticum, catawbiense, hybridum, and all the choicest named varieties. Magnificent plants, 1, 2 to 3 feet, beautifully set vine, who will in future carry on the Business in conjunction with his two sons and with the assistance of all the Foremen and other Heads of the various Departments.

FINE SPECIMENS of STOVE and GREENHOUSE FLOWERING PLANTS and EXOTIC FERNS.
Apply, H.V. JOHNSTON, Elm Ridge, Darlington.

LAINGS DUTCH BULBS.—The finest Roots, HYACINTHS, TULIPS, NARCISSUS, CROCUS, SNOWDROPS, LILY of the VALLEY, SPIREA, and other Flowering Plants and Shrubs. Importations from best sources only.
JOHN LAING and CO., Bulb Merchants, Forest Hill, S.E.

LILIAM AURATUM.—Good, plump, sound Bulbs, 6s. 9s., 12s., 18s., and 24s. per dozen, extra strong, 30s. and 42s. per dozen. All other good LILIES at equally low prices.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

KENTIA SEEDS.—A new importation just come to hand; 75s. per cent. guaranteed to germinate. For Trade price and samples write to
H. DAMMANN, J., Breslau, Germany.

HAMPSTON COURT BLACK HAMBURGH VINES.—Extra strong Fruiting Canes of the above, and all other leading varieties, at greatly reduced prices. T. JACKSON and SON, Nurseries, Kingston-on-Thames, and Royal Kitchen Gardens, Hampden Court.

VINES.—VINES.—VINES.—Black Hamburgh and other Fruiting Vines, 10s. 6d. each; Black Hamburgh and other Fruiting Vines, at 7s. 6d. each. All in splendid condition. CATALOGUES on application. The LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, The Vineyard, Garston, Liverpool.

Grape Vines and Strawberries (in pots).
FRANCIS R. KINCHORN offers very fine stocks of the above in all leading varieties, true to name. LIST and prices on application.
Sheen Nurseries, Richmond, Surrey.

IMPORTANT to ORCHID GROWERS.
Special offer of Light Brown ORCHID PEAT, full of Pure Bracken fibre, and also a good GENERAL PEAT. Quotation with sample on application to
THE PEAT ASSOCIATION, 10, Cullum Street, London, E.C.

SALES BY AUCTION.

Bulbs—Bulbs—Bulbs.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY, WEDNESDAY, and SATURDAY**, First-class **BULBS** from Holland, lotted to suit all buyers.

On view morning of Sale, and Catalogues had.

Monday Next.—(Sale No. 7777.)

1200 first-class **DWARF ROSES** to name, just received from an eminent Grower in France, including many choice sorts.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY NEXT**, November 22.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7779.)

HARDY SHRUBS, ROSES, BULBS, &c.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY NEXT**, November 24, fine **RHODODENDRONS, AZALEA MOLLISS, RETINOSPORA, LAURELS, FLOWERING TREES and SHRUBS, CUPRESSUS, &c.**; also Standard and Dwarf **ROSES** from well-known English Growers, **BORDER PLANTS**, &c., by Messrs. DAFODILS, LILY of the VALLEY, SPIRÆAS, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7780.)

10,000 Grand **BULBS** of **LILUM AURATUM**, just received from Japan in the finest possible condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, November 25.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7781.)

VALUABLE ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will **SELL** by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, November 25, at half past 12 o'clock precisely, a number of **ESTABLISHED ORCHIDS**, in excellent health and condition, comprising many new and rare specimens, including—

- Lælia elegans*, extra specimen and variety.
- Cymbidium puberulum*, and *puberulum*.
- Lælia Dominicana* (hybrid).
- Cypripedium euryandrum*, fine specimen.
- Succallium amanthum superbum* (hybrid).
- Cypripedium grande* (hybrid).
- Aerides Ballantianus*.
- Cypripedium Godefreyi*, C. *Arthurianum* (hybrid).
- Aerides Wilsonii*, pure white.
- Angulosa Ruckeri*, fine specimen.
- Lælia species*, *Odontoglossum niveum majus*.
- Coleogyne cristata*, maximum.
- Cypripedium nitens* (hybrid).
- Dendrobium noble* Cookson, D. *herzogianum*.
- Cypripedium amanthum superbum* (hybrid).
- Masdevallia Roezli*, *Masdevallia Crossii*.
- Cypripedium calumum*.
- Coleogyne cristata* (alt).

On view morning of Sale, and Catalogues had.

Dutch Bulbs.

Every **MONDAY, THURSDAY, and SATURDAY**.

GREAT UNRESERVED SALES.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **MONDAY, THURSDAY, and SATURDAY**, at half-past 12 o'clock precisely each day, extensive consignments of **HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other Bulbs** of the very rarest and of excellent quality, and lotted to suit the Trade and Private Buyers.

On view morning of Sale, and Catalogues had.

Monday Next.

5000 **LILUM AURATUM**, splendid Bulbs, just received from Holland.

MESSRS. PROTHEROE AND MORRIS will include the above in the SALE by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **MONDAY NEXT**, November 22.

On view morning of Sale, and Catalogues had.

Ealing, W.

PEREMPTORY CLEARANCE SALE.

To Florists and Others.

MESSRS. PROTHEROE AND MORRIS are instructed to **SELL** by AUCTION, on the Premises, The Ealing Nurseries, Ealing, W., on **MONDAY, November 22**, at 10 o'clock precisely, the whole of the **STOVE and GREENHOUSE PLANTS**, comprising the contents of 35 Greenhouses and to Pits, including *Gardenias*, *Eucharis*, *Adiantum*, *Fatsia*, *Calceolarias*, *Ferns*, *Cypripediums*, *Geraniums* in large quantities, *Crotons*, *Primulas*, &c.

On view two days prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

Tuesday Next.

CATTLEYA PERCIVALIANA.

ONCIDIUM MACRANTHUM.

ONCIDIUM UNULATUM.

ODONTOGLOSSUM HARDINUM.

EDWARDII.

MESSRS. PROTHEROE AND MORRIS are instructed to **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **TUESDAY NEXT**, November 23, at half-past 12 o'clock precisely, a specially fine selected importation of **CATTLEYA PERCIVALIANA**, in extra condition, with plump and dormant eyes, the plants being at perfect rest; also superb lots of **ONCIDIUM MACRANTHUM**, **ODONTOGLOSSUM EDWARDII**, the very rare **O. PARDINUM** and **ONCIDIUM UNULATUM**, and the white-lipped variety of **ODONTOGLOSSUM HALLII**. Many of the above are in unusually large masses; also **ONCIDIUM NUBIGENUM**, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.

CAMELLIAS, AZALEAS, DRACÆNAS, and other Plants from Belgium; 600 well grown **STANDARD and DWARF ROSES** from an English Nursery; a choice assortment of **HARDY BULBS**, **English and French LILIES** in variety; **CARNATIONS, LILIES of the VALLEY, SPIRÆAS**, **Barr's DAFFODILS**, **Roman HYACINTHS**, &c.

MESSRS. PROTHEROE AND MORRIS will **SELL** the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY NEXT**, November 24, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Tuesday Next.

400 **Standard and Other ROSES**, English-grown, and all true to name; choice selected **Fruit Trees**, **Conifers** in variety, **Rhododendrons**, **Deciduous Shrubs**, **Dutch Bulbs**, &c.

MESSRS. PROTHEROE AND MORRIS will **SELL** the above at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on **TUESDAY NEXT**, November 23, at 12 o'clock precisely.

On view morning of Sale. Catalogues at the Rooms or of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next.

CATTLEYA LABIATA SPECIES.

Discovered by F. C. Smith, an entirely new and unsearched locality. As will be seen by inspection this habit of the plant is very distinct, and the flowers seen by the collector were unlike any other *Cattleya* in form and colour, and both of C. specimens and of *Mendelsii*. It is moreover delightfully fragrant. Among them many pure white varieties will be found, and some of the masses have very strong growths and double flower-branches. A few of these species were sold by Mr. Mau in New York last summer, and have flourished. The following is an extract from a letter relating to the above *Cattleya* which you sold last is making quite a sensation here.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, November 26, at half-past 12 o'clock precisely, a grand importation of the above *CATTLEYA*, in splendid condition, by order of Mr. Mau.

On view morning of Sale, and Catalogues had.

Friday Next.

IMPORTED and ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will include in their SALE by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, November 26, at half past 12 o'clock precisely, the following ORCHIDS:—

About 100 lots of **Established and Semi-established Orchids** (without reserve), and 50 lots of their new *Cattleya*, from the New Plant and Bulb Company.
Established and Imported Orchids, including a very fine lot of *Odontoglossum Alexandrie*.
About 100 lots of **Established and Imported Orchids** from the Continent, comprising *Cattleya velutina*, *Lælia elegans*, *Cypripedium purpuratum*, C. *Veitchii*, &c.

On view morning of Sale, and Catalogues had.

Flowering Orchids—Special Sale.

MESSRS. PROTHEROE AND MORRIS beg to announce that their **NEXT SPECIAL SALE** of the above, will take place on **TUESDAY, November 30**, for which they will be glad to receive notice of entries by **WEDNESDAY NEXT**.

Fine-apple Nursery, Edgware Road, W.

In consequence of the Closing of the Colonial and Indian Exhibition.

HIGHLY IMPORTANT SALE of SPECIMEN PLANTS, by order of Messrs. E. G. Henderson & Son, who have purchased the contents of their nursery for the purpose of exhibiting at the above Exhibition, and are compelled to dispose of the plants through want of room to house them.

MESSRS. PROTHEROE AND MORRIS are instructed to **SELL** by AUCTION on the Premises, as above, on **WEDNESDAY and THURSDAY**, December 1 and 2, at 12 o'clock precisely each day, the above valuable **COLLECTION of PLANTS**, offering an exceptional opportunity for securing rare specimens from this interesting Exhibition. Among the Plants are noble examples of *Phoenix*, *Cycas*, *Chamærops*, *Arecas*, *Palms*, *Latania*, *Sequoias*, *Santalums*, *Pinus*, *Ferns*, *Azaleas*, *Begonias*, *Orchids*, *flowering bulbous roots*; *Roses*, *Carnations*, &c.

May be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Brixton, S.W.

IMPORTANT TO MARKET GROWERS.

MESSRS. PROTHEROE AND MORRIS are instructed to **SELL** by AUCTION, at an EARLY DATE, the above **WEDNESDAY** and **THURSDAY** (as made previously), the **LEASE of the NURSERY** and about 20,000 feet of **GLASS**, all in capital working order. Ground rest very low.

Arrangements can be made for allowing a portion of the money to remain, thus bringing the property within the reach of small capitalists.

Arrangements will appear next week, and in the meantime can be obtained of the Auctioneers, 67 and 68, Cheapside, E.C.

Handbrier Nurseries, Chester.

TO NURSERYMEN and SEEDSMEN.

TO BE SOLD BY AUCTION, the GOODWILL in the above Nurseries, to be held under a lease from His Grace the Duke of Westminster, K.G., for an unexpired term of five years, at an annual rent of £50 10s., and extending in area to an acreage of 72, 21p., which is in a high state of cultivation.

Together with the valuable stock growing thereon, which consists of young and healthy Trees, Plants, &c., capable of immediate removal for the purpose of business. Arrangements can be made for a transfer of the Lease. A detailed Inventory and Valuation can be inspected at the Offices of the undersigned Solicitors.

The above Nurseries will be held under a lease from His Grace the Duke of Westminster, K.G., for an unexpired term of five years, at an annual rent of £50 10s., and extending in area to an acreage of 72, 21p., which is in a high state of cultivation.

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Together with the valuable stock growing thereon, which consists of young and healthy Trees, Plants, &c., capable of immediate removal for the purpose of business. Arrangements can be made for a transfer of the Lease. A detailed Inventory and Valuation can be inspected at the Offices of the undersigned Solicitors.

To Market Gardeners, &c.

TO BE SOLD, a compact NURSERY, Dwelling-house, Glass Erections, 2 Acres of Land, Stock-in-Trade. Price £300, or offer.

For particulars, apply by letter to A. K. Gardener's Chronicle Office, 41, Hillingdon Street, Strand, W.C.

TO BE SOLD, a SMALL NURSERY.

compact and well stocked, comprising 4500 square feet of Glass or thereabouts, all heated with Hot Water; quantity of Frames and Outbuildings. Doing a nice trade. Eight years' Very low rental. Price £150. This is a capital opportunity for a working man, or good branch.

E. Gardener's Chronicle Office, 41, Wellington Street, Strand, W.C.

To Market Gardeners, Florists, &c.

TO BE LET, with Immediate Possession, 33 Acres of Land, of excellent quality. Well adapted for Fruit Trees, Strawberries, Roses, &c. 14 miles south-west from London and 1 mile from a station.

For terms apply to Messrs. DOWSETT and WOODS, 79, Lincoln's Inn-Fields, W.C.

TO LET, at Small Rental, HANWELL

PARK GARDENS, close to Hanwell and Castle Hill Ealing Stations on the Great Western and Midland District Railways, 7 miles from London, a short notice being necessary if sold or required for Building purposes. The rent will be nominal to any one undertaking to keep them in neat order and care for House and Premises where they may live. Gardens now in neglected condition.

After viewing, write to the owner, J. J. SUDBURY, Esq., Ludlow.

Fly.

TO BE LET, in consequence of advanced age, **CARNATIC LODGE GARDEN**, with Vineyard, 14 ft. by 13 ft., small garden, a short notice being necessary if sold or required for Building purposes. The rent will be nominal to any one undertaking to keep them in neat order and care for House and Premises where they may live. Gardens now in neglected condition.

After viewing, write to the owner, J. J. SUDBURY, Esq., Ludlow.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E.

Monthly Horticultural Register had on application.

Royal Parks, &c. Grass Seeds.

THE COMMISSIONERS of HER

MAJESTY'S WORKS, &c. are prepared to RECEIVE

TENDERS for the SUPPLY of GRASS SEEDS for use in the Royal Parks, &c. For full particulars, apply to the

Commissioners, at the Office of the Secretary, H.M. Office of Works, &c., 12, Whitehall Place, S.W.

The Commissioners do not bind themselves to accept the lowest or any Tender.

H. M. Office of Works, &c., 12, Whitehall Place, S.W.

November 17, 1886.

SAVOY CABBAGES.—Fourteen acres of good Drumhead Savoy for Sale. Apply to Mr. GRANT, Manor Farm, Barnham, near Hognor, Sussex.

DWARF ROSES, on Seeding Briars. First-class plants in the very best sorts 20s. per 100 and 300s. per 1000.

Apply D. Mr. Smith, Post-Office, Brockley, S.E.

BLACK WALNUT (True).—See Gardeners'

Chronicle of last week.—Sicily translated, 6s. to 9s. per 1000 seeds, 35s. to 50s. per 1000. See CATALOGUE, forwarded on application.

JAS. DICKSON and SONS, "Newton" Nurseries, Chester.

CHIONODOXA LUCILLE (Glory of the Snow), azure-blue with white centre; lovely for early Spring bedding. Large English-grown Bulbs, 8s. per 100.

WATKINS and SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, W.C.

CAMELLIAS.—A Choice Collection for Sale, fine well-budded Plants, in tubs.

Address, 1, St. German's Villas, Exeter.

To the Trade.

Home-grown **VEGETABLE and AGRICULTURAL SEEDS.**

H. and F. SHARPE are now prepared to

give special quotations of all the principal varieties of **VEGETABLE and AGRICULTURAL SEEDS** raised on their Farms this season from the choicest selected stocks. The quality is unusually fine, and the prices very low. Samples may be had on application.

Seed Growing Establishment, Wisbech.

There is but one

CLEMATIS, WHITE JACKMANNI, and Charles Noble is its Raiser.

The Raiser supplies 2-year and 3-year old plants at 3s. each. All the above kinds from 12s. to 25s. each.

SPIRÆA PALMATA.—The finest forcing clusters in the world, and the largest stock.

CHARLES NOBLE, Bagshot.

CLIVIA HIMANTOPHYLLUM, a Specialty.

Seeding Plants of the varieties, 1-year, 31s. 6d. per 100; 2-year, 63s. per 100; 3-year, 168s. per 100. These last are able to flower this winter.

Seeding, &c. **CLIVIA**, four and five sorts, in bud, 5s. 6d. each, 60s. per dozen. Seeds of the best sorts, 15s. per 100.

ED. PYNARKT, Ghent.

ANDRE LEROY'S Nurseries, at Angers,

France, the largest and richest in Europe in Collections of **FRUIT and ORNAMENTAL TREES, SHRUBS, and FLOWERING PLANTS**, &c. **CATALOGUES** sent on application. Freight from Angers to London is very moderate. Medal of Honour at the Universal Exhibition, 1875.

Orders must be addressed to Messrs. WATSON and SCULL, 90, Lower Thames Street, London, E.C.

PALMS, for Table and Conservatory Decoration, 25 inches high—*Latania borbonica*, 12. 6d.; *Seaforthii*, elegant, 12. 6d.; *Areca lutea*, 12. 6d.; *Phoenix recinata*, 12. 6d.; *Euterpe edulis*, 12. 6d.; *Corypha australis*, 12. 6d.; six for 8s., or 12s. 6d. per dozen.

COCOS WEDDELIANA and **KENTIAS**, 25, to 52, each. **PALMS**, fine healthy plants, 12 inches high—*Latania borbonica*, *Seaforthii*, elegant, *Phoenix tenuis* and *Phoenix recinata*, 6d. each, or 4s. per dozen. Packages and delivery free.

Large PALMS, 3 feet to 6 feet high, 5s. to 50s. each.

GARDENER, Holly Lodge, Stamford Hill, London, N.

EVERGREENS, for immediate effect. Well rooted Specimens, in fine condition for removal, at cheap rates:—

ARBOR VITÆ, American, 4 to 5 feet, 5 to 6 feet, and 6 to 8 ft.

Siberian, 4 to 5 feet, 5 to 6 feet, and 6 to 8 ft.

CUPRESSUS LAWSONII, 4 to 5 ft. 5 to 6 ft., and 6 to 8 ft.

erecta viridis, 3 to 4 feet, 4 to 5 feet, and 5 to 6 feet.

LAUREL, Common, 3 to 4 feet, and 4 to 5 feet.

Colchic, 3 to 4 feet, 4 to 5 feet, and 5 to 6 feet.

LIGUSTRUM OVALIFOLIUM, 3 to 4 feet, and 4 to 5 feet.

YEW, English, 3 to 4 feet, 4 to 5 feet, 5 to 6 feet, and 6 to 7 ft.

Irish, 3 to 4 feet, 4 to 5 feet, and 5 to 6 feet.

THUILLIA, 3 to 4 feet, 4 to 5 feet, and 5 to 6 feet.

THUOPSIS BOREALIS, 3 to 4 feet, and 4 to 5 feet.

WELLINGTON GIGANTEA, 3 to 4 feet, and 4 to 5 feet.

JNO. JEFFERIES and SON, Royal Nurseries, Cirencester.

SHRUBS and CONIFERÆ.—*Laurostictus*, 1 foot, bushy, 3s. per 100. *Arbutus Uredo*, 2 feet, 40s. per 100. *Aucuba japonica*, 2 to 2½ feet, 40s. per 100. *Box*, Tree, sorts, 1½ to 2 feet, 30s. per 100. *Common Laurels*, 2 feet, 30s. per 100. *Colchic Laurels*, 2 to 2½ feet, 16s. per 100. *Grassia litoralis*, 3 feet, 35s. per 100. *Sweet Bay*, 1½ to 2 feet, 30s. per 100. *Rhododendron ponticum*, 1½ to 2 feet, 35s. per 100; ditto, 2 to 2½ feet, 40s. per 100, extra fine. *Abies Douglasii*, 2 to 3 feet, 40s. per 100; ditto, 3 to 4 feet, 40s. per 100; ditto, 4 to 5 feet, 40s. per 100, fine roots, well furnished. *Arcaurica imbricata*, 2 to 2½ feet, 40s. per dozen; ditto, 3 to 3½ feet, 60s. per dozen. *Cupressus Lawsonii*, 1½ to 2 feet, 30s. per 100; ditto, 2 to 2½ feet, 40s. per 100; ditto, 3 to 4 feet, 40s. per 100. *Cupressus erecta viridis*, 1½ to 2 feet, 30s. per 100; ditto, 2 to 2½ feet, 40s. per 100. *Retinospora plumosa*, 1½ to 2 feet, 40s. per 100; ditto, 2 to 2½ feet, 40s. per 100; extra fine. *Picea Nordmanniana*, 2 feet, 40s. per 100. *Thuja Lobbi*, 2 to 2½ feet, 40s. per 100. Special offer for the 1000 for smaller sizes. **GARLIES MITCHELL**, Nurseryman, Straßraar.

New Early Peas.

To the Trade and Growers for Early Market.

EARLY KEN WORTHLEY and WILLIAM THE CONQUEROR.

These two genes have no equals for Earliness, Cropping, Colour, and Table Quality.

Testimonials and price list on application to **W. BURBURY**, Seedsman, &c., The Crew, Kenilworth.

DWARF ROSES, in all the finest kinds.

The plants are as good as can be grown, and the prices beggar the Nursery Trade.

Selection No. 1, 50s. per 100.

" " 2, 40s. per 100.

" " 3, too ridiculous to name, but purchasers for cash may certainly make advantageous terms.

CHARLES NOBLE, Bagshot.

Important Notices.

CRANSTON NURSERIES and SEED CO., Limited, offer an unusually fine lot of Standard, Half-Standard, and Dwarf Hybrid Perpetual, Tea-scented, Moss, Noisette, and other ROSES, "all from open ground,"

as on Manetti and Seedling Trees, at very low prices. Quotations and Lists will be forwarded on application. This portion of the Stock was not included in the purchase by Messrs. **JOHN CRANSTON and CO.**

King's Acre Nurseries, Hereford.

N.B.—Please Address in full.

APPLE, "BISMARCK"—We have much pleasure in offering strong Trees of this fine Apple, which was awarded a First-class Certificate at the Crystal Palace Fruit Show, 1885. Maiden Trees, each 1s. 6d. Fruit Trees, prices on application. Our stock of Trained PEACHES and NECTARINES is exceptionally fine. Inspection invited.

JOHN LAING and CO., Nurseries, Forest Hill, S.E.

Little Book of Daffodils.

"LITTLE BOOK OF DAFFODILS," COWSLIPS, OXLIPS, and PRIMROSES.

The severe satirical remarks of "G. H. E." about Jacob's Stone, The Lost Tribes (the Irish) and Aesthetics, appearing in the *Gardener* of October 2, on the above "Little Book," are now published in combination with "W. B. H.'s" reply (in full), dealing with the history of "white" and other Trumpet daffodils as found in the "Little Book." It is to be had free for a good sized stamped envelope. "The Book," which little of it is left, may still be had (over 50 pages) for one shilling; but in all cases has been presented gratis with Daffodil orders.

W. B. HARTLEY, of the Established Garden Seed Warehouse, 24, Patrick Street, Cork.

Special Offer.

ISAAC MATTHEWS and SON have for

Sale 500,000 RHODODENDRONS, varying in size from 6 to 12 inches, to 3 ft. 6 in.—Cunningham's White, Jacksonii, cuneatus, pictus, Seedling Hybrids, Hybrid ponticum, and named varieties: good bushy plants.

HOLLIES, **CONIFERS**, **FOREST TREES** in large quantities; **AUCUBAS**, **YEW**s, and other Nursery Stock. CATALOGUES now ready, and may be had, gratis and post-free, application to the Nurseries, Milton, Stoke-on-Trent. Our Nurseries are 120 acres.

RASPBERRY CANES.—Fine Canes of the

following kinds:—Falsstaff, Carter's Prolific, Semper Fidelis, and Northumberland Filbasket, at 10s. per 1000. Sample on application.

PARKETT BROTHERS, Normandy, Guildford.

SPECIAL AND CHEAP OFFER.

TO THE TRADE.

AZALEA PONTICA, **INDICA**; **RHODODENDRON PONTICUM**; **HYDRANGEA PANICULATA** and **CORONILLA**; **ACER JAPONICA**, **PALMATA**, **ACER NEGUNDO FOLIS VARIEGATUS**; **CORYLUS AVELLANA** and **PURPUREA**; **CORNUS SIBIRICA** and **QUINQUA**; **PRUNUS LATIANA**, **PHENIX**, **CORYPHA**, **KENTIA**, **ARECA**; **FOREST and ORNAMENTAL TREES and SHRUBS**; **ABIES NORDMANNIANA**.

Prices and full particulars will be forwarded on application to

P. E. FRANKCKEN, Nurseryman, Steenbeug, near Bruges, Belgium.

PRIZES FOR DEVERILL'S

New and Choice Varieties of

VEGETABLES,

TO BE AWARDED AT THE

Royal Horticultural Society's Shows

(South Kensington), 1887.

SEPTEMBER.

NEW RUNNER BEAN—NEAL'S "NE PLUS ULTRA."

For the best 50 pods.

1st Prize, 20s.; 2d Prize, 10s.; 3d Prize, 7s. 6d.

OCTOBER.

ONION—DEVERILL'S "ROUSHAM PARK HERO."

For the best 8 specimens.

1st Prize, 20s.; 2d Prize, 15s.; 3d Prize, 10s.

ONION—DEVERILL'S "ANGLO WHITE SPANISH."

For the best 8 specimens.

1st Prize, 20s.; 2d Prize, 15s.; 3d Prize, 10s.

ONION—DEVERILL'S "IMPROVED WROXTON."

For the best 10 specimens.

1st Prize, 20s.; 2d Prize, 15s.; 3d Prize, 10s.

ONION—DEVERILL'S "MAIN CROP."

For the best 12 specimens.

1st Prize, 20s.; 2d Prize, 15s.; 3d Prize, 10s.

CELERY—WINGROVE'S "AYLESBURY PRIZE RED."

For the best 3 sticks.

1st Prize, 20s.; 2d Prize, 15s.; 3d Prize, 10s.

BRUSSELS SPROUTS—FINLAY'S "THE WROXTON."

For the best 3 stems.

1st Prize, 20s.; 2d Prize, 15s.; 3d Prize, 10s.

Deverill's LIST of New and Choice Varieties of Vegetables is now ready.

THE GENERAL SEED CATALOGUE will be sent out in December.

Both may be had Gratis and Post-free on application.

H. DEVERILL,

ROYAL FARM AND GARDEN SEED STORES,

BANBURY.

HERBACEOUS AND ALPINE PLANTS

CATALOGUE of 50 Pages, containing full information as to colour, height, situation, time of flowering, &c., free on application.

A CAPITAL COLLECTION for ROCKS, STUMPS, and BORDERS, from 45s. per 100, or 4s. per dozen.

Most of the Plants being in Pots may be despatched at any time, or by Parcel Post when fit.

RICHARD SMITH & JO.,

NURSERMEN AND SEED MERCHANTS,

WORCESTER.

BAUMFORTH'S

SEEDLING RASPBERRY.

THIS new and splendid Raspberry has now

so thoroughly established itself a popular favourite with the Growers for Market, the Gentlemen's table, and especially the Exhibitor, throughout the Kingdom, that it is almost superfluous now to make a repetition of its merits in detail. Suffice it to say, during the time I have had the pleasure of introducing it, I have been favoured with orders for over 150,000 plants, which are distributed over all parts of the World and the hundreds of voluntary testimonials received in its favor fully confirm my previous description of its sterling properties, and entitle it to be classed the most popular and finest variety of Raspberry in cultivation, alike for production, size, deep crimson colour, quality, and strong robust constitution.

I am offering Canes this season at the following reduced prices:

Planting Canes, 15s. per 100, 3s. per doz.

Fruiting Canes, 22s. 6d. per 100, 4s. per doz.

Price to the Trade on application.

EARLY ORDERS RESPECTFULLY SOLICITED.

EDMUND PHILIP DIXON

Nurseries—HULL and BURTON-CONSABLE.

Seed Establishment—57, QUEEN STREET, HULL.

JERSEY FRUIT TREES.

Carriage Paid for Cash with Order. Write for Illustrated CATALOGUES to **JOSEPH LE CORNU & SON**, Hiv New Nurseries.

40 JERSEY ROSES FOR 1/-

These are very strong dwarf bushes, selected from amongst thousands, and we shall be happy to send Samp Trees gratis and Carriage Paid on application.

King's Acre Nurseries, Hereford.

ESTABLISHED, 1785.

SPECIAL CULTURE, ROSES and FRUIT TREES.

These old-established Nurseries have gained a reputation unsurpassed for the cultivation of ROSES and FRUIT TREES.

JOHN CRANSTON & CO.

are now offering from their magnificent stock

ROSES, Standard Hybrid Perpetual, and others, 12s., 18s. to 24s. per dozen.

" Standard Tea-scented, fine heads, 18s., 24s. to 30s. per dozen.

" Dwarf Hybrid Perpetual, 8s. to 12s. per dozen.

" Dwarf Tea-scented, all on the Brier stock, 12s., 15s., to 18s. to 20s. per dozen.

Roses for Greenhouses and for Forcing.

SPECIALLY GROWN UNDER GLASS.

" The Largest and Finest Stock in the Kingdom."

ROSES, Specimen Tea-scented, in 8 and 9-inch pots.

" Half-Specimens, in 6 and 8-inch pots.

" Smaller sizes, in 4 and 5-inch pots.

FRUIT TREES.

AN IMMENSE STOCK.

Standards, Pyramids, Dwarf-trained, Horizontal-trained, Cordons, &c., of

APPLES, PEARS, PLUMS, CHERRIES,

PEACHES, NECTARINES, APRICOTS,

CURRANTS, GOOSEBERRIES, &c.

ORCHARD-HOUSE TREES.

Fine bearing Trees, well ripened under Glass

VINES—Extra fine Fruiting Canes.

STRAWBERRIES—A large Collection—well-rooted Runners.

Descriptive CATALOGUES on application to

JOHN CRANSTON & CO.,

KING'S ACRE NURSERIES, HEREFORD.

50,000 SINGLE DAFFODILS, 9s. per 1000.

50,000 NARCISSUS POETICUS (Pheasant-ear), 12s. 6d. per 1000.

50,000 NARCISSUS (Double White), 25s. per 1000.

50,000 CROCUS (Yellow), 5s. per 1000.

Low Offers to Clear.

WATKINS & SIMPSON,

SEED and BULB MERCHANTS,

13, EXETER STREET, STRAND, LONDON, W.C.

"Planting Season."

"unequalled for quality, Variety & Extent."

FOREST, FRUIT

& ALL OTHER

TREES & PLANTS.

ROSES EVERGREENS VINES &c

Descriptive Catalogues Post Free.

"James Dickson & Sons"

"Newton" Nurseries

Chester.

TELEGRAPHIC ADDRESS

CONFIDENCE

CHESTER.

Specialties—Garden Seeds, 1886.

CHARLES SHARPE & CO.'S

WHOLESALE LIST of their SPECIALTIES in NEW PEAS and other VEGETABLE SEEDS is now ready, and will be forwarded, post-free, to the Trade, on application.

A Copy has been posted to all CHARLES SHARPE AND CO.'S regular Customers. If any have not been received they will be glad to be informed, that another may be sent.

CHARLES SHARPE & CO.,
SEED WAREHOUSE, SLEAFORD.

ROSES 20 acres.

Well-rooted, many shooted, truly named, of matured vigorous growth, and of the best kinds. BUSHES, R. S. & CO.'S selection, 8s. per dozen, 60s. per 100. STANDARDS, 15s. per dozen, 105s. per 100. Packing and Carriage Free for cash with order.

These World-famed ROSES cannot fail to give the greatest satisfaction.

ROSES in pots;
all the best New and Old English and Foreign sorts, from 18s. to 36s. per dozen.

Descriptive List free on application.

RICHARD SMITH & CO.,
WORCESTER.

JARMAN'S BULBS

FIRST QUALITY. PRICES LOW.

JARMAN'S SEEDS

SEND FOR
LARGE DESCRIPTIVE CATALOGUE
of Bulbs, Seeds, Roses, Plants, Ferns, &c.
A Complete Guide for Amateurs. Gratis and Post-free.

THE PEOPLE'S SEEDSMAN, CHARD,
SOMERSETSHIRE.

PRIZE COB and other NUT TREES.

Gentlemen desirous of obtaining the true
WEBB'S PRIZE COB FILBERT TREES,

AS ALSO THE
Kentish Cob and other Nut Trees,
should send their Orders as early as convenient to
Mr. COOPER, F.R.H.S., Calcot Gardens, Reading,
of whom alone the various sorts can be obtained.
PRICE LISTS and PAMPHLETS on application.

Kent—The Garden of England.

300,000 FRUIT TREES—true to name.

GEORGE BUNYARD & CO.,
THE OLD NURSERIES, MAIDSTONE,

(Established 1796), will forward, for Six Stamps, their

DESCRIPTIVE FRUIT CATALOGUE,

with Illustrations and Cultural Notes (copyright edition).
See *Gardeners' Chronicle* of Sept. 4, p. 298. The finest stock ever
offered—clean, healthy, with grand fibrous roots. Frequent Trains
from London by North Kent and London & Chatham Railways.

BULBS.

Very long experience enables us to offer the
BEST QUALITY at a moderate price, as
proved by hundreds of Testimonials.

ILLUSTRATED LIST, Descriptive, Select,
and comprising important NOVELTIES,
on application.

RICHARD SMITH & CO.,
NURSEYMEN AND SEED MERCHANTS,
WORCESTER.

FRUIT TREES,
SEVENTY-FOUR ACRES.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES,
NECTARINES, APRICOTS, and other FRUIT TREES,
as Standards, Dwarf, Pyramids, Bushes, Cordons, and Trained
Trees in great variety.

VINES, excellent Canes, 3s. 6d. to 10s. 6d. Orchard House
Trees in pots, PEACHES, APRICOTS, NECTARINES, &c., from
5s. FIGS from 3s. 6d.
DESCRIPTIVE LIST, containing a sketch of the various
forms of Tree, with Directions for Cultivation, Soil, Drainage,
Manure, Pruning, Lifting, Cropping, Treatment under Glass;
also their Synonyms: Quality, Size, Form, Skin, Colour, Flesh,
Flavour, Use, Growth, Duration, Season, Price, &c., free by post.

RICHARD SMITH & CO.,
WORCESTER.

SPECIAL CULTURE OF

FRUIT TREES and ROSES.

A large and select stock is now offered for Sale.

The Illustrated and Descriptive CATALOGUE of FRUITS
Post-free.

The Descriptive CATALOGUE of ROSES Post-free.

THOMAS RIVERS & SON,
The Nurseries, Sawbridgeworth, Herts.

FERNS A SPECIALTY.

AN IMMENSE STOCK, in SPLENDID CONDITION.

ILLUSTRATED CATALOGUE, containing "Hints on Fern
Cultivation," 1s.

SMALLER CATALOGUE, of over 1300 species and varieties,
including Descriptive "LIST of New, Rare, and
Choice FERNS," and "HARDY NORTH AMERICAN FERNS,"
free on application.

W. & J. BIRKENHEAD,
FERN NURSERY, SALE, MANCHESTER.TO THE TRADE.
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THE CAPETOWN BOTANIC GARDENS
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AFRICAN TUBEROSES,

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These splendid Bulbs, superior to any in the market, are now
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Cases free. Terms net cash 1 month. For further particulars,
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STRAWBERRIES.

Strong Roots, 4s. per 100. Plants in small pots, 16s. per 100;
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RICHARD SMITH AND CO., Nurserymen and Seed
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CUTBUSH'S MILL-
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SPAWN—Too well known to require
description. Price 6s. per bushel
12, extra per bushel for package, or
6d. per cake; free by parcel post, 12.
None genuine unless in sealed pack-
ages and printed cultural directions
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A LARGE and HEALTHY STOCK of ALL
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CORDON FRUIT TREES
A SPECIALTY. SEND FOR NEW
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Invite inspection of the stock in these Nurseries—immense in
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LEAS, CAMELLIAS, CYCAMEN, CONIFERS, SPA-
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TREE CARNATIONS, &c. MARECHAL NIEL ROSE,
many thousands, in pots, grand plants, 5 to 12 feet in length,
18s. to 60s. per dozen.

274,600 Superficial Feet of Glass.

SEEDLING BRIERS.

Any quantity of 3, 2, and 1-year old plants.

NEW ROSES of 1885-6.

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15s. per dozen varieties (my selection); 30s. per 25 varieties

My FRENCH CATALOGUE of New Roses sent post-free.
My Complete ENGLISH CATALOGUE of over 1000 kinds
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THE BEST ROSES.
THE BEST CAMELLIAS,
THE BEST HYACINTHS, TULIPS, &c.,
THE BEST EVERGREENS and FLOWERING SHRUBS,
THE BEST PALMS and ROADSIDE PLANTS,
THE BEST FRUIT TREES and GRAPE VINES,
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May be seen and purchased at

WM. PAUL & SONS',
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(adjoining Waltham Cross Station, Great Eastern Railway,
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ROOTS for CYCLING FLOWERS.

WALLFLOWERS, MYOSOTIS, SILENE COMPACTA,
SWEET WILLIAMS, POLYANTHUS, PRIMROSES,
single, very hardy and all shades of colour, strong, trans-
planted, 1s. per dozen; 5s. per 100
DAISIES, red, white, pink, 1s. per dozen; 4s. per 100; 35s.
per 1000.
VIOLAS and bedding PANSIES, Alpine AURICULAS,
AUBRIETAS, ARABIS, 1s. 6d. per doz.; 8s. per 100.

250,000 of the finest Hardy Perennials,

all best named varieties,
CARNATIONS and PICOTEES, 6s. per dozen.
PANSIES, show and fancy, 3s. per dozen.
POTENTILLAS, 2s. per dozen.
HEPATICAS, red and blue, 3s. 6d. per d. ven.
PHLOXES, 1 year; 3s. 2 years; 5s. per dozen.
HYDRANGEAS, 1s. 6d. per 100.
PRIMROSES, double white, lilac and sulphur, 3s. 6d. per
dozen.

PRIMULA SIEBOLDI, 4s. per dozen.
Mixed German IRIS, 2s. 6d. per dozen.
Mixed English IRIS, 1s. per dozen; 5s. per 100.
HOLLYHOCK Seedlings, splendid strains, 4s. per dozen; 25s.
per 100.

DELPHINIUM Seedlings, all shades, 3s. per dozen.
HARDY PERENNIALS in variety, for continuous bloom,
12 kinds, 3s. 12 kinds, 6s.; 25 kinds, 12s. 6d.; 100 varieties,
30s.; 100 plants in 50 varieties, 28s.; 200 varieties, 60s.

Stove and Greenhouse Plants

Very cheap, clean, and healthy; five houses from 100 to 120
feet long, full of the very best flowers for the market, to make
room for winter and spring stock, 12 varieties, 6s.; 25
varieties, 15s.; 50 varieties, 35s.

Six Acres of Fruit Trees.

Best croppers, well rooted, healthy trees.
APPLES, PEARS, PLUMS, and CHERRIES, Pyramids,
5s. and 12s. per dozen; Standards, 9s. 12s., and 18s. per
dozen; dwarf-trained, 18s., 21s., and 24s. per dozen.
CURRANTS and GOOSEBERRIES, 2s. 6d. to 4s. per dozen,
RASPBERRIES, 1s. to 2s. per dozen; 6s. to 12s. per 100.
RHUBARB, 4s. to 6s. per dozen. CATALOGUES free.
STRAWBERRIES, 25 of the best varieties, grand plants,
2s. 6d. per 100; in 2 1/2 inch pots, 10s. 6d. per 100; in 5 inch
pots, for forcing, 25s. per 100.

VINES, to leading varieties on sale, good Planting Canes, 3s.
to 5s. each; Fruiting Canes, 6s. to 7s. 6d. each.

Three Acres of Roses.

Well rooted, hardy plants of best sorts; 12 fine H.-F. ROSES,
free, for 7s. 50 for 25s.; 100 for 45s.
MOSSES, CLIMBERS, NOISSETTES, &c., 6s. per dozen.

CATALOGUES free.

Forest Trees, Evergreen and Deciduous Shrubs,
Conifers, &c.

Many thousands of these in all sizes and varieties, and in the
most healthy and well rooted condition. See Catalogue.
FOREST TREES of sorts, 6s. per dozen; 40s. per 100.
EVERGREEN SHRUBS, 6s. to 9s. per dozen; 40s. and 60s.
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DECIDUOUS, all beautiful blooming kinds, 4s. per dozen;
25s. per 100.
RHODODENDRONS, fine named scarlet, pink, crimson, &c.,
shades, 18s. and 24s. per dozen.
PRIVET OVIFOLIUM, for hedges, 5s. per 100; 45s.
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THORN QUICKS, 20s. and 25s. per 1000.
Everything wanted for a Garden in the best
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See Catalogue.

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OLDFIELD NURSERY, ALTRINCHAM,
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BARB'S BEAUTIFUL HARDY DAFFODILS.

BARB & SON, 12, King St., Covent Garden, W.C.



BARB'S NEW OR RARE HARDY DAFODILS for Pot-culture, and Bed and Border description List of Varieties, see Advertisement in the *Gardeners' Chronicle*, October 30; or send for B. & S.'s Illustrated Daffodil Catalogue, free on application. These beautiful Daffodils surpass all other spring flowers for use in outdoor decoration, and as cut flowers rank with the Orchid and the Rose. In the London Spring Flower Shows for so many years Barb's Daffodils have maintained a leading position, and are acknowledged the fairest of spring flowers.

BARB'S INEXPENSIVE HARDY DAFODILS in Beds, surpass in beauty and effect all other spring flowers, and for Masses in Flower Borders they have no equal. In Shrubberies they are most valuable, and when required as Cut Flowers, beds of these Daffodils should be planted in the Kitchen Garden. If as a Forced Flower they are wanted, plant thickly in boxes 9 by 15 inches, and 4 inches deep, and stand the boxes out-of-doors, covered with ashes or cocoa-fibre, till the boxes are full of roots. If for Pot-culture, plant three or more bulbs in a pot, and place them out-of-doors till the pots are full of roots. For Naturalisation, plant in grass or by lakes, streams and ornamental waters, and thus realise what Wordsworth saw when he penned the following—

"I wander'd lonely as a cloud

That floats on high o'er vales and hills,

When all at once I saw a crowd,

A host of golden Daffodils;

Beside the lake, beneath the trees,

Fluttering and dancing in the breeze."

The culture of the Daffodil is simple, growing in all soils and all situations; no amount of frost or unfavourable weather will injure bulb or flower. Those who have only an unheated greenhouse can keep it gay with these flowers from January to May.

For Descriptive List of inexpensive Daffodils see advertisement in the *GARDENERS' CHRONICLE*, Nov. 6; or send for B. & S.'s Illustrated Daffodil Catalogue, free on application.

BARB'S ASSORTMENTS OF INEXPENSIVE TRUMPET DAFODILS, for beds, borders, shrubberies, pot-culture, and for naturalisation in grass, woodland walks, beside lakes, streams, or ponds, fully detailed in the *Gardeners' Chronicle* of November 13. The assortments range in price from 4s. 6d. to 15s.

BARB'S ASSORTMENTS OF NEW OR RARE TRUMPET DAFODILS, for beds, borders, and pot-culture, fully detailed in the *Gardeners' Chronicle* of November 13. The assortments range in price from 7s. 6d. to 15s.

BARB'S ASSORTMENTS OF INEXPENSIVE NONSUCH, PERFELESS, EUPHURAS FLOWERED, &c., DAFODILS, for beds, borders, shrubberies, pot-culture, and for naturalisation in grass, woodland walks, beside lakes, streams, or ponds, fully detailed in the *Gardeners' Chronicle* of November 13. The assortments range in price from 3s. 6d. to 15s.

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BARB'S ASSORTMENTS OF MANY-FLOWERED DAFODILS (*Polyanthus Narcissus*), for pot culture, fully detailed in the *Gardeners' Chronicle* of November 13. The assortments range from 3s. 6d. to 25s.

A Few very Cheap and very Beautiful Daffodils.

Well adapted for naturalisation, shrubberies, flower borders, &c., and most useful for cut flowers. Per 100. Per doz.

CHOICE MIXED DAFODILS for naturalisation or for shrubberies... 100 10 10

MIXED DAFODILS for naturalisation or for shrubberies... 100 10 10

GREAT NONSUCH DAFODILS, mixed varieties, valuable for naturalisation and cutting, per 1000, 42s.

LENT LILIES of England, very pale white, trumpet yellow, valuable Daffodils for naturalisation, per 1000, 42s.

GARLAND LILIES OF SCOTLAND, petals white, trumpet yellow, valuable Daffodil for naturalisation, per 1000, 42s.

PRIMROSE PERFELESS, a great beauty, uniform pale salmon, very early flowering, petals pure white, cup yellow, per 1000, 42s.

TRUMPET DAFODILS. Cheap and beautiful for naturalisation, beds, borders, pot culture, and for cut flowers. Full description in the *Gardeners' Chronicle*, November 13.

OBVALLARIS (Tenby Daffodil), very early flowering, uniform petal and trumpet... 10 6 10

SPURIUS, rich full yellow petals and trumpet, large flower... 10 6 10

CAMBRIDGE, sulphur-white petals, yellow trumpet... 10 6 10

PRINCEPS, sulphur-white petals, very large yellow trumpet... 10 6 10

PALLIDUS PRECOX, a great beauty, uniform pale salmon, very early flowering, petals pure white, cup yellow, per 1000, 42s.

TELAMONIUS PLENIUS, strong flowering bulbs... 10 6 10

Chalice Cup-shaped Great Nonsuch Daffodils. For naturalisation, beds, borders, and for cut flowers. Full description in the *Gardeners' Chronicle*, November 6.

CONCOLOR, second-sized, flowering bulbs... 10 6 10

EDWARD, large, second-sized, flowering bulbs... 10 6 10

FRANK MILES, second-sized, flowering bulbs... 10 6 10

FIGARO, second-sized, flowering bulbs... 10 6 10

FAIRY, second-sized, flowering bulbs... 10 6 10

GLOW, second-sized, flowering bulbs... 10 6 10

SUNLIGHT, second-sized, flowering bulbs... 10 6 10

SULPHUREUS, second-sized, flowering bulbs... 10 6 10

ASTREA, second-sized, flowering bulbs... 10 6 10

JOHN ROLL, second-sized, flowering bulbs... 10 6 10

LONGSHANKS, second-sized bulbs... 10 6 10

SANCHO, second-sized bulbs... 10 6 10

ANNIE BADEN, second-sized bulbs... 10 6 10

CYNOSURE, second-sized bulbs... 10 6 10

STELLA, second-sized bulbs... 10 6 10

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An intermediate form between *major* and *maximus*, having dark mottled stems and dark green erect foliage. The flowers are large and very conspicuous, pure white when flowered in a cold frame or even where protected by shrubs, but when fully exposed the outside of the petals are slightly tinted with rose. It is one of the most vigorous of the Christmas Roses, and one which will succeed where some of the ordinary varieties fail.

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MAJOR.

Although this plant is frequently offered, it is seldom to be obtained true to name, owing to its great value for cutting purposes. The flowers are pure white under glass, but have a slight rosy tinge in the open; it is the greatest favourite among market growers, producing flowers from December to January. It is a grand variety for potting, the foliage is so close and compact, and the flowers abundant.

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MAXIMUS.

A robust variety, the largest of the group, an very ornamental as a foliage plant. The blossoms are large and white, shaded with rose on the exterior, and generally produced in twos, but if shaded or a glass placed over the plants the flowers are then pure white. By shading, the flowers can be retarded even to December. It is the most vigorous of the section, and succeeded where many of the others fail to grow.

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RUBRA.

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THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 20, 1886.

TOMATOS.

IN Messrs. Sutton's trial grounds at Reading eighty-five comparisons of Tomatos were made this year, the plantation being undoubtedly one of the finest in the country. Numerous so-called varieties, which are not really distinct, are included every year in various lists which are put before the public, but they are all tested here so as to ascertain their actual merits and distinctions. Sixty-five of these varieties were planted side by side this season, and I have lately had the satisfaction of comparing them together—good, better, and best, as the case may be. It is needless to mention the worst, or to explain that the firm named above will only include in their catalogues next season a limited number of distinct varieties, such as they have proved to be the best.

But the best varieties indoors and under the protection of glass are not the best everywhere; and this is a point to be carefully considered. President Garfield, for instance, is the most popular Tomato out-of-doors in Germany, while in this country, with its cooler and shorter summer, it proves too late for outdoor cultivation, though it is a capital sort—and the largest under glass. In comparing it with Sutton's Earliest of All on September 29 only a few of its earliest fruit were ready for picking, and most of the crop [was not in a condition to ripen]; while the other variety, which is probably the earliest Tomato in cultivation, had commenced ripening August 8, and carried, at the date just given, a most abundant crop in heavy bunches. Tomatos in this climate must be early, three most essential points in their cultivation being early maturity! early maturity! early maturity!

In regard to their shape, the principal types of Tomatos are—1, flattish-round; 2, globe-shaped; 3, oblong; and there is a Pear-shaped variety. In addition to the various hues of red, scarlet, and crimson which distinguish the ripe fruit, Messrs. Sutton have a yellow Tomato of peculiar appearance, which is not found, however, among the twenty-one distinct sorts in their catalogue, or in the *Amateur's Guide in Horticulture*, 1886.

As there is very great variety in size, shape, and character among Tomatos, and very great differences in the quality of the fruit and its flavour—as much difference as in a Williams' Pear in perfection, and the same when "sleepy" and flavourless—I propose noticing some of the best sorts which we cut open, and in many cases tasted, during an interesting inspection—and partook of freely, too, with satisfaction, and without after-smart or any unwelcome pinch. I shall describe such characteristics as were obvious to sight and taste, relying necessarily upon my able informants on the spot for such hidden qualities and intrinsic merits as one cannot detect at a glance.

The Earliest of All is the earliest Tomato in cultivation, remarkably productive, perfectly smooth of surface when grown under glass, and not much corrugated even in the open air. It is, therefore, a most valuable variety for outdoor cultivation, growing and ripening perfectly in these trial grounds in an open border, without a wall, trained to sticks 7 feet 6 inches high, two plants to each stick, and each pair of plants one yard distant in every direction from the neighbouring pair. The fruit is solid, and juicy quite to the skin when ripe, differing therein from those inferior varieties in which the juicy pulp occupies only the middle of the fruit leaving a hollow cavity between that central part and the skin or rather the fleshy shell which the skin envelops.

Chiswick Red bears large clusters of fruit of oblong shape and vermilion shade of red. It is very prolific, bearing several great clusters of fruit to each plant, and we found that some of the clusters were composed of as many as fifteen or twenty and even twenty-five ripe Tomatos. Eat it, ye vegetarians, as salad or sauce! and train it, ye gardeners and amateurs, under the rafters of your "housen," where it will supply you all through the winter with fresh, ripe fruit of medium size, needing less heat than the larger sorts, and proving almost as ornamental and more useful than Japanese Chrysanthemums. It was raised at the gardens of the Royal Horticultural Society in 1883, took a First-class Certificate, Royal Horticultural Society, and was introduced by Messrs. Sutton last year. How much society owes the seedmen! Why, then, should brewers only be raised to the peerage at the rate they have been lately—Guinness, Allsopp, Bass? They deserved their honours, doubtless, but I think some gardeners and seedsmen should be promoted too.

Powell's Early is a second early, with large, flat-tish, round fruit, borne in large bunches. Fruit rather corrugated, and therefore not so suitable for exhibition as some varieties. Next to early maturity, the attainment of a smooth surface has been the greatest improvement accomplished for Tomatos, not that mere smoothness would add much to their value, but for reasons easily appreciated in cutting open the fruit of corrugated sorts, as well as those that have been improved. There is correlation of growth between outside and in, and smoothness is accompanied by a skinkful of juicy pulp, while corrugation implies waste, owing to the large extension of the surface-skin, and a liability—from which Powell's Early is not free—to crack in the centre. It is a good sort, too, and very productive, but I think perhaps a baronetcy would sufficiently reward the raiser.

Vicks' Criterion is a very good sort, Plum-shaped, quite smooth, and distinct and novel in its colour, which is bluish-crimson, instead of the usual scarlet.

Reading Perfection is the handsomest variety in cultivation; fruit perfectly smooth, and flat-tish round in shape; juicy to the outside skin; no waste, as the fruit is not at all corrugated. More suitable for indoor than for outdoor treatment, although with care a satisfactory return may be made by planting in the open. This is the finest type of exhibition Tomato.

Cluster, a very ornamental variety—not only excellent for decoration, but most useful to those who like a small Tomato for the table. The fruits are perfectly round and smooth, about the size of a marble, and are produced on long handsome racemes.

The next batch we inspected was an improvement on Cluster, with much larger fruit and even longer racemes. There is another Cluster variety with small fruit in shape like the old Jargonelle Pear.

Red Cherry is a very appropriate name for another variety, and Red Currant is another well named and most remarkable sort. The fruits are scarcely larger than the red Currant, and are produced on racemes 2 feet in length, often bearing as many as forty-five to fifty fruit.

Maincrop is a handsome sort, and, as its name implies, is a main-crop variety. It is quite distinct from any other sort, the leaves being very much larger, and more like those of the Tobacco plant. It is wonderfully productive, and ripens well on an open border, and still better under a south wall. Flavour delicious. Jean Jacques Rousseau, sent to bed supererous as a little boy, said to the hot joint upon the table, "Good-bye, roast meat!" and I could almost have said in quitting the Tomato grounds, "Good-bye, Maincrop!" but then there is such a difference between feeling full, or famished, H. E.

New Garden Plants.

PASSIFLORA WATSONIANA,* Mast., sp. n.

THIS is a species which, if devoid of the special attractiveness of some others, is nevertheless endowed with much grace and elegance. For our knowledge of it we are indebted to the Director of the Royal Gardens at Kew, and Mr. Watson, under whose charge the plant is, has been good enough to supply us with specimens for figuring. Its native country is not known, and there is, so far as we can ascertain, no specimen in the herbaria. We have, in consequence, named it in complement to the able and obliging superintendent of the indoor department at Kew. As a species it belongs to the Granadilla section, differing, however, from the great majority of that group by the presence of very minute fugacious bracts, instead of the usually leafy and more or less persistent organs. It is nearly allied to *P. Raddiana* (the kermesina of gardens) and to *P. picturata*, but differs materially from both, not only in the bracts but also in the arrangement of the corona, and in other particulars.

The species has cylindrical wiry purplish stems, with (for the genus) rather closely set leaves. The leafy stipules measure about half an inch in length and rather less in width; in form they are reniform,

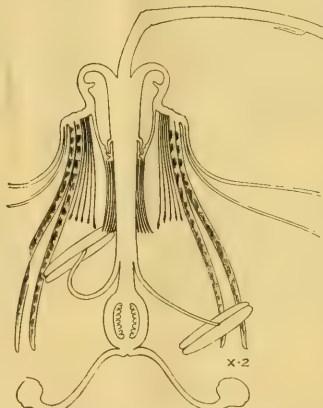


FIG. 126.—SECTION OF PASSIFLORA WATSONIANA, SHOWING ARRANGEMENT OF PARTS. (SEE TEXT.)

slightly toothed. The petioles are about 1 inch in length, cylindric, provided about the middle with two minute stalked glands. The blade of the leaf measures about 3 by 2½ inches, is deep green above, violet beneath, broadly ovate in outline, cordate, subpetulate, diving to the middle into three oblong-acute lobes, with a few glands in the intermediate sinuses. Peduncles axillary, 1-flowered, twice the length of the adjacent leaf-stalk. Bracts scattered, setaceous, fugacious. Flower-buds oblong, cylindric, slender. Flower about 3 inches in diameter. Flower-tube about a quarter of an inch long, dilated at the base, uniliculate at the attachment of the stalk, deeply

constricted above. Sepals linear, oblong, obtuse, with a small horn near the apex, green, with a whitish margin externally, white flushed with violet within. Petals as long as the sepals or nearly so, somewhat narrower, of a very delicate lilac tint. Corona of many rows of threads, the outermost nearly as long as the petals, violet with narrow transverse bars of white below the middle. To these succeed numerous slender capitate threads half the length of the foregoing, and of a deep violet colour. The membranous corona or innermost of the faucial series consists of a purple membranous tube, narrowed towards the upper end and dividing into a number of erect purplish filaments pressed up against the column. The infra-median corona is a fleshy rim projecting from the inside of the flower-tube below the middle. The basilar corona is concentric with the base of the column for about one-third of its length, above which it expands into a shallow fringed cup. Column purple-spotted, glabrous. Filaments and styles spotted. Ovary ovoid, oblong, glaucous, much shorter than the style. M. T. M.

VANDA DEAREI, n. sp.*

THIS new Vanda flowered in September last in Baron von Schröder's celebrated collection, at The Dell, near Staines, where it was grown by Mr. Ballantine. It was obtained from Colonel Deare, and is of Sondai origin. Its *début* at the Royal Horticultural Society, on September 7 and 8 last, was honoured by the award of a First-class Certificate.

My knowledge of the plant is based on a leaf with dried flower. My coloured sketches of the fresh flower were made at Kew. It is decidedly very similar to *Vanda tricolor*. The leaf is very sharp, bidentate, and measures 1½ inch in breadth. Some say the yellowish-green colour is characteristic of this species, but I do not believe it. The chief peculiarities of the flowers consist in the shortly stalked sepals and petals with large blunt laminae without undulations. The median sepal is unusually large. The lip is of a brighter yellow colour than those organs. I think there was a kind of tessellation of darker yellow blotches on a brighter ground. I did not put these details in my sketch, because my yellow paint was not bright enough. I noticed, however, that the lip was gamboge-yellow. That organ is as broad as that of *Vanda tricolor* planilabris. I hope that the little callus over the anterior part of the conical spur may be distinctive, if it always appears as it did in my flower. It is rounded sulcate, very short, while the callus in *Vanda tricolor* is longer, broader, and very widely channelled. There are a few hairs beneath the callus. At all events it is a very interesting plant. I hope to obtain eventually richer inflorescences, and become better acquainted with it. H. G. Rehb. f.

ODONTOGLOSSUM CONRICTUM (Lindl.) PALLENS.
n. var.

MR. F. Sander kindly sends me this. It has light sulphur-coloured sepals and petals, and a whitish column and lip, the last with a lightest yellowish hue. It may be an extraordinary rarity, but both the genuine Lindleyan type, as the *C. castaneum*, also sent by Mr. F. Sander, in November last, are far superior. H. G. Rehb. f.

MASDEVALLIA GLAPHYRANTHA x, n. hybr. Veitch.

THIS is a new and elegant member of the smaller types of the coccinea group. It has a flower as large as those of *Masdevallia Barlaeana*, but the tube is rather short and wide, pale outside, and bordered by the reflexed overlapping margins of the free lacinia, which are of an exceedingly warm and clean purple. Their free bodies are triangular, widely surpassed by the yellow tails, which are neatly reflexed as one sees sometimes in *Masdevallia infra*. Petal, lip, column, are of nearly the same length, included in the tube. Petals ligulate, emarginate, retuse at the tip, with a spreading angle at the base looking to the lip. Lip ligulate, with reflexed anterior tip, purple at the base, with two purple stripes in front. There is an obscure tumour at the top. Will this tumour prove constant? I scarcely believe it.

This *Masdevallia* is declared as of doubtful origin by the kind sender, Mr. Harry Veitch. Mr. Seden has no record of its descent. Mr. Harry Veitch thinks of a descent from *Masdevallia Shuttleworthii*. Mr. Seden remembers experiments with *Masdevallia in-*

* *Vanda Dearei*, n. sp.—Aff. *Vandae tricolori*: sepalis tepalique breviter unguiculatis, lacinia elliptica brevis obtusis; sepalo impari maximo; lobis laciniae lateralibus quadratis parvis, lacinia antica transverse pandurata lata, calcar conico subacuto, callo brevis rotundato sulcato spursum ostium in labelli. Flores lutei. Seden. *Brasilia meridionalis*. Specimina viva in Palto horti regii Kewensi examinavi.

fracta. At first sight I thought of this both on account of the short tube and of the rolled tails. *Masdevallia Barleana* may be the other parent.

Doubtful as this little gem is in its origin, it is doubtless a lovely thing, that must procure good friends among all Orchidists who see it. It has a great shortcoming—there is but one plant of it. *H. G. Rehb. j.*

ORCHIDS IN FLOWER AT MR. B. S. WILLIAMS'.

In spite of those who proclaim the scarcity of Orchids that flower at this season, a visit paid to this

numbers of *C. Trianae* that make up the bulk of the plants in the house give plenty of promise of a full harvest of flower later. In the next house visited were *Cattleya Dowiana aurea*, its colours still bright and rich, notwithstanding the blotted-out sun and indignant light; *Oncidium obryzatum*, a distinct small-flowered yellow variety with a much branched spike; *Cattleya maxima*, the rich brown and yellow marked *Odontoglossum Inseayii* and *O. Rossii* were all found more or less in flower; and *Sophranites grandiflora* formed a grateful patch of fiery red amongst the tamer tints.

Miltonia candida in several examples was in bloom,

named *C. S. magnificum*, a very handsome flower; *C. Lindleyanum*, slight, yellow, and tall, but nearly always in bloom; *C. Harrisonianum*, also showing varying depths of colour and degrees of waxiness; *C. insignis Mooreanum*, a light-tinted, bold flower, semi-transparent, and long-stalked; *C. Sedeni*, an enormous plant of which was bearing a great number of blooms; *C. S. superbum*, *C. S. cardinale*, *C. ciliolare*, *C. Roezlii*, distinct and tall; *C. chloroneurum*, an improved *venustum*; *C. Haynaldianum*, *C. longifolium*, and *C. biflorum*, a *Warneri* in growth and flower, but with the habit of bringing twin blooms. In the *Cypripedium* division other plants were found

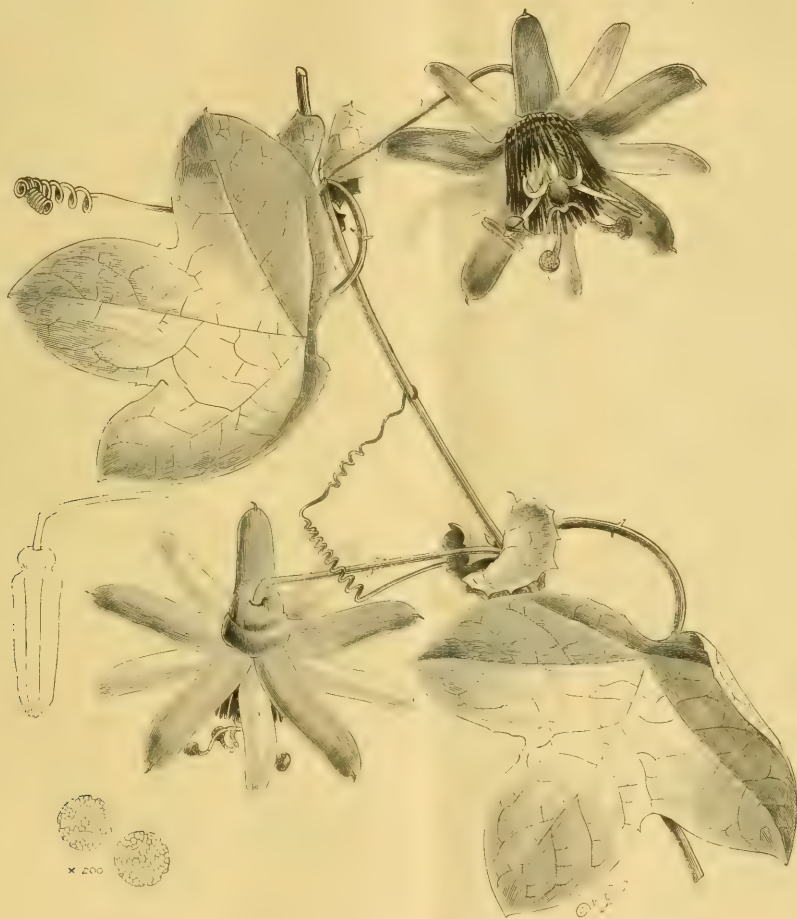


FIG. 127.—PASSIFLORA WATSONIANA: COLOUR PALE LILAC, LEAVES PURPLE BENEATH. (SEE P. 648.)

nursery always reveals many still in flower to delight the connoisseur. In the first house entered was a suspended plant of *Coeogyne Massangeana*, going off somewhat but still with its four long racemes pretty thickly studded with bloom. Near by *Oncidium tigrinum* was seen in several examples with sprays of its long-enduring blooms; *O. Jonesianum*, small, but rarely out of bloom; the lovely orange and yellow colours of *O. Marshallianum* brightened up the little group by the door. A few *Lycaste Skinneri* in various colours, and some *Cypripediums*, as *Maulei*, *Chantini*, *Aerides Robianianum*, a form of *A. suavisimum*, with pale yellow enduring flowers, and a specimen of *Cattleya Trianae* were also in flower in this house. The great

as were *Laelia Dormaniana*, with the rich purple lip and half-closed sepals; *Laelia elegans brassiata*, sepals and petals of green, suffused with purple faintly, lip of purple; several forms, all showing minor differences of colour of *Laelia Perrini*, *Oncidium varicosum*, the rare *Lycaste Skinneri alba* with one bloom expanded, and lastly, a *Cattleya gigas* of two spikes—a fairly good form of the variety. In this house was a flower-stalk of *Peristeria elata* furnished with the unusual number of three lateral branches.

The *Cypripedium*-house proper contained a number of species and varieties that were bearing flowers, viz., *C. Spicerianum*, in various forms, the best being one

in flower, as *Vanda tricolor insignis*, which is a very constant species; *Phalenopsis amabilis*, *P. rosea*, a constant bloomer also; and *Vanda cecurula*.

The small *Odontoglossum*-house contained some plants of *O. Alexandræ*, *O. Andersonianum*, *Oncidium Forbesi*, so rich in colour; *O. bracteatum*, a long flower-spike, densely set with quite minute flowers, yellow as to the lip, and spotted with brown on sepals and petals. A good piece of *Mesospinidium vulcanicum* had two flower racemes, massive for this species; another plant in flower was *Oncidium incurvum*, with flower of violet-rose.

Dendrobium superbiens in numbers were in flower, also *D. bigibbum album*, which is not album at all,

but bluish-coloured; *D. Dearei*, just coming into flower; *Cattleya Walkeri* (dolosa), *A. Masdevallia* troglodytes, with bell-shaped flowers, and tails that stretch out horizontally, the inner colour of the flower being red-brown, and the outer pale brown. This is a most peculiar flower, and is, owing to the position in which the bloom is held, seen best from below. A small plant of *Angraecum Leonis* was carrying one of its handsome white flowers, and *Warsceviczella* discolor, several of the latter plant being in a suspended pan. *Trichocentrum albo purpureum*, differing from the type in the richer colour of the lip; and *Phalaenopsis antennifera*, of a light rose colour, were in flower in small specimens; the latter is a very constant flowerer.

Of other than Orchids we noticed *Hizmanthus Catherinea* superbus, bearing a glowing scarlet corymb of bloom, a fine plant at this season; *Amaryllis* Mrs. W. Lee, *A. Comte de Germiny*, and *A. Mrs. Garfield*, useful late-season varieties. The pretty *Sonerilas* are well done here, and are not coddled in any way, therefore the more useful.

BOTANICAL RAMBLES IN SOUTH CHINA.

(Concluded from p. 642.)

ON the same island I found a fine arborescent *Rhododendron*, with dark green coriaceous leaves and large heads of beautiful lilac-pink flowers. Dr. Hance, a short time before his death, noted its affinities and found it to be near *Rhododendron arborescens*. He intended to publish it in the *Journal of Botany* under the name of *R. photiniflorum*, but I do not know whether his description had been sent to England before his death, if not it will no doubt be found amongst his manuscript notes. The tree grows at a height of 3000 feet, and might stand a temperate climate, as in its native soil it is exposed to very variable climatic conditions. In the spring it is enveloped in a dense mist, which keeps the vegetation saturated for weeks. As the summer advances it is occasionally exposed to the fury of the Chinese typhoon, and in the winter to the dry cutting winds and prolonged drought that dries up the watercourses and bakes the soil quite hard.

Growing near this *Rhododendron* I found a curious *Ariseum*, pronounced by Dr. Hance to be new, and near *A. Tartarinowii*, from Peking. The yellowish-white spathe curves over the short club-shaped spadix and tapers off into a thin caudate filament about 12 inches long. I was greatly interested a short time after finding this *Ariseum* in finding another Aroid on Tai Mo Shan, with the same remarkable development of "tail," but the "tail" in this case, instead of being a prolongation of the spathe, was a prolongation of the spadix. In both plants this curious appendage bends down and touches the ground, and may, as Hooker says, serve as a kind of staircase for insects to crawl up and assist in fertilisation. If this be so, the coincident variation of two distinct organs is very remarkable and interesting. Another handsome Aroid, probably an *Amorphophallus*, was also found growing on Tai Mo Shan in rocky niches. The foliage of this one exactly resembles that of *A. variabilis*, but the spathe is greenish and heavily blotched with purple and is considerably shorter than the spadix, which is long, smooth, and of a chocolate colour, while in *A. variabilis* the spadix is white, roughly pilulose, and shorter than the spathe. Dried specimens will have reached Kew by this time, where the specific characters will be determined.

One sweltering hot day late in the spring I went up a steep ravine and reached an elevated plateau where three streams met; the tops of the surrounding crags closed inward in one corner and formed a cool shaded retreat. Looking round I noticed a tunnel-like gully formed by the bed of a small stream. The rocks on both sides were covered with the scarlet rosulate *Drosera Loresei* and the slender *Utricularia bifida*, *Begonia lacinata*, *Ardisia primulifolia*, and the beautiful blue-berried *Ophiopogon spicatus*. The passage was filled with *Smilax ferox*, the gay-flowered but prickly *Cesalpinia nuga*, and other spiny plants. Here, in an open space exposed to the sun, I found the gem of my collection—an *Aristolochia*, now described by Mr. Hemslay in the *Journal of Botany* for September, 1885, as *A. Westlandii*. It was straggling over the face of a large boulder, and was covered with broad fleshy flowers as large as a man's hand. The

shape and colour is difficult to describe. It resembles *A. longifolia*, recently figured in the *Botanical Magazine*, but is much larger. The leaves are lanceolate, and vary from 6 to 10 inches long and 1½ inch broad. The flower, and, in fact, the whole plant, is decidedly handsome. The original plant, which I took up, and which is now at Kew, had thick jointed tubers about 9 inches long.

Higher up the hill, in an adjacent ravine, I was delighted to find another new species of this genus, also described by Mr. Hemslay in the *Journal of Botany* for September, 1885. This has a very modest flower compared with the other one, and belongs to an entirely different section of the genus. It sends out long shoots that crawl negligently over the rocks, or climb up the shrubs in its vicinity. The flowers are reddish-brown, trumpet-shaped, with a globose swelling at the base, and about an inch long. The leaves are cordate acuminate, bright glossy green, with a network of raised veins on the underside, which make the plant rather striking as a creeper, and although it may not be of much horticultural value, it is very interesting botanically; it has been named *A. Fordii*. In the same ravine I discovered another new *Rhododendron*, but, as Dr. Hance remarked when he saw the flowers, "It is not likely to be awarded a gold medal at a flower show." The flowers are scarlet, and exceedingly small—so minute, in fact, that it is difficult to see them on the plant without very close inspection. This plant has the habit of *R. indicum*, but the leaves are much narrower, and, on the young shoots, much longer.

Near the top of this mountain the fragrant *Daphne odorata*, the rare *Vikstrœmia monula*, and fine sturdy plants of *Rhododendron indicum* and *R. Farreri* can be found in quantity. Some of the rocks at this elevation (3000 feet) are covered with patches of *Peperomia reflexa*, and another species of *Peperomia* which has not yet been submitted to an authority for determination. The first mentioned species has a very wide distribution, but has not, I am told, been found in China before. Here we likewise find *Torenia Fordii*, *Chirita sinensis*, *Strobilanthes Champolii*, *Diandella ensifolia*, *Ardisia chinensis*, *Melastoma repens*, several species of *Rubus*, and thick beds of *Eichynanthus bracteatus*. *Dichroa febrifuga* and *Ilex viridis* and *I. menziesii* are also common at this elevation.

Sheltered nooks that had once been cultivated and afterwards abandoned, are covered with wild *Banana* and *Colocasia indica*. Farther down the long flat valleys are studded with villages and Rice fields. In the distance the numerous islands of the China Sea appear like outposts guarding the shores of a great continent, and the harbour of Hong Kong with the city behind it form a fine panorama. Looking west a far-off island dotted with white specks, rises dimly in the distance; this is the island and holy city of Macao, one of the first advance posts of commerce and christianity in this distant region, and the place where the unfortunate Luis de Camoens wrote his great poem the *Lusiad*, some time previous to the year 1569. The commercial prosperity of Macao is almost a thing of the past, and it seems hard to reconcile the exemplary morality of this "holy city" with the fact that the bulk of its revenue is derived from the Chinese gambling halls. Farther round to the north, the ocean is stained with a thick yellow current issuing from the mouths of the rivers that converge near the famous city of Canton. The water is alive with ships, that give a peculiar foreign character to the scene.

The bare-exposed appearance of the landscape would lead one to expect a hard drought-loving type of vegetation capable of withstanding the extremes of drought, heat, and cold to which it is exposed, but at present the bulk of the plants may be said to be strictly moisture lovers. Bentham, when he wrote the *Flora Hongkongensis*, was struck with the tropical character of the great majority of species. He specially mentions the affinity of the flora with the tropical Asiatic flora and plants from the hot wet hilly regions of Khasia and Assam, and notes the absence of plants pertaining to the dry parched regions of Western India. That the now bare hills of southern China were once more thickly clothed than they are at present is tolerably certain. The geographical affinities of our flora above-mentioned would seem to substantiate the supposition that it is but the lingering fragment of a great flora that had been devastated in the first instance by the swarming inhabitants of the coast and the inland valleys, and afterwards weakened by the adverse

climatic conditions. There is, it is true, a fair proportion of plants peculiar to this region, but I do not think that there is any evidence to show that the present nature of the climate and other physical features of the locality account for their limited distribution. The fact (which Bentham remarked) of "the comparative number of monotypic genera being far greater in the Hong Kong flora than in that of any other flora of similar extent," supports the conjecture that a number of the species of these monotypic genera have died out or have been destroyed.

No one who is unfamiliar with the peasant life of this part of China can realise how rapidly the ancient endemic flora is disappearing. Nearly every accessible tree and shrub that may be dried and burnt is cut down with avidity; even the modest herbage of the hill sides is shaven off and dried for the same purpose; and when the intense drought of the winter has dried everything up, the villagers periodically set fire to the grass, so that the charred remains may fertilise the succeeding crop. It is a fine spectacle on a dark night, to see the distant hills lit up with long lurid bands of flames illuminating the gloomy heights and tinging the skies with the glow of the far-stretching conflagration. But the fire, unfortunately, is not confined to the grassy slopes; it extends to the wooded ravines and withers up the vegetation of the steep crags that would be inaccessible to the ordinary wood-cutter.

How long these and other agencies have been working wholesale destruction would be difficult to estimate, and when we still meet with such a varied flora despite the many adverse conditions, we cannot help being impressed with the wonderful tenacity of plant life.

What would it have been under more favourable conditions, when even now on a barren-looking island, 8 miles long and 4 miles broad, we find upwards of 1140 species? It is painful to think of the number of plants that must have been swept into oblivion unrecorded by science, and, what is more important, their economic properties undeveloped and lost to the modern world; and yet China with her industrial resources, her ancient learning and her thousands of years of so-called civilization remains indifferent to the fact that the work of destruction is still going on, and it is not likely that she will awake to a realisation of the fact till a vitiated climate refuses to supply the wants of a surplus population.

In these desultory rambles I have collected eight plants new to science, and seven plants new to the flora of China, and this within a comparatively small radius. These results give but a faint idea of the richness of the field for botanical research. When we consider that the hills of continental South China and the country connecting these hills with the Cochin Chinese coasts, with Burma, Siam, and Assam is still botanically unexplored, we can anticipate the amount of novelty they contain.

But very little can be accomplished in an occasional journey in the cool season up the rivers or across a small tract of country, and this is all that has been done as yet—not for want of will to do more, but because ways and means have not admitted of more extended research. Much good work has nevertheless been done in this way; but in order to get a satisfactory idea of what this broad continent contains it would be necessary to remain in the country collecting and noting everything of interest in a thorough manner. An energetic collector who could journey in the interior for a few years would, I am convinced, do more towards establishing a knowledge of what this mysterious country contains than the present desultory journeys are likely to do for the next fifty years. The financial outlay would not be very great, and the advantage of making an early examination of this fast fading flora cannot be over-estimated or too forcibly urged. *A. B. Westland, Botanic Gardens, Hong Kong.*

DIOSPYROS KAKI.—Canon Ellacombe has long been known as a magician—we do not for a moment insinuate that he practises the black art, but he certainly does succeed in getting things to flower and fruit in the warm corners of his Gloucestershire garden that other people cannot do. A day or two since we received from him fruits of *Diospyros* more than half ripe, taken from a south wall. No doubt, if kept in a warm place, they will "blet" into something toothsome. From past experience we advise none of our friends to taste these fruits before they are well bletted.

MESSRS. JACOB WRENCH & SONS' TRIAL-GROUNDS.

ONE hundred and thirty-six years since—that is, in 1750—the business so long and so honourably known in the seed trade as that of Messrs. Wrench & Sons, was originated in Lower Thames Street, City. In the counting-house of the present premises in King William Street there hangs a picture of Old London Bridge, with all its quaint houses and shops, and certainly this memento of days long past was in fit accord with the early Thames Street shop or store in which the business of the firm was then carried on. But the destruction of the old bridge, and the erection of the noble, broad structure which now spans the Thames, doubtless impelled the enterprising members of the house, some fifty years since, to establish themselves in the street formed by the new bridge, at that time the most important thoroughfare in London.

Here in the present unassuming, but admirably placed business premises, an excellent illustration is afforded of the way in which space is utilised in the City of London, for whilst there are beneath the front of King William Street level two large floors, and again large dry cellars beneath those, there are above this level four other large floors all devoted to storage and business purposes. In addition to the above-mentioned, the firm holds waterside premises at Dockhead for the unloading and warehousing of seeds which are sent up by barge, ho, or steamer. During all these years of trade life and activity the nature of the area of that trade has changed more or less according to changed conditions in gardening or agriculture, but it has not decreased—indeed, and in spite of the competition in the seed trade which exists, the old house has always maintained its position, doing its best to adapt itself to the spirit and requirements of the age. Finding the place crowded with Dutch bulbs we inquire whether the sales are as good now as before the institution of bulb auctions, and learn that the trade has increased tenfold within the last twenty years. In some instances sales may have affected some customers, but it would seem as if they rather had created new ones. In any case the bulb trade in King William Street has annually increased. The chief trade of the house is in agricultural seeds for producing root crops, the great cattle food agents of the day, and in vegetable seeds for market gardeners, among whom Jacob Wrench & Sons have always held a very high reputation. The association of market gardening with farming, which is found so widely prevalent now, especially in Kent and other of the home counties, has very naturally increased this market seed trade, and even beyond the responsibilities which attach to the private garden trade it is of the first importance that a house dependent so largely upon the confidence of farmers and market growers should supply stocks that are absolutely reliable. When we hear of growers putting down very large breadths of land under such crops as Cabbage, Cauliflower, Brussels Sprouts, Peas, &c., it is evident that any mistake in the stock supplied, or neglect in fully proving it, or in maintaining its high quality and correctness, would be productive of an irreparable loss to the grower. The same would happen to the farmer whose Swedes, Mangels, Carrots, or other root crops were bad. No house can exist in the seed trade if it be negligent on this head. Hence it is of the first importance that every stock should undergo the severest ordeal of trial under the eyes of the responsible heads of the house, and to that end a suitable trial ground is essential. This interesting spot—because full of elements of interest to the gardener—we found adjoining the North Kent Railway, some mile or more beyond Lee station, and to be of several acres in extent. The soil is naturally deep and good, very friable at one end, and strong and adhesive at the other; thus admirably enabling stocks to bear the tests of such diverse soils. It is worthy of remark that the firm tests its own stocks and not those of other houses, hence we were saved from these depreciatory remarks which too often disgrace visits of this kind when trials include stocks not solely from a firm's own growers. Of course in such businesses as the one under notice, seeds are grown not merely in many places in this country but in others; hence it is needful that trials of all stocks grown for the firm should have the fullest testing.

Dealing first and briefly with farm roots, we found some sixty rows of Mangels on trial, several rows

being devoted to one kind, and each one representing stocks from different growers. So handsome and massive are the samples, on the whole, that we could almost wish Mangels were good garden roots. What can be more attractive than the rich orange-red golden Tankard, so handsome, clean, and even; or the Champion Yellow Globe, so stout, true, and free from toes or side roots? Bulbs such as those grown here in soil of moderate quality exhibit the true average character of the stock, whilst being grown closer than is the case with big roots on highly manured soils, the produce per acre is enormous. The Yellow Intermediate is also a capital kind—handsome oval shape, and perfect in form throughout; the Mammoth Long Red, a form perhaps less widely grown for stock feeding than are the yellow kinds, yet here it is so clean and handsome that the roots might be taken for huge Doll's Beetroots, so good are they. By way of contrast to these limited selections from so many, we are favoured with a review of some German kinds, one of which shows a globe form, but when pulled the bulbs are found to be hollowed out at the base almost like the bottom of a champagne bottle, thus proving very deceptive as a standing crop. It is evident that England has not a rival yet in the production of fine clean stock-feeding roots. Swedes, again, are very largely grown, and come up not less handsome. Wrench's Standard is a handsome short-necked stock, and has a very deep purple top. We are not expert in the variations of Swedes, but we can aver that the samples presented in this trial ground seemed to be of the very best. Kohl Rabi and white Belgian Carrots are also valuable stock-feeding roots, and the samples of these again are good, and will bear comparison with any others. With regard to garden or market Carrots, Altrincham and Long Surrey are the longest forms, both being very clean and true. In the sandier portion of the ground these roots, though only of fair size, come out very clear indeed, and bright coloured. Next come the scarlet Intermediate, differing in a very inappreciable degree from the new Intermediate; and James' Intermediate comes next for length, whilst the two former are the more massive varieties. Naturally the prejudices of the market must be studied, but it would seem as if no Carrots could excel these Intermediates for bulk or shape. French Forcing, Nantes Early, and Dutch Horn—the latter, a dwarf little kind—furnish the earliest and shortest samples. Beets, too, are numerous, Dell's being represented by many rows as, perhaps, the most popular Beet of the day. It is remarkable to see how many so-called Beets on a trial resolve themselves into Dell's Crimson; all the samples are good and true. The most noticeable, on account of the smallness of its top, is Frisby's Beet. The Covent Garden shows an excellent form, with rather dwarf even tops, colour reddish-metallic, and roots good. The Pine-apple is stronger with spreading tops, and Dewar's Short-top seems to be identical with Nutting's Beet. Whyte's Black is an old and very robust kind, the roots large and having flesh almost black. It is noticeable that some have greenish leaves, yet the roots of these commonly produce the darkest flesh.

Parsnips also merit notice, as the roots, though long, come out so clean and good. The firm's chief stock is what is known as Elcombe's improved form of the Hollow Crown, and it is certain that the stock is a first-rate one. The roots show a rounded and somewhat elevated shoulder, with a hollow crown, and this distinction is most marked. The Jersey Parsnip is not so good as is the first named.

Onions of many kinds had previously been harvested, having ripened early, but of Leeks there was a good trial, the Musselburgh and the Lyon being the best, of these two the former seemed to be the hardiest and strongest, and could barely be excelled for all ordinary uses. This kind is the most acceptable for the market grower.

Of ridge Cucumbers the best stocks are Stockwood Ridge and Bedfordshire Champion, although none seem to excel the former when carefully selected.

A big lot of dwarf Beans included Pale Dun, Canadian Wonder, Fulmer's Early, Osborne's Forcing, Monster Long-podded Negro, with many others, all capital samples, and very true.

Of Runner Beans the firm's Gigantic Runner—a good scarlet stock, well selected and very prolific—was the best, the pods long, straight, and of a rich green hue, much like the new Ne Plus Ultra.

Farsley afforded a capital trial, and specially good, because so finely curled and deep in colour, is the Champion Curled. No wonder that such a good

thing is in great demand by market growers, as it is excellent in quality.

Members of the Brassica family now comprise the chief elements of our notes, and of these the trial of Cabbages, Kales, Broccoli, &c., is a very extensive and useful one. Most Cabbages are proved twice over, viz., from autumn and from spring sowings, so that the completest testing is given. Red picking Cabbages show the huge Red Drumhead, Red Dutch, and Early Dwarf Red, all capital stocks; but for hardiness and colour none can excel the Red Dutch, the hearts being very firm, and in colour deep metallic crimson. Of white Cabbages, specially good is the firm's pretty Little Pixie, here so distinct, small, and solid; it is a perfect small garden or early Cabbage. Pigmy is another small hearting kind, very even and pretty. The conical old Early York is in capital form; so is the East Ham, a favourite market kind, producing large solid heads with little outside leafage. Atkins' Matchless, London Defiance, and Wheeler's Cocoa-nut, are all capital forms, and true throughout. Leeds' Market, Enfield Market, and the Rainham, are all noted fine market kinds, having excellent reputations, and here are first-class. Gilbert's Chou de Burghley, with its tall sugar-loaf hearts, is again in perfect form, and is most highly praised for its quality when cooked. It ought to become a first-rate winter market Cabbage. Nonpareil Dwarf is a perfect dwarf green Cabbage, of great value for small gardens. Wheeler's Imperial and Shilling's Queen both present very fine Cabbages. The French Empress resembles the Early Nonpareil. The Drumhead forms of Cabbage are very fine, one of the best being Flat Dutch, or Gibson's Drumhead, whilst the Glen Dwarf, a Scotch selection, is also a capital early kind. The stocks of Rosette and Hardy Green Coleworts are good, as also the various Savoy Cabbages, the Dwarf Uim and Little Pixie, the latter rather unfairly named by another firm, are charming selections, true and good. Green Curled and Dwarf Drumhead are also really first-rate, so even and true throughout. Brussels Sprouts are in good form, the bulk sprouting well on strong stems. The first is found in a fine robust stock of Wrench's King of the Market, a fine selection of the firm, producing large solid Pear-shaped Sprout of delicious quality. The old London Market kind seems beside the former quite useless. Aigburth is fair in form, but the Wroxton, though not robust, is very even, producing an abundance of small Sprouts. Kales are plentiful, the Dalmieny, Cottager's, and Bada, being fine free growers; whilst a beautiful green curled is the Selected Tall Curled, the heads very compact and massive. A pretty kind for winter garden decoration is the Dwarf Purple, of a deep metallic hue. Variegated Kales are also beautifully coloured and true.

A very large area is devoted to Broccoli of many kinds, but of course not at present in condition for remarks. Eclipse and Autumn Giant Cauliflowers were excellent—indeed, remarkably fine, the first-named being somewhat quicker in turning in from spring sowings, and thus helping to create a longer season. Not only are the stocks here first-rate, and producing wonderful heads, but they are exceptionally true—a matter of the first importance to growers. Early Cauliflowers had been largely tried, the Snowball proving the earliest and best.

The Rosery.

AUTUMNAL ROSE SHOWS, &c.

"WILD ROSE" writes so charmingly on Roses generally that it is unfortunate that any divergence of view should disturb his equanimity. Still rosarians may surely agree to differ, thus drinking in charity as well as fragrance from their favourite flowers. As to autumnal Rose shows being a "miserable failure" that is rather an appeal to the imagination, and would hardly be indorsed by Mr. Findlay in the case referred to. It is also doubtful if August 28 was the best time for an autumnal show. Certain it is that the Roses at the Edinburgh International Show in September were not failures, and that I have seen not a few twenty-four in September equal or superior to those shown in June. But the best season for autumnal shows, like a good many other things, has to be determined by experience. And the fact that one autumnal show of the

National Rose Society did not come up to "Wild Rose's" expectations affords no valid reason for dismissing all future attempts as "kite flying." Even the latter occupation would have the merit of convincing "Wild Rose" and all whom it concerns that the current of public opinion had set in strongly in favour of ever-blooming Roses. Such being the case, the National Rose Society will fall in its duty to its constituents and to its sovereign if it fails to do its utmost through the holding of autumnal Rose shows, or otherwise to meet and satisfy the craving for good Roses all the year round. What if its first great experiment did not come up to its high pitched expectation nor pay? Has "Wild Rose" forgotten the nursery rhyme—"If at first you don't succeed, try, try, try again"? That would be far more sensible advice than to wait for any patent method of producing twenty-four good blooms in the autumn, as advised by "Wild Rose," p. 587. Surely this writer's experience of the scarcity of good autumnal blooms must be unique, if he considers any patent needed for their production. Good Roses have been common as Blackberries this season, right up to the last fortnight in October; and if such choice cuttings in plenty are possible now, they will become more numerous as well as more perfect as Teas are greatly multiplied and further improved, and the numbers of other perpetual blooming Roses are increased.

I certainly understood "Wild Rose" to mean that Tea Roses were rendered harder by being worked on the seedling Brier, and am much obliged for his courteous explanation on this point. I wish, however, it had not been needful, as I fear we must not look to the seedling Brier stock as affording us any protection from frost. As to Lady Mary Fitzwilliam, I still claim it as a Tea, though, of course, I am well aware where it stands in the catalogues. But in bloom and foliage, it is almost wholly Tea. Did any doubt remain, its tenderness as against frost would set it among Teas. But these are matters of opinion, and of course those who merely follow the catalogues, or can trace any verisimilitude between Baroness Rothschild and Lady Mary Fitzwilliam, will assert that the latter is not a Tea. Well, well, it is, I am sorry to add, tender even on the Brier stock, and that was my only point *à propos* to the subject in hand.

I heartily endorse "Wild Rose's" remarks on the effects of soil and climate on Roses and other plants. These not seldom drag them down or raise them up quite out of their normal character. Probab'y sufficient allowance is not made for these disturbing forces in assessing the quantities of Roses grown at different seasons as well as in widely separated districts. Still I fancy I have seen Aberdeen and Darlington Roses—to take two Northern examples—almost if not a match for Cheshunt and Colchester flowers; and it cannot be truly said of Roses as of some fruits, the further North the worse in colour and quality. I am not careful to defend myself from the charge of ignorance of the National Rose Society and other matters. Full justice will be found due to it and its doings in my previous letters—see especially p. 526. But still much more remains to be done. Prize essays, for instance, might be offered for certain modes of curing such maladies as red rust and mildew. No doubt the free and full discussion of such matters in the *Year Book* is useful. I am also perfectly conversant with the methods of judging Roses, and for this reason was rather surprised at the revelation of judging by phalanges. Possibly "Wild Rose" is about right concerning the profits of Rose showing, but then I am hardly responsible for its introduction, but those who condemned the holding of autumnal shows because they did not pay. If they are useful in stimulating new or strengthening old methods of fostering and developing continuity of blooming among Roses they ought to be held by our National Rose Society whether they pay or not.

But all this will be condemned as unpractical kite flying. Well, so is everything—such, for example, as locomotive steam-engines, railways, telegrams, telephones, new and fresh arrangements of Rose boxes, say in threes, sixes, or dozens of a sort in the higher numbers—until they are tried. But neither of these innovations, or others that might be named, could prove more unpractical than the sweeping statement of "Wild Rose," that the very best Roses for garden decoration are those contained in our exhibition lists. If this be so, why and wherefore has the National Rose Society made a separate list of garden Roses, and also offered prizes for them? But that it is not so I will prove by putting two witnesses forward as

fairly representative, and in such a case two are as good as two hundred—A. K. Williams and Gloire de Dijon. D. T. F.

GARDEN PALMS

(Continued from p. 491.)

METROXYLON, *Rottb.*—There are about half-a-dozen species in this genus, which is confined to the Malaya regions, and which is famed as the source of sago, being largely cultivated on that account in certain parts of the East Indies. The word sago, according to Seemann, signifies bread in the language of the Papuans, among whom it is a staple food just

foliage. *M. vitiense* attains a height of over 40 feet in about fifteen years, whilst *M. laeve* is said to grow to a height of 20 feet in from seven to eight years. When full grown the inflorescence is developed from the summit of the stem, and is an erect panicle, 12 feet high, pyramidal in form, with the lower branches as much as 8 feet in length. The flowering and fruiting terminates the life of the plant, or rather of the stem that bears it, for in the *Metroxylons* we have the same habit of developing young plants from the base of the stem as is seen in the genus *Calamus* and *Plectocomia*, to which the *Metroxylons* are allied. In *M. laeve* the leaves are unarmed, but in the others they have clusters of long flat blackish spines on the petiole,



FIG. 128.—NANNORRHOPS RITCHIEANA, SUPPOSED HARDY PALM. (SEE P. 653.)

as corn is with us. The sago is obtained by splitting the trunks of full grown trees of *Metroxylon*, and extracting the soft pulpy interior, which is then thrown into water. The starch which comes away with the water when it is drawn off, is then allowed to settle and afterwards washed several times to purify it and form sago. A tree fifteen years old is said to yield from 600 to 800 lb. of sago. Pearl sago is made by soaking the flour and allowing it to cake; it is then broken into pieces, sifted and rolled about in bags before it become quite dry, and again baked till it assumes the granulated appearance it has in our shops. Sago is also obtained from several species of *Cycas* and other Palms.

The appearance of the *Metroxylons* is somewhat peculiar. They have large and sometimes tall trunks, surmounted by a crown of pinnate

especially on the lower sheathing portion. In *M. vitiense* the spines are arranged in long sinuous lines, running more or less transversely around the petioles, giving them a singular appearance. The pinnules are dark green, 3–4 feet long by about 3 inches broad, and they are arranged in two straight rows along the rachis. The seeds are globose, slightly pointed at each end, 3 inches in diameter, the husk composed of numerous diamond-shaped scales, tightly overlapping, light shining green in colour, and forming a hard bony covering to the globose kernel, which is smooth, and formed of hard white albumen. *M. amicrum* has the largest seeds. The species flourish only in hot swampy places, and under cultivation in stoves with us, they must have abundance of heat and moisture, and be planted in a rich soil. I have never seen

plants raised from seed sown at Kew, and according to Bennett they are seldom propagated from seed in their native homes, the seed being generally unproductive: but as the offshoots are freely produced by large plants, and as the process of fruit-bearing uses up all the starch in the stem, it is probable that the natives seldom allow healthy trees to reach the fruiting stage. The plants at Kew are at present only about 4 feet high, and are stemless, but they are graceful in habit, and quite as ornamental as the broad-leaved Calamuses, which they resemble somewhat. In the museum at Kew (No. 2) there is a very interesting collection of the products and peculiarities of this genus of Palms.

M. vitiense, Wendl. (*Sagus vitiensis*, Wendl.)—Fiji Islands.

M. amicarum, Wendl. (*Sagus amicarum*, Hort.)—Friendly Islands.

NANNORRHOPS, Wendland and Drude.

This is one of the six genera comprised in the dozen or so species of Palms which are popularly known in gardens as members of the genus *Chamerops* (see vol. xxiii., p. 410). The only species is *N. Ritchieana*, Wendl., which has been described by Griffith and others as one of the hardiest of Palms. Seemann wrote of it in 1856 as a small Palm, with a creeping trunk, and a much branched panicle. It grows in masses on the barren hills and passes below 5000 feet, leading up to the tableland of Afghanistan and Beloochistan. Its geographical area is from Baluchistan, through southern Afghanistan, the Kohat district, across the Indus, through the Salt-range, and beyond the Jhalum river, as far east as the Sivaliks Mountains near Himbur in Kashmir territory. It is supposed to be at least as hardy as *Chamerops humilis*, which it also resembles in its habit of forming tufts of erect-stalked, fan-shaped leaves. But there appear to be no large plants of it in European gardens, nor can I find any record of its having been properly cultivated in England till recently. It is to Dr. Aitchison, who accompanied the troops under General Roberts to Afghanistan in 1878, that we are indebted for additional information, and to Mr. Udney, B.C.S., Deputy Commissioner at Kohat, for the large quantity of fresh seeds lately received of this very interesting Palm. These seeds have been distributed from Kew among numerous botanic and private gardens and nurseries in England and elsewhere; it may be well, therefore to give here all the information we possess relating to this Palm. The accompanying figures (figs. 128, 129), copied from those given by Dr. Aitchison in the *Journal of the Linnean Society*, were drawn from a tree growing in the Botanic Gardens at Sabaranpore.

Brandis refers to this tree in his *Forest Flora* (1874). He says:—"N. Ritchieana is generally stemless, the tufts of leaves arising from a creeping underground rhizome; but a stem grows up sometimes. Dr. Stewart records a specimen planted in the Sabaranpore garden from seeds brought from Kohat more than twenty years ago, with a trunk 10—12 feet high." Dr. Aitchison speaks of its dwarf, stunted appearance on the higher hills as compared with its growth in the open valley, where it develops into a bush of from 5 to 7 feet in height, close masses of it extending for miles across the open plateau. Frequently, too, he says it may be seen occurring in sheltered places as a branching tree of from 15 to 25 feet in height. The greatest use it is put to, and in which its chief value consists, is in supplying the material for the manufacture of sandals, not only for the inhabitants of the country where it grows, but it is largely exported to surrounding tribes, with whom it is a regular article of trade. Europeans make a rope from it, and employ it for matting. Probably we shall find this Palm hardly enough to grow out-of-doors in the sheltered parts of England; it is certain to be happy in the South of France, Italy, &c., seeing that in the Kuram Valley, where it was found in such abundance, it is exposed to extreme cold and snow; in all probability in England it may, whilst young, require to be protected during spring from the bleak damp cold.

The stem is unarmed, as also are the petioles—a character which at once distinguishes it from *Trachycarpus* and *Chamerops*. The leaves are about 3 feet long, the petiole being half as long as the palmate blade, which is very stiff and leathery in texture, and of a whitish hue, owing to the fine powdery substance which covers it on both sides. Segments from eight

to fifteen, about 1 foot long, induplicate, deeply bipartite. Inflorescence erect, and paniculate. Fruit a roundish berry, covered with an edible pulp when fresh, and therefore eaten and called by the same name as Dates in Afghanistan (Aitchison). Seeds variable in size and shape—some round and large as bullets, others egg-shaped and smaller; surface smooth, dark brown, albumen horny, solid (probably hollow in dried seeds, as Brandis says they have "a large central cavity"). Seedling leaves erect, ensiform, rigid, glaucous. Judged by the plants at Kew this Palm is a slow grower when young.

In the museum at Kew there is a branching stemmed specimen of this Palm, which was brought from Afghanistan by Dr. Aitchison. [The branching he

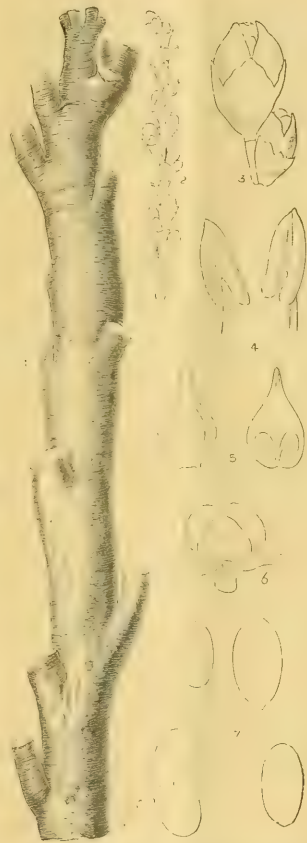


FIG. 129.—NANNORRHOPS RITCHIEANA: SHOWING BRANCHING STEM AND FLORAL DETAILS.

attributes to the arrest of the large inflorescence. The branches occur all along the stem, just as in an ordinary tree—say a Pear tree. I am indebted to Dr. Aitchison for supplying information as to the conditions in which this Palm grows wild, and the area over which it is distributed.

NENGA, Wendl.

The one species known, *N. pumila*, Wendland and Drude (syn. *N. Wendlandiana*, W. and D.), is a graceful little Palm, found in the Malay islands, and recently introduced as a decorative stove plant. It is described as having a tall, thin, annulated stem, bearing a terminal tuft of graceful pinnate leaves, with a three-sided short petiole, and has the general appearance of a *Geonoma* or *Ptychosperma*. When young the leaves are irregularly pinnate, and on the plants at Kew, which are only 2 feet high, there are basal clusters of offsets with bipartite leaves,

and the plants have the habit of the dwarf tufted *Geonomas*. The seeds are small, egg-shaped, reddish-yellow when fresh, smooth, with a fibrous husk, and a ruminated albumen. Seedling leaves bipartite. As a bright green, healthy-looking, graceful little Palm, which does not require much space, this *Nenga* is worth a place in stove collections. It likes liberal supplies of water and a rich soil. *W. Watson, Kew.*

FRUIT REGISTER.

SEA EAGLE PEACH.

THIS is the best all-round late Peach that I am acquainted with for outdoor culture. It is constitutionally a strong, healthy grower, and with me it never fails to set and swell an abundant crop of large and well-flavoured fruit. I picked my last dish of it from a tree on a wall having a south-west aspect on the 18th ult. Intending planters should make a note of this. Salway is undoubtedly the latest variety of the Peach in cultivation, and where a long season of Peaches is desired—and there are few places where they are not so desired, and fewer still where the accommodation is provided for the production of such a supply—a house should be planted with the Salway. It is a grand fruit when grown under glass, with sufficient fire-heat at command to thoroughly ripen the crop. Thus grown, the fruits—which when the trees are not over-cropped and are liberally supplied with liquid manure at the roots when swelling their crops, attain to great size—are full of flavour, and highly coloured, being suffused with a rich golden hue; but when grown out-of-doors it is very seldom that fruits of this noble-looking Peach ripen satisfactorily, even in the most favoured districts, in which case the fruits should be gathered as soon as they became a little mellow, and be placed on the trellis over the front pipes, near the ventilators in a late vinery, to put flavour in them. *H. W. Ward, Longford, Salisbury.*

OUTDOOR GRAPES.

On an open wall, with a warm south aspect, here, several kinds of Grapes are grown, including Muscat of Alexandria, Black Alicante, Madresfield Court, and Frankenthal; all have fruited more or less; none bloomed more freely than the first named, indeed the Vine was quite a picture when in bloom, but of course it set badly. If any one would cross Sweet-water with Muscat of Alexandria perhaps a really good outdoor white Grape would be found. After seeing the samples of Grapes exhibited at South Kensington the other day from Hungary, I think that we could produce almost as good here in average seasons from open walls, but we should find them lacking in the flavour these Grapes displayed unless we could have Vines specially raised and fairly hardy. But whilst Muscat of Alexandria sets so badly, Black Alicante sets splendidly, indeed the bunches are dense clusters and colouring well. Next comes Frankenthal, and then Madresfield Court. Alicante, judging by the way in which it sets and colours here and in soil that is very poor and dry, seems as if it were well worthy of greater cultivation as an outdoor Grape. I am disposed to think that Vines for this purpose should not have indoor treatment, much less be raised or struck in heat. From the first they should be treated solely as hardy trees struck from cuttings in the open air, and so thoroughly seasoned to endure our summers, and encourage the production of hard ripe wood. I hope shortly to be enabled to show how Alicante sets and fruits outdoors here. *A. D., Bedford.*

PINE-APPLE GROWING EXTRAORDINARY.

Calling, on October 28, at the gardens of C. W. Lea, Esq., Parkfield, Hallow, Worcester, I found there the most meritorious lot of Pines I had ever seen, although by no means the first lot of good fruits seen there. I noticed a Smooth Cayenne recently cut, a perfect model of what a good fruit should be, with a crown of nice medium size, and which weighed 11 lb. 3 oz., whilst there were at least a score of others approaching ripeness, equal in beauty and size to this one, and others in various stages. All these younger fruits were on stems so stout, and the plants so stocky that they cannot fail to finish up as luscious, heavy fruits. A large proportion of the plants are Smooth Cayennes and Charlotte Rothschilds. These results were

obtained from plants of less than eighteen months in age, but the fine suckers were rooted into 8 inch pots, and shifted on immediately when ready into 12 or 14 inch pots. The compost was a good fibry loam, with a little bone-dust and soot, using liquid manure as a stimulant to growth. The Fines are not the only hobby of the gardener, or the only instance of good culture on the place; on the contrary, everything is done well—notably Orchids (of which there are thousands), Grapes, Figs, Peaches, Bananas, stove plants, and Chrysanthemums. The gardens in every part are in excellent order, and reflect credit on the owner; and were it not for the unpretentious manner in which Mr. Brockington carries out his employer's wishes we should more often hear of the interesting things so well done at Parkfield.

P.S. It will be seen the above fruit beats by 7 oz. the weight of the supposed best on record: re Welford Park, p. 584. *W. Crump, Madresfield Court.*

PEAR MARIE LOUISE.

We gathered on November 8 our last lot of this most useful variety, which will carry on the supply for some few weeks. I have gathered about five dozen weekly for some few weeks past, but owing to the sharp frost on the date mentioned above the remainder had to be gathered in. I generally rely on other varieties for the earlier supply, and am using at present Pitmanston Duchesse and Thompson's. The earliest batch of Marie Louise is just beginning to ripen, and are always with us most appreciated late in the season. Trees of Knight's Monarch grown in the orchard have carried enormous crops of large fruit this season here. *Edward Ward, Hewell Gardens, Bromsgrove.*

Orchid Notes and gleanings.

CYMBIDIUM MASTERSII.

WITH the advent of the sunless season comes a number of the species of Cymbidium, keeping up a succession till spring, when *C. eburneum* makes its appearance. In several respects this species is comparable to the one under notice with regard to the shape of the sepals, petals, and the fragrance of the flowers. The fragrance of *C. Mastersii* is delicate and agreeable—at least during some of the stages of the flowers, and is generally considered to resemble that of Almonds. There is a figure of the species in the *Botanical Register*, xxii., 50, where it was considered to be a native of the East Indies, from whence it was introduced in 1841. It is now supposed to come from Assam. The sepals and petals are rather narrow, and assume an ascending direction, giving the flowers a very distinct appearance from those of *C. Hookerianum*, with which the colour might suggest an affinity. The latter, however, is closely allied to *C. giganteum*, if not merely a white variety of it. The labellum of *C. Mastersii* is generally white, with the exception of the median ridge or lamella, which is yellow, and a few rosy spots. A specimen now flowering at Sir George Macleay's place, Pendell Court, under the charge of Mr. Ross, exhibits numerous rosy-purple spots all over the interior of the lateral segments, together with the usual ones on the middle segment. Good rough peat, sphagnum, and sharp sand forms a good compost for this species, and it must not be allowed to get dry even in the resting season, although a considerably smaller quantity will then suffice. *J. R.*

CYPRIPEDIUM SAUNDERSIANUM.

When I was at Mr. Lee's, in the most agreeable company of Mr. Day, we saw a splendid *Cypridium* of unknown parentage obtained from Mr. W. Bull. It was indeed the first flower. The peduncle was not long, the bract not well developed, yet the plant looked as if in very good spirits, and no doubt it will prove to be an uncommon beauty. The one parent was probably *C. Schlimii*, or *C. Sedeni*, but the other one?

Leaf like that of *Cypridium Sedeni*. Stalked ovary 5 to 6 inches long, velvety. Mauve-purple flower grand, equal to that of a good *Cypridium villoum*. Median sepal oblong-triangular, whitish, with purple and green stripes. Body of united lateral sepals broader, wavy, white, green at the top. Petals

broad, ligulate, acuminate, undulate, incurved, falcate, fine purple. Lip shorter than the lateral sepals, very hemispheric in front, with some furrows at the anterior border of the mouth, full of asperities in front, fine purple-spotted on a white ground of the two lobes involved in the mouth. Staminode nearly square, bearded outside.

This may one day be a favourite with Orchidists provided more specimens appear. I look forward to its improvement in future.

I felt very pleased that it should be associated with the name of our lamented friend, a wonderful man in his ardent love of Nature and its treasures. *H. G. Rehb. f.*

CATASSEM LONGIFOLIUM.

There is a figure of this handsome and remarkably striking species in Lindley's *Sertum*, t. 31. It is one of those Orchids that appear and disappear after more or less lengthened periods of time, but which for that very reason are all the more appreciated when they do present themselves in our hothouses. The inflorescence is cylindrical, many flowered, and pendent, resembling in that respect some of the *Acinetas*. The sepals and petals are broad, the latter almost orbicular, overlapping one another, and all directed upwards so as to leave space for the remarkably pouch or bag-shaped labellum. The former are deep brown externally and much paler internally, forming a striking contrast to the deep orange interior of the labellum. The latter, strange to say, is deep brown externally, like the sepals, so that this organ must possess two layers of colour. The fringed auricles a little behind the orifice of the wide-open labellum is a very characteristic feature of the flower, and is suggestive of the mouth of some animal. The narrow grass-like foliage of the Kew plant is pendent, and 18 inches to 2 feet long, while in its native country the leaves are said to attain a length of 6–8 feet. The species occurs on the Eta Palm (*Mauritia flexuosa*), where that grows in marshy ground, often occupying extensive tracts on the river Demara, to the exclusion of other kinds of vegetation. It nestles on the trunk, where there are considerable quantities of decaying vegetable mould, and succeeds best with basket culture, hung up near the light, using a compost of peat, sphagnum, and charcoal. A specimen now flowering in the cool Orchid-house at Kew is a curious and interesting object.

LÆLIA AMESIANA.

A lovely hybrid raised in Messrs. Veitch's establishment between *Cattleya crispata* and *C. maxima*. The leaves are evergreen, the flowers measure about 4 inches across, and have the sepals white with a pale flush of purple, and the lip a rich crimson, with a yellow throat. The plant flowers at various seasons. *Orchid Album*, t. 253.

LÆLIA ANCEPS PERCIVALIANA.

The flowers of this fine variety measure more than 4 inches across, the sepals narrow, lanceolate; the petals obovate, lanceolate, pale pink; the lip 3-lobed, basal lobes erect, reflexed in front; anterior lobe flat, spreading; magenta coloured, with a yellow throat. *Orchid Album*, t. 256.

CYPRIPEDIUM SELLIGERUM.

This was raised in Messrs. Veitch's establishment between *C. palpinense* and *C. carbatum*. The prevalent colour is reddish, the lateral petals are long, with tufts of blackish hairs. The plant blooms at various times of the year. *Orchid Album*, t. 255.

ODONTOGLOSSUM LUTEO-PURPUREUM.

The flowers of this fine variety are in racemes, and measure nearly 4 inches across. The segments are lanceolate, coarsely toothed, yellow with bold chocolate blotches. The lip is oblong, whitish, with a chocolate blotch and a yellow keel. The front of the column is fringed. It is a native of Quindiu at an elevation of 7000–8000 feet. *Orchid Album*, t. 254.

MASDEVALLIA RACEMOSA VAR. CROSSII.

Several varieties of this pretty cool-house Orchid, which was illustrated by us at p. 737, vol. xxi., are in bloom with Messrs. Shuttleworth, Carder & Co., of Park Road, Clapham. The term "little gem" is now rather a hackneyed one, but if ever there was an excuse for using it, it is in this case. The plants are neat, and of a peculiarly pleasing reddish-green, and the flowers vary in tint from reddish scarlet to

crimson-orange. If Cross, Chesterton, and Carder, who separately ventured after the plant, could give us a recital of their discomforts while engaged in collecting it, every Orchid grower would buy a plant from pure sympathy. *Pleurorhallis macroblepharis*, the singular "midge Orchid," and many other good things are in flower in the same nursery.

COLOGYNE MASSANGANA.

Of this remarkably beautiful species there is at present a very handsome plant in flower in the nursery of Mr. B. S. Williams, Upper Holloway. It had on it five very vigorous spikes dependent from the Teak basket in which it was growing; one spike had on it twenty-six flowers. This is a vigorous-growing species, and where a few plants of it can be suspended in a corner of the warmest house, it may be had in flower at all seasons, and the long drooping spikes have an excellent effect. *J. D.*

The Flower Garden.

THE sharp nip of ° of frost and the downpour of rain have almost cleared the trees of leaves. A general clean-up, therefore, should now take place. It is a common practice to rake out all the leaves from beds of American plants and shrubberies, and then dig them over. This is a great mistake, for a rake, fork, or spade should not disturb such beds. The majority of such plants root close to the surface, and the leaves that accumulate under the plants afford both protection from frosts and from drought. If the leaves be covered at this time of year with a couple of inches of soil to prevent them blowing about the plants annually receive a suitable top-dressing which is ample to sustain them in vigour. All lawns, verges, and walks should be thoroughly swept and rolled. Where moss exists on lawns and where lime is cheap the best possible eradicator is available. Slack the lime until it becomes a fine dry powder, and then give a liberal dressing. The next best plan is to rake over the lawns with an iron-toothed rake; this is best done twice, allowing an interval of ten to fourteen days to elapse before the second raking. A good top-dressing of sifted soil should then be applied, and some fine lawn grasses be sown in spring. This may be undertaken at once, but of course the lawn will look little better than a newly harrowed field and where this is objected to, by all means defer the work until spring.

Where inequalities exist, they should be seen to; remove the turf, at the same time also as much of the good soil as is deemed necessary, so that the growth of the grass afterwards may be equal. Then remove the subsoil from the high places to the requisite depth and cover what is required to make the deficiency at the low place; replace the good soil and relay the turf. The formation of new grounds may now be undertaken as well as alterations of existing ones. Continue the removal of all kinds of deciduous trees and shrubs when the weather is favourable. Where it is necessary to provide shelter in exposed situations, a hedge is preferable to a wall; a pale of wind will sweep over a wall in unbroken force, or eddies will be created; with a hedge there are no eddies, the wind is completely broken up—the hedge, serving as a filter, completely destroys its force. It may be objected to on account of its formality; it need not be stiff or formal—a series of wavy lines may be introduced here and there, or beds of Dahlias or Hollyhocks—the most serious objection is that whatever you plant near it always extracts its share of nutriment. Old tree stumps and decaying trees may be made objects of interest as well as beauty by planting various kinds of Ivies and Ampelopsis to cover them. This serves to give an air of antiquity to a place. *Ampelopsis tricuspidata* Veitchii is by far the best subject for this sort of work; Honeysuckles are also most useful. *W. M. Baillie, Luton Hoo Gardens.*

PRESERVATION OF GRAPES.—M. Paul Sagot describes the plan adopted by M. Salomon for preserving the Chasselas Grapes from one year to another. The bunches are cut in the ordinary way with a portion of the stem, which is inserted in a bottle of water, and the bottles are then placed in a refrigerating chamber wherein the temperature is kept low by the evaporation of methyl chloride; the light is also excluded.

THE ORCHID HOUSES.

PLEIONES.

SOON after the flowers have faded this Orchid should receive attention as may be required either by repotting or top-dressing. If the roots from the new growth advance much before this to shake the plants out once in two years, and at other times clear the surface only, and shake some decayed leaves over and top-dress. For potting, equal parts of fibrous peat and green sphagnum, to which a few lumps of loam and some half-rotten Oak leaves that have been broken rather fine or rubbed through a half-inch sieve has been added, suits them very well. They should be suspended or placed near the glass at the warmest end of an intermediate-house. For some weeks the plants will require very little water, only just enough to keep the surface moist, but after they have made plenty of roots and foliage, water can be given freely. See that the old bulbs are clear of scale, for these insects will soon attack the new growths.

THE PHALENOPSIS-HOUSE.

During the last few weeks this house has been looking gay with *Dendrobium bigibbum*, *D. superbiens*, *D. s. Goldiei*, *D. Phalenopsis*, and *D. formosum giganteum*; the large white flowers of the latter making an agreeable contrast with the other bright colours. As the plants finish up their pseudobulbs they should be placed in a cooler and drier house until spring. If *D. formosum* shows no sign of shrivelling they will not receive any water during the winter.

ODONTOGLOSSUMS.

Odontoglossum grande, *O. Inseleyi* and its varieties, should be kept almost dry as soon as the pseudobulbs have finished up; a house a few degrees warmer than that for cool *Odontoglossums* will suit them best.

In badly constructed houses in the warm division, drip will be very troublesome during the cold season, and although this might not prove injurious to *Cypripediums*, there are many species of *Orchids*, such as *Aërides*, *Saccolabium*, *Vandas*, &c., which retain the water, often causing the centres to rot, that greatly disfigures the plants through having to make a new break at the side. Constant dripping on the potting material of any *Orchids* during winter, might at first improve the appearance of the plants, but in the end the roots generally die. The growing sphagnum is often a good guide, so that those whose duty it is to water the plants should take particular notice, for if any of the moss should appear extra fresh and green, and the plants never require any water, they may conclude that drip is helping the sphagnum but not the plant. Where bars and rafters are not properly grooved, a simple way to prevent drip is to have some strips of zinc a little wider than the bars and rafters, with the edges slightly turned, and screw these tight to the underside. *C. Woolford, Downside, Leatherhead.*

PLANTS AND THEIR CULTURE.

PELARGONIUMS.

THOSE plants intended to bloom early should now be put into their blooming pots, using turfy loam well enriched with manure, and avoid over-potting—8 or 9 inch pots will be large enough for growing good specimens. In potting the soil should be rammed harder than most plants need it—they should get no water for two or even three weeks, so as to allow the roots to penetrate somewhat the new soil. Be particular in having the balls moderately moist before potting. All plants required for specimens should now have the shoots tied out horizontally, this will give the proper foundation for a bushy form, but for ordinary decoration purposes alone, no more sticks should be used than will preserve the plant in form. The fancy and decorative varieties do best in a temperature a little warmer.

HERBACEOUS CALCCEOLARIAS.

The earliest of these may now be put into their blooming pots; if the plants are bushy and strong they may be put in, from 9 to 11-inch, and in these, large size specimens can be grown. If *Calcceolarias* are grown in rich soil, and given manure-water

occasionally, and plenty of pot-room be given, the trusses of bloom as well as the foliage will be much increased in size. The best soil for these is a fibrous loam, with one-fifth of coarse leaf-mould, one-third of rotten manure, adding enough coarse river sand to render the compost porous.

PRIMULAS.

The first potted plants will now be showing bloom; in all sowings there are some which are much superior to others, and these if selected as seed bearers should have the blooms pinched out, as it is much too soon for them to form seed freely. Apply manure-water at every alternate watering.

CYCLAMENS.

should be introduced into heat from the reserve pits; seeds which ripened in July, and were sown at once, will now have made nice young plants, requiring to be potted off into small pots and placed in a gentle heat. In this way they are kept growing freely from the time the seeds germinated until that of flowering, and good plants should be obtained in six months, from start to finish.

CINERARIAS.

Plants which were raised late should now be shifted into their blooming pots, for if these are left to get pot-bound, they will not move freely afterwards.

VIOLETS.

Roots of these which were taken up early last month are now blooming freely, and care should be taken to dispel damp by ventilating freely; and if too many runners appear, they should be reduced in number, and the plants should be well looked over for decaying leaves. Those plants which were potted up must be kept near the light and air.

Where sweet-scented flowers are in request, a regular supply can be kept up from the following:—*Heliotrope*, *Mignonette*, *Aloysia citrodora*, *Myrtle*, and many species of *Cape Pelargoniums*, as the *Rose*, *Peppermint*, and *Nutmeg* scented.

CARNATIONS.

in pits should have occasional applications of manure-water; air should be admitted freely on favourable days, and as plants are taken out for furnishing purposes; refill from the frames or the reserve. Old plants which are not of symmetrical shapes will be found useful as affording a quantity of bloom very suitable for buttonhole flowers and the like uses. *A. Evans, Haslemere.*

FRUITS UNDER GLASS.

VINES IN THE EARLY HOUSE.

THE Vines in this house, if not already attended to as recommended at p. 431, should be seen to at once—that is, if ripe Grapes are expected by the end of April or early in May next. In most cases the Muscat Vines will have shed their leaves, so that the sooner the bunches of this excellent Grape are cut with a good length of wood attached for inserting in bottles nearly filled with water, and having a few small pieces of charcoal in each to keep the water sweet, the better it will be for the Vines and the Grapes too, providing there is a suitable room in which to place the bottles on shelves at an angle of about 20°, and in which a dry atmospheric temperature of from 45° to 50° can be maintained throughout the winter and spring months. The bunches should be looked over frequently, removing any decayed berries. When the piece of shoot attached to the individual bunches of Grapes has been inserted in the bottles, the space left in the neck should be packed with cotton wool to prevent evaporation taking place.

Late varieties, such as *Lady Downe's*, *Mrs. Pince*, &c., which are still hanging on the Vines—where, for the sake of the Grapes, it will be advisable in properly constructed and managed houses to allow them to remain a few weeks longer—should also receive attention in the way of removing forthwith any bad berries that may appear in the bunches. Maintain a dry airy atmosphere in the houses in the meantime, and a minimum temperature of from 45° to 50° therein should be aimed at. After the Grapes have been cut in the Muscat-house prune the Vines back to a good plump bud, removing at the same time any unsightly spurs that may be on the Vines, wherever young shoots of this year's growth from the main stem are procurable to take their place, and these

should be cut back to one bud from its base. The washing of the Vines, cleansing of the house, top-dressing of borders, &c., should then be proceeded with in the way advised in the *Gardeners' Chronicle* for October 2, p. 431, and an abundance of air should be afterwards admitted to the house until the time (New Year) for starting the Vines arrives. *H. W. Ward, Longford Castle.*

The Kitchen Garden.

GENERAL WORK.

DURING the present month all remains of summer crops that are done with, such as Peas, Beans, &c., should be cleared off, and either burnt on the ground, or otherwise disposed of, and the garden made as tidy in appearance as the season of the year and circumstances will permit; Pea-stakes that were new this season, will be available for staking the earliest spring sowings, and should therefore be looked over, assorted, tied up in convenient bundles, and placed in readiness. During inclement weather such requisites as stakes, labels, &c., likely to be required next season, should be got in readiness, prepared, sharpened, and the bottom ends dipped in creosote, to render them more durable and lasting. Seed Potatoes should be looked over, and all worthless and decayed ones removed; any showing undue excitement, must be more thinly spread and receive more air; early varieties, especially those intended for planting in frames and early borders, are best on end in shallow boxes, and stood in a dry airy situation secure from frost.

Outings.—These also will require overhauling and cleaning, removing all surplus scales and withered tops, samples of the Brown Globe section, intended for very late use, are best tied up in traces or bunches, and suspended in a dry airy shed. All stored roots should be occasionally looked over to ascertain if they are keeping in a satisfactory state, removing any that have become decayed and worthless.

Out-of-doors.—Trenching and digging should be done, whenever the state of the ground will permit. In light well drained soils this work can be proceeded with at almost any time, but in the case of stiff heavy soils, it is much better and necessary to await favourable opportunities, and until the soil has become freed of the surface water, and in a fit state. The surface of all newly turned-up ground is best left as open and rough as possible, and any plots known to be infested with wireworm, or other insects pests, should receive a good top-dressing of gas-lime, soot or salt, the latter being best adapted for light soils, and the former for heavy ones; these top-dressings should be allowed to wash in by the winter rains, thereby answering the double purpose of destroying and clearing the ground of insects, and also acting as a fertiliser for the next crop.

THE FRAME GROUND.

Hotbeds for early Carrots, Radishes, &c., will soon be required, material for the purpose should therefore be got together as advised in a previous Calendar. The main object being to secure a steady continuous heat rather than a quick violent one, some labour and preparation beforehand, and also in the construction, will be necessary to ensure these very essential conditions. Leaves and dung litter in equal proportions make the best and most desirable mixture for the purpose. Presuming that these have been thrown together for a time, and prepared by being thoroughly mixed and turned on several occasions, the bed can be made up, having first marked out the required space, which should extend 2 feet on either side of the frame, the base should be formed with 1 foot of dung litter, and the bed built up and completed to the height of from 4 to 5 feet with the prepared material, raising it regularly by layers, and levelling and firming the surface as the work proceeds by the use of the fork only. When the bed is sufficiently high, lengths of stout stakes or poles should be laid crossways on the surface 4 feet apart, and extending far enough underneath to rest the frame on. The lights and frame having been placed in position, a few days should be allowed for settling, when, if necessary, a little more material can be added, the soil put in, and left in readiness for planting or sowing.

HERBS.

Any of these required for use in a green state should be placed in a gentle heat, and if not prepared beforehand by being grown through the summer in pots or boxes, must be lifted from the herb garden now, and prepared accordingly; these will comprise such useful kinds as *Spear-mint*, *Tarragon*, *Sorrel*, *Chervil*, and *Fansley*; a few seeds also may be sown of *Sweet Bith*, *Borage*, and *Knotted Majoram*. *John Austen, Witley Court Gardens.*

Appointments for the Ensuing Week.

SHOWS, &c.

MONDAY, Nov. 22.	Leeds Chrysanthemum (two days), Borough of Hanley Chrysanthemum Oxford do. Royal Botanical and Horticultural of Manchester do. (two days). Liverpool Horticultural Association do. (two days). Birmingham and Midland Counties Chrysanthemum and Fruit do. (two days). National Chrysanthemum Society Meeting. Colchester and East Essex Chry- santhemum.
TUESDAY, Nov. 23.	
WEDNESDAY, Nov. 24.	
THURSDAY, Nov. 25.	

SALES.

MONDAY, Nov. 22.	Sale of Dutch Bulbs and Dwarf Roses, from France, at Stevens' Rooms. Sale of Dutch Bulbs and 5000 Lili- um auratum Bulbs, at Protheroe & Morris' Rooms. Clearance Sale of Plants, &c., at the Ealing Dean Nursery, by Protheroe & Morris. Sale of Dutch Bulbs, at the City Auction Rooms, by Protheroe & Morris.
TUESDAY, Nov. 23.	Sale of Imported Orchids, at Pro- theroe & Morris' Rooms. Sale of Shrubs, Roses, Border Plants, and Dutch Bulbs, at Stevens' Rooms. Sale of Plants, at Protheroe & Morris' Rooms.
WEDNESDAY, Nov. 24.	Sale of Established Orchids and 10,000 Bulbs of Lili-um auratum, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
THURSDAY, Nov. 25.	Sale of Imported Orchids, at Pro- theroe & Morris' Rooms. Sale of Shrubs, Roses, Border Plants, and Dutch Bulbs, at Stevens' Rooms.
FRIDAY, Nov. 26.	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
SATURDAY, Nov. 27.	

FOR the last two or three years,
as we have on various occasions
had to note, Messrs. SUTTON

have been engaged in extensive experiments in crossing Potatoes. Apart from matters of scientific interest, Messrs. SUTTON have aimed at the production of new varieties of Potato which should, by their internal structure and conformation, and by their robust constitution, be in a position to resist the attacks of the disease better than ordinary varieties do. For this purpose they instituted a series of experiments in cross-fertilising what was supposed to be Solanum tuberosum with the pollen of approved kinds, such as one of Mr. FENN's seedlings, now known under the name of Sir Charles Douglas. The results of these experiments up to this time last year were duly recorded in our pages. The seedling varieties thus obtained were again grown this year, with results that we shall presently mention. In the meantime it has been discovered that the "Maglia" they supposed themselves to have been operating on is not really that species, but a form of the ordinary Solanum tuberosum grown at Kew for many years, without any special cultivation. The mistake is in one sense unfortunate, for as the Maglia or Darwin Potato is considered to be a distinct species, inhabiting the relatively cold and wet maritime climate of Southern Chili, it was hoped that, by breeding from it, seedlings might be obtained more likely to thrive in our own relatively cold, moist climate, than others the descendants as is supposed of a form or forms growing naturally along the Andes at greater elevations and in a drier climate.

A cross between two reputedly distinct species would of course result in a true hybrid, while fertilisation between two varieties or forms of one and the same species, would simply result in a cross. The difference is thus one of degree only, and not of kind. Messrs. SUTTON have been engaged in cross-breeding and not in hybridisation proper. From a practical point

of view, solely, Messrs. SUTTON are likely to obtain better, or at any rate more immediate results than if they had been operating with a real hybrid. From a scientific point of view, of course, the results are less interesting than they gave promise to be, but there is nothing to prevent Messrs. SUTTON from beginning *de novo* with the true Maglia, which is cultivated at Kew, and this we earnestly hope they will do, for although the attainment of any practically useful result will be probably slower, yet we can hardly doubt that in the long run it would be more important, even from a purely practical point of view. For the results of the experiments made in 1885 we must refer to our article on October 24, 1885 (p. 528), wherein the immense amount of variation in the seedling tubers in productiveness, size, colour, nature of haulm, and other points, is clearly brought out.

We have now to deal with the results of this year's experiments. Messrs. SUTTON planted the seedling tubers this year in the same way, and under the same conditions, as before, so that the only practical difference in the surroundings was that attributable to variation in the character of the season in the two years respectively.

Messrs. SUTTON have favoured us with a table giving the amount of produce in 1885 derived from each grain of seed, and side by side the amount of the produce derived from planting the crop of 1885 during the present season. Thus, taking No. 8 as an example, one grain of seed produced tubers in 1885 of the weight of 11 oz. These tubers have this year yielded 56 lb. 2 oz.

Results of Crops in 1884 and 1885.—Percentage: Semi-wild Potato, S. ed. Parent & Fenn's Sir Charles Douglas, Pollen Parent.

No.	Produce, 1885.	Produce, 1884.
1	19 grains	...
2	6 "	...
3	11 "	...
4	11 "	14 oz.
5	3½ oz.	54 lb.
6	½ "	10 lb. 5 oz.
7	4 "	24 " 8 "
8	11 "	56 " 2 "
9	10½ "	22 " 6 "
10	7½ "	2 " 4 "
11	11 "	33 " 6 "
12	13½ "	56 " 15 "
13	2 lb. 1 oz.	43 " 9 "
14	1 " 7½ "	51 " 2 "
15	1 " 10½ "	47 " 6 "
16	1 " 5½ "	122 " 6 "
17	1 " 5½ "	11 " 2 "
18	1 " 12½ "	83 " 6 "
19	2 lb. 12½ oz.	43 " 10 "
20	10 oz.	39 " 14 "
21	1½ oz.	10 " 12 "
22	1 lb. 9½ oz.	47 " 11 "
23	11 oz.	20 " 3 "
24	3½ "	6 " 7 "
25	1 lb. 2½ oz.	6 " 0 "
26	3½ oz.	23 " 14 "

Last year we were enabled to give also details as to height of haulm, roughness of skin, colour of tubers, &c., which we should have liked to have given this year also. No doubt Messrs. SUTTON's records will supply the required data. The extraordinary difference in the results may be illustrated by example No. 5, which last year yielded 3½ oz., while this year the same variety yielded no less than 54 lb., and No. 17, which last year yielded 1 lb. 5½ oz., this year stands credited with 122 lb. 6 oz.

A second series of experiments were made by Messrs. SUTTON in 1885, by crossing the Kew tuberosum with the pollen of Reading Russett and by crossing tuberosum with the pollen of Victoria. The results as regards weight are far more promising than was the case where the male parent was one of Mr. FENN's seedlings. A similar cross between tuberosum and WALKER'S Regent failed to give any result.

Percentage: Semi-wild Potato, Seed Parent × Reading Russett, Pollen Parent.

No.	Lb. oz.	No.	Lb. oz.
1	0 2	12	0 0½
2	5 15	13	0 0
3	5 15½	14	0 4½
4	4 7½	15	0 0½
5	4 6	16	0 0½
6	0 13½	17	One small tuber
7	2 12½	18	0 0½
8	1 2½	19	0 0½
9	4 14	20	0 0½
10	7 17	21	0 4½
11	1 11½	22	0 1½

Wild Parent (Seed) × Victoria (Pollen).

No.	Lb. oz.	No.	Lb. oz.
25	4 8	30	4 14½
26	4 8	31	0 8½
27	5 8½	32	0 1½
29	1 13		

An interesting experiment was conducted with cuttings—interesting in itself and important, because it proved that what Lord CATHCART and Messrs. SUTTON had grown for Maglia was in reality tuberosum.

Mr. SUTTON took twelve cuttings from Lord CATHCART'S Maglia (the form of tuberosum grown at Kew without special cultivation), and twelve from the true S. Maglia. The cuttings rooted, and after seven or eight weeks Lord CATHCART'S plants died down, having produced small tubers, while the true Maglia cuttings are still growing, and showing their characteristic foliage, and have produced their elongated flower-stalks.

In spite of the unfortunate error above referred to, and for which neither Lord CATHCART nor Messrs. SUTTON are responsible, the interest of these experiments is very great. We trust Messrs. SUTTON will not only continue them, but continue to record as fully as possible all the details of their experiments. To arrive at any immediately practical result may demand a long period, but systematic experiment on a carefully thought-out plan, and with a definite aim in view, cannot fail to be productive of good results. It is where the unsystematic, happy-go-lucky experiments in which everything is left to chance, that useful results are slow in coming.

As an illustration of the great productiveness of some varieties, the following fact may be cited. From one seed (not tuber) of Magnum Bonum, sown on March 12 of the present year, a plant was raised which produced thirty-two tubers, of the aggregate weight of 6 lb. 9½ oz., the two largest weighing 14½ oz. and 15½ oz. respectively. Talk of causing two blades of grass to grow where there was only one previously! We were not wrong when, last year, we spoke of Messrs. SUTTON as the Magicians of Reading.

PANDANUS VARIEGATUS.—We are accustomed to see this plant making part of a group of stove foliage plants at our exhibitions, where its foliage, with bands of green and white, are very effective, but few of us have been privileged to see a plant of the size of that figured at p. 657 (fig. 130). This was planted at Kingston, Jamaica, in 1876, by our correspondent, Mr. HART, and has now attained a height of over 30 feet. The huge branches, each tipped with its spiral tuft of leaves, and the thicket of aerial roots sent down from the stem as buttresses to support the weight of the crown, are very striking.

M. BERNARD.—We learn that our Belgian friends are in consternation at the death of M. C. BERNARD, Director of Agriculture, an office corresponding, we presume, to our permanent Secretary for Trade.

FLOWERS IN SEASON.—Although this is a dull time of year, there is a varied selection of flowers from which one may choose flowers according to taste. Chrysanthemums, of course, take a prominent place, and are followed closely by Heaths, berried Solanums, Marguerites, Pelargoniums, Chinese Primulas, Cyclamens, and Bouvardias. Flowers from the various bulbs are beginning to show themselves, the Paper-white Narciss, Roman Hyacinth, and small Tulips being plentiful in the shops round about us. Of choice flowers may be named Eucharis, Azalea, Lapageria, Gardenia, and several Orchids. A welcome arrival is white Lilac (from abroad, probably), which of course is forced. All the foregoing, with Camellias, Niphetos Roses, Allamandas, Cliveas, and Violets (the Czar and the Parma form), constitute the chief flowers at present procurable. We notice, too, flowers which we hardly expected to see at this season, such as the blue Cornflower and the Sweet Sultan.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We are informed by Mr. E. R. CUTLER, the Secretary of this institution, that Baron FERDINAND DE ROTHSCHILD, of Waddesdon Manor, M.P. for

the Aylesbury division of Buckinghamshire, has kindly consented to preside at the 44th Anniversary Festival of this Institution at the "Albion," Aldersgate Street, on Friday, July 1, 1887.

— **FAILURE OF THE WINTER SPINACH CROP.**—Winter Spinach is now very scarce, owing to the failure of the crop to a large extent, the leaves turning yellow and becoming worthless. One experienced grower attributes the failure to a great extent to grow-

— **TOBACCO.**—The crop of Tobacco grown by Messrs. CARTER & Co. is said to weigh three-quarters of a ton, and to be of the value of £42.

— **EUCALYPTUS.**—Mr. W. E. DIXON lately read a paper before the Scottish Horticultural Association on the Eucalyptus, in which he sketched briefly the characters and the botanical history of the genus, alluded to the species of greatest importance for timber, medicinal products, paper-making, &c.,

exhibition on April 30, 1887, and that the whole of the proceeds, after paying expenses, shall be devoted to the funds of the Leek Cottage Hospital.

— **CARTER'S PROVIDENT SICK FUND.**—The first annual meeting of subscribers was held on Monday, the 8th inst., at Messrs. JAMES CARTER & Co.'s, High Holborn, and was attended by about 200 members. The chair was occupied by the manager, Mr. C. H. SHARMAN. The report and



FIG. 130.—*PANDANUS VARIEGATUS* IN JAMAICA. (SEE P. 656.)

ing the crop in freshly manured ground. That winter Spinach needs rich soil to bring it to perfection there can be no doubt, but it is best to sow it on land that had been previously manured for a light crop of some kind.

— **THE SURVEYORS' INSTITUTION.**—The next meeting will be held on Monday, November 22, when a paper will be read by Mr. J. W. WILLIS BUND (Associate), entitled "The Extraordinary Tithe and its Redemption." The chair to be taken at 8 o'clock.

and mentioned the species that are cultivated in this country.

— **ROYAL MICROSCOPICAL SOCIETY.**—The next *conversazione* of the Society will be held at King's College, Strand, on Wednesday, the 24th inst., at 8 P.M.

— **LEEK AURICULA SOCIETY.**—The general annual meeting of the above Society was held on November 16 at Leek, when, after transacting the usual business, it was decided to hold the second

balance-sheet for the past year was read, adopted, and resolutions for amending existing rules were passed. During the twelve months of the Society's existence 268 members were enrolled, all of whom were employed in various departments of the business. By payment of a small weekly subscription benefits in case of sickness, varying from 6s. to 18s. per week, are secured, and it was considered highly satisfactory that after paying fifty-one claims for sickness and one for death the Society entered upon its second year with a very substantial balance in hand. After appropriating a suitable amount as a working reserve fund it was

resolved unanimously to make a donation of £5 to the Hospital Saturday Fund, and to distribute any surplus amongst the subscribers. The officers and members of the committee were re-elected, and the proceedings terminated with a vote of thanks to Messrs. JAMES CARTER & CO. for a further donation, which they had spontaneously offered upon seeing the satisfactory result of the first year's working of the Society.

— *CRATEGUS PINNATIFIDA* VAR. MAJOR.—We are desired by Mr. N. E. BROWN, to whom we are indebted for the description of this plant, to publish the following correction:—"In the description of this plant on p. 621, by a slip of the mind, I stated that both the typical form and the variety are natives of North America; this is wrong, it should read—both are natives of North China."

— GHENT "CHAMBRE SYNDICALE."—At a meeting held on the 8th inst. the following awards were made:—

First-class Certificates.—To Mr. Hye-Leyens, for *Cypridium euryandrum*; to Mr. Arthur De Smet, for *Cypridium Argus* var. *nigro-maculatum*; and to Messrs. Vervaeck & Co., for *Phalenopsis Lowii*.

Cultural Certificates.—To Mr. Liévin Spaevander Meulen, for *Cocos Blumenavia*; to Mr. Jules Hye, for *Cypridium Dominianum* and *C. caudatum splendens*.

Commendations for Novelty.—To Mr. Ad. D'Haene, for *Oncidium Forbesii* var. (for its habit and also for its colour); to Mr. L. Van Houtte, for *Tillandsia species nova*; to Mr. L. Spaevander Meulen, for *Cypridium Spicarianum* var.; to Mr. De Smet-Duvivier, for *Draconia Briariti*.

Commendations for Culture.—To Madame Van Acker-Maenhout, for *Pavetta borbonica*; to Mr. L. Spaevander Meulen, for *Pandanus oratus*; to Mr. Em. De Cock, for *Kentia Fosteriana*; to Messrs. Vervaeck & Co., for *Cypridium Sedeni* x, and for *Dendrobium thysiflorum*; to Mr. B. Spaevander Meulen, for *Vriisia heterophylla*; and to Mr. Jules Hye, for *Cypridium levigatum*.

— HOT WELLS.—The *Indian Agriculturist* for October 23 states that a remarkable example of the increase of temperature in the earth toward the centre has been presented at Pesh, where the deepest artesian well in the world is now being bored for the purpose of supplying the public baths and other establishments with hot water. A depth of 951 metres—3120 feet—has already been reached, and it furnishes 800 cubic metres—176,000 gal.—daily at a temperature of 70° C., or 158° Fahr. The Municipality have recently voted a large subvention in order that the boring may be continued to a greater depth, not only to obtain a larger volume of water, but at a temperature of 80° C.—176° Fahr. It is suggested that it is thus within the bounds of probability that the time may come when a brewer will obtain his water supply from a well of sufficient depth to yield "liquor at the mashing temperature."

— POTATO TRICENTENARY, 1886—1886.—The executive committee of this exhibition, to be held at 5, St. Stephen's Hall, Broad Sanctuary, Westminster, S.W., December 1 to 4, 1886, consists of the following gentlemen:—General Lord Alfred Paget, John Bertram, Esq., C.C.; T. H. Bolton, Esq.; Captain Moleworth, R.N.; A. Bevan, Esq.; H. Roberts, Esq.; Hon. Secretary, Mr. W. E. Wood.

— MR. DOUGLAS DICK.—A presentation to Mr. J. DOUGLAS DICK, superintendent of entrances at the recent Colonial and Indian Exhibition, was made on Thursday last. The presentation consisted of a handsome drawing-room clock, and was formally made, on behalf of the members of Mr. DICK's staff, by Sir PHILIP CUNLIFFE OWEN. Mr. DICK's colleagues desired to bear testimony in this way to his "kindness and courtesy during the series of Exhibitions held at South Kensington 1883 to 1886."

— MR. C. E. BROOME.—We greatly regret to have to announce the death, on the 15th inst., of Mr. C. E. BROOME, a very old correspondent of this journal, and the associate of Mr. BERKELEY in numerous publications relative to fungi. Mr. BROOME was in his seventy-fifth year.

— GARDENING APPOINTMENTS.—Mr. JAMES COCKER, for thirteen years Gardener to GEORGE URB, Esq., Wheatlands, Bonnybridge, as Gardener to Sir WILLIAM WALLACE, Lochryan House, Cairnryan, Stranraer, N.B., Mr. A. SMITH's successor at Wheatlands.—Mr. SAMUEL TAYLOR has been appointed as Head Gardener to the Bishop of GLOUCESTER and BRISTOL, Palace Gardens, Gloucester.

FORESTRY

LIBOCEDRUS DECURRENS.

TITIS rapidly-growing gigantic tree, better known under its older name, *Thuja gigantea*, is fast coming to the front as a timber tree in Britain; and well it may, for its rapid clean growth in this country, combined with the valuable timber produced in its native wilds—good examples of which were to be seen at the Colonial Exhibition—place it in the first rank for commercial purposes. In this country the growth often exceeds 3 or 4 feet in the year. The tree is readily raised and transplants well; it is by no means fastidious about soil, and I cannot remember, even in a single instance, and when fully exposed to our fearful south-western winds, to have seen a leading shoot broken over or destroyed.

MISCELLANEOUS SPECIES.

Amongst other valuable trees we will notice very briefly *Abies Nordmanniana*, a fine, robust-growing species, and one that is easily managed in this country; *A. nobilis*, and *A. (or Picea) Menziesii*, both valuable trees for our soils and climate; and *Cupressus macrocarpa* or *Lambertiana*, that produces a fine, hard, clean-grained timber, and which is invaluable for exposed seaside situations. Many other valuable trees might be mentioned, but those given are, perhaps, about the best for the purpose at present under consideration. Hardwoods will receive future attention.

HOW TO PLANT.

This is another operation, connected with forest work, that has the usual multitude of ways of being performed, all of which methods are perhaps good enough in their proper place; but herein lies the difficulty, viz., to plant young trees in such a manner as to be consistent or in keeping with their surroundings.

Notch-planting for mountain ground is just as much worthy of commendation as is pit-planting for low-lying land. The latter is an expensive method, but this first expense is soon repaid, for once the young plants get fully established their growth is rapid, usually more so than such as have been notched, even in soils of equal quality. In connection with notch-planting the expenses are low indeed—a man, and a boy as attendant for putting in the plants, getting over a considerable surface of ground in a day, and where the soil is shallow and small-sized plants used the method is to be commended, as these can be placed more firmly in the ground than if planted in pits; and another advantage is that the grass affords shelter to the young plants until they have started fairly away. From 2½ to 3 feet is the usual distance at which notch-planted trees are usually placed, and the operation is performed as follows:—With an ordinary garden spade make two deep cuts upon the turf where the plant is intended to be inserted, and crossing at right angles exactly at where the plant is to be put in; press down the handle of the spade nearly to the ground and towards the planter, which will cause the slits to open and into which opening the plant is to be inserted by the boy in attendance; the spade is then removed, but not before the roots have been well spread out, and the turf will resume its original position, but to insure its doing so, and likewise to prevent the ingress of air, a firm tramp must be given where the cuts intersect each other. Great care should be exercised in notch-planting, for if the notch be not carefully closed the plants are sure to suffer by the admission of too much air and water to the roots.

In pit-planting the holes should be formed of such a size that the roots of the trees to be inserted can be spread out to their full extent, all cramping, twisting, and bending of these being carefully guarded against. Loosen well the sides and bottoms of the pits with a pick, and, if possible, have them opened for a few weeks previous to the plants being inserted, the freshly turned-up soil being much improved by exposure to the weather even for a few days.

Planting should next be carefully gone about, the trees being first placed erect, their roots spread well out, and equally around the stem, and all covered with soil, remembering to bring the soil and roots in contact, for vacant spaces left around the stems and roots are productive of anything but good. Trample the soil firmly but not too hard around the stem, and

do not insert the plant at a greater depth than it stood when it was in the nursery ground. For the ordinary ran of forest stuff, say Larch, Scotch, Silver, and Spruce Firs, of from 18 inches to 3 feet in height, the pits need not be made of larger size than 1 foot square, or, better still, circular, and 18 inches in diameter. By picking the soil around the pits, inclining the tool outward, a larger base, but with the original sized top, is made, and thus extra space is allowed for the roots of the plants. About 4 feet from pit to pit will be sufficiently close for the size of plants just stated. When dealing with the inserting of the plants we should have stated that it is wise policy to always incline the tree's head to the point from which the north winds blow, and to place on the opposite side a square of turf, which should be tramped firmly against the tree's stem, so as to prevent as much as possible rocking and its attending evil results.

Placing stones, as is too frequently done, against the young tree, cannot be too strongly denounced, for the bark thus becomes chafed and broken, when decay sets in and ruins the constitution of even the strongest specimen. *A. D. Webster, Penrhyn Castle, North Wales.*

RABBITS ATTACKING TREES OF PINUS LARICIO.

Permit me to express a doubt as to the experience of Mr. Archdale, Crock-na-Cruin, Ballinamallard, regarding the Corsican Pine (*Pinus Laricio*) being more liable to the attacks of rabbits than any other kind of plant. I have during a pretty extensive experience planted the *Pinus Laricio* very largely, even where rabbits were pretty plentiful, and I have always found in a plantation of mixed plants, say, Scotch Fir, Larch, Spruce, and hardwood, with the exception of Ash, the *Pinus Laricio* was generally the very last plant they would touch. On the other hand, the *Pinus austriaca* was generally destroyed first; in fact in some cases I have planted *austriaca* so as to save the other plants, by allowing the herbage time to rise in order that the main crop might be partially protected.

I am therefore inclined to think that Mr. Archdale must have planted *Pinus austriaca*, instead of *Laricio*, as they are very closely allied: it is just possible that the one might be mistaken for the other—if not, I must say that his experience does not accord with mine nor with the experience of many authorities on the subject. *C. S. F.*

THE ORCHARD HOUSE.

MISCELLANEOUS FRUITS.

AT this season of the year but little attention is required; in fact, none at all as regards the trees. Those who live in very wet districts will do well to leave their trees in the house. In dry, favourable districts I advocate as the result of twenty-five years' experience that they should be plunged out-of-doors in fresh cocoa-bite refuse. The way in which the roots work in the pots when plunged shows how well this material agrees with them. The repotting and top-dressing should be finished by this time, and if it has not been done, see to it at once. Either operation is simple enough, and both have been explained in previous numbers. Scale is sometimes rather troublesome. Now is a good time to look over the trees to clear it all off, and well wash the places where it has been clustering with soapy water.

ORANGES.

In gardens where the luxury of an Orange-house can be afforded, it is easy to maintain a supply of well-flavoured Oranges for a very long period. The trees are less trouble when planted out, but they are more manageable in pots. The fruits of the early Tangierine variety will now all be gathered, and the St. Michaels, with a few of the Malta blood, should be in season. It is very seldom indeed that the trees can be kept clean all through the summer and autumn months. Examine them now, and wash off all the scale with strong soft-soapy water. Any trees on which the fruit is not ripe should have now a temperature of from 60° to 65° as a minimum. The atmosphere ought to be only moderately moist. The plants should also be well exposed to light, and the ventilation be ample without exposing the plants to a draught. *Fas. Douglas.*

The Apiary.

SOME very curious and great mistakes are often made about bees in bar-framed hives as distinguished from bees kept in skeps. It seems almost a part of the modern beekeeper's existence to be suspected of crafty dealings by his less skillful neighbours. I have frequently determined to write a short piece about this for the benefit of the readers of the *Gardeners' Chronicle*, but other matters have had the preference. But a question asked last week by one of your correspondents caused me not to delay it any longer. I forget the exact wording of the question, but it was to this effect: "Do bees from bar-framed hives rob the bees that live in skeps, and thus double their own stores?" This reminds me of what cottagers have said to me: They have talked to me something like this: "You say your bees produce more honey than the bees in my skeps, and I know how it is done; they come and rob mine, so you have double and I have none. Ever since your new-fangled hives came up there has been no honey for us poor skepists." Now this is altogether a fallacy. I had occasion to find fault some time ago in the *Gardeners' Chronicle* with Dr. Watts, about the "busy bee," and now I must say something else against this insect, viz., that it is a thorough humbug. Busy it is, but so is an armed burglar. The answer to the whole thing is this, that the strong (bees I mean) for ever rob the weak. Put a strong stock of bees in a skep by the side of a weak stock in a bar-framed hive; and the skep will contain the honey from both hives; while if the conditions are reversed, the honey will be in the bar-framed hive. But inasmuch as the beekeeper who practises the modern system has so many opportunities of strengthening his bees which the skepist has not, the latter must change his tactics; for we cannot alter the nature of these naughty bees. Then, again, we of the modern school are thought to be crafty about the driving business. A little while ago I called on an old lady and found her grieved even to tears. Asking the cause, she said somebody had taken away all her bees. On further inquiry I found she had always brimstoned her bees, but now had allowed somebody to drive them; and although she had all her honey and wax she seemed to think she was better off with brimstoned bees and honey than the opposite. I suppose people will get wiser some day, but I frequently find people who would rather burn their bees than sell them for a trifle to "that their schoolmaster," meaning myself. The autumn altogether has been very favourable for our pets—though humbugs—and they have gone into winter quarters in a very satisfactory state. The weather is mild though wet, therefore if you wish to move your hives do so now, as you might lose them on some fine sunny day. Bees cannot find their hives if moved whilst flying. *Walter Chitty, Peasey.*

NEW HORTICULTURAL PALACE.

YOUR article in the *Gardeners' Chronicle* of last week on the wasted opportunities of the Royal Horticultural Society in not making greater use of the chances now gone by in the several exhibitions we have had exactly echoes my ideas. If we are to hold our own against foreign competition the goods we grow and produce must be brought more prominently before the English public. The sale-rooms of well-known auctioneers are crammed every week with plants from over the "silver streak," most of which could be grown as well in our own country. Where, for instance, can Lilies of the Valley be grown to greater perfection under proper culture than in the fens of Lincolnshire and Cambridgeshire? I have seen and grown in my younger days as fine crowns as any from Berlin, producing magnificent sprays of bloom. It may not be known to many that roots and bulbs grown in our own country force better than foreign ones; no doubt the reason is they are more solid. An English bulb, size for size, is considerably heavier than those from Holland, showing a greater amount of stored-up sap.

It is the same with our Potatoes; the foreign will not bear comparison with our own, not even the Jersey Potato, which seems to store up water instead of starch. I believe nowhere in the world

can finer Gladioli and Tulips be grown than in many parts of England, yet how seldom do we see home-grown bulbs for sale in the sale-rooms. Now at last we are promised a Horticultural Palace. While I write the prospectus is before me, the contents of which, if carried out, I think, must be a vast benefit to our trade. It seems it is intended to make it the great central flower and fruit show of the world, in which they intend to roll India, Canada, New Guinea, Australia, all the other British possessions, as well as Kew and South Kensington, into one show, to be perpetually renewed with fresh supplies, home-grown and Colonial. Surely this will do much for horticulture and the love of flowers, which is rapidly growing amongst us. No doubt education and the annual display of flowers in our parks and open spaces has had a great deal to do with it; but what rather astonished me, when looking at the plans of our new Palace, was to be told that this and that position was already taken or bespoken by Belgian, German, and Flemish firms; actually more spaces being applied for by foreigners than English nurserymen. Where is the enterprise of the Britisher gone? Surely this ought to be chiefly a British and Colonial "possession," where our own wares could be presented to the world without an overwhelming mixture of foreign. The most pleasing sight I have looked on for many a day was the Chrysanthemum Show at the Aquarium last Wednesday, all home-grown. *Edward Collins.*

SUPPLEMENTARY LIST OF PERENNIAL ASTERS.

THE following is a descriptive list of a few Asters, most of which are new to cultivation, and not included in Mr. Baker's monograph of the genus which appeared in these pages a short time ago. So far as is known, it is complete, carrying the Asters up to the present date:—

ASTER PSEUDAMELLUS, Hook. fil. (SECTION AMELASTRUM.)—Stems numerous, scabrous, 6 to 18 inches high, ascending from woody perennial stocks, simple below, much branched from about the middle, bearing a few corymbose heads; leaves 1–2 inches long, oblong acute or the upper obtuse, entire or toothed, and obscurely perved on both surfaces; involucre half an inch high and as broad, hardly imbricated; bracts with broad reflexed foliaceous tips, the outermost oblong much larger than the inner; heads from 1–1½ inch in diameter, ligules bluish-purple, 8–16, and from ½–¾ inch long, narrow; achenes pubescent, the pappus of few slender hairs rather longer, white or brownish.—Native of the Western Himalayas from 8000–13,000 feet elevation, Afghanistan. It is nearly allied to the European Aster Amellus, but readily distinguished by the much larger outer involucre bracts and invariably toothed leaves. Flowers August, September, and October.

ASTER ANGUSTUS, Torr. and Gray. (SECTION 12. CONYZOPSIS, PRECEDING MACHERANTHERA.)

Stem 1–2 feet in height, spreading or upright, and branching, with numerous spicately paniced heads; leaves narrow; bracts of the involucre all linear acute, the corolla of the ray flowers generally reduced to the tube, and much shorter than the elongated style; sometimes with a rudimentary ligule.—Flowers August and September, inhabiting saline wet grounds, from Saskatchewan to Utah and Colorado, eastward to Minnesota, and now even extending to Chicago, also North Asiatic. (Criminaria humilis, Hook.; Erigeron ciliatus, Ledeb.; Conyza altaica, DC.; Tripilium angustius, Lindl.; Brachyactis ciliata, Ledeb.) A plant more curious than beautiful, and not likely to appeal to florists.

ASTER PEREGRINUS, Pursh. (SECTION ERIGERASTRUM.)

Stems from 1–2 feet in height, from a thick creeping rootstock, tomentose or glabrous; lower leaves oblong lanceolate, upper oval lanceolate, closely sessile by a slightly clasping base, 1–2 inches long, entire or sharply denticulate serrate; involucre half an inch high, a little broader; bracts attenuate pubescent or villous; rays half an inch long, violet-purple. (Aster unalaschensis, Lees.; Tiliis, Wikstr.; consanguineus, Ledeb.; salsuginosus, Hook.)—Native of North America, flowering August and September. It has been confounded with Aster salsuginosus, Richard, now removed to Erigeron by Dr. Gray; the latter, however, has a viscidulous glandular, and not villous

involucre, and more numerous ray florets. A fine showy plant, useful for the rock garden.

ASTER STRACHEYI, Hook. fil.

Dwarf stoloniferous, with a rambling, often branching rootstock, pubescent or villous, and seldom more than 1–4 inches in height; radical leaves obovate-spathulate, with few or many distinct teeth; scape or stem leaves 1–2 inches long, coarsely and sharply serrate; one or few-flowered; involucre bracts few, scarcely imbricate, all about one length, linear-oblong, acute, or acuminate; ligules thirty to forty, about half an inch long, bluish-purple; achenes pubescent or silky; pappus simple, reddish.—Native of the Western Alpine Himalayas, Kumaon, Pindari, &c., 12,000–13,000 feet elevation; flowering early in summer. A most curious and unique little species, sending out runners or stolons from the original stock like a Strawberry, and capable by this means of being propagated, each runner forming a distinct plant. It appears perfectly hardy, and promises to make a fine rockery subject. *J. G. Baker.*

(To be continued.)

Floists' Flowers.

AURICULAS.

I WROTE last on the Auricula at p. 398, and the subject of the note was repotting, and the "woolly aphid." This pest is very troublesome during hot weather, but it is apparently not so hardy as the green species, which thrives on the leaves, and does ten times more harm to the plants. The greenfly will do harm even in winter, and should be destroyed by fumigating. The outer leaves continue to decay rapidly, and unless promptly removed the existence of valuable specimens may be endangered. The plants may all be kept comparatively dry at the roots now, and ample ventilation is best, the lights being still removed entirely except when it rains or if dense fogs set in. The atmosphere is sometimes so thoroughly saturated with moisture in November and December that it is prudent to keep the lights of all houses closed until the fogs clear off. All repotting should be delayed now until February.

ALPINES IN THE OPEN AIR.

The groups of alpine require to be looked over occasionally for slugs, as these are very troublesome—they do much damage to the tender leaves and other parts of young plants. Soot is the best material to strew on the ground round the plants. It not only kills the slugs or keeps them off, but does the same for worms.

CARNATIONS AND PICOTEES.

Reference was made at p. 398 to potting up the layers and saving the seeds; all this has now been done. The young plants are well established in the frames, so that if a sharp frost sets in the plants will not be injured thereby. Some growers state that the best time to pot up the layers is the end of October. I consider the beginning of the month is a better time. Ours have always been repotted during the last days of September and the early days of October; we finish in the first week of the month. If early frosts set in before the plants are rooted, they are checked in their growth. I never had any plants pot-bound owing to too early potting.

I may say here that the best head of border Carnations is obtained from plants that have been layered in the open ground, and are left to flower where they were layered, merely thinning them out where too much crowded. All plants now in frames should have plenty of air. Any weeds in the pots should be pulled out, decayed leaves removed, and greenfly destroyed. The plants must have a fair supply of water at the roots; allow none of them to become anything like dust dry.

PERPETUAL FLOWERING CARNATIONS.

Those who have taken the greatest care of their plants during the summer and autumn months, will now enjoy the fruits of their labours to their fullest extent. The delicately tinted pale rose and pink forms, the rich scarlet and crimson colours, the chaste white and soft yellow blended together, have a charming effect. The very early propagated plants in 8-inch pots are best for large houses; smaller ones in 5 and

6-inch pots produce from six to a dozen fine blooms and are very pretty. Two-year-old specimens in 10-inch pots may be grown, and are when well grown very handsome. They require a minimum temperature of 50° to 55° in order to develop the flowers to their fullest extent. They are easily kept free from insect pests; as I stated at p. 426, fumigation with tobacco smoke does not injure the most delicate Carnation bloom.

THE CHRYSANTHEMUM.

In the middle of the blooming season it may to some seem out of place to write about propagation for next season, but it is not so. Cuttings may be taken off any time after the middle of November, and be planted in small pots, one in the centre of each pot. Those who are anxious to grow handsome specimen plants for exhibition will find the right way to success by selecting them from amongst the tall stemmed examples that have produced the large single blooms. This must also be done now. Some of them are already producing shoots from the stem near the surface of the ground. Encourage those to grow that are from 2 to 6 inches up the stem; this must be clean cut over above the top shoot, and the plant itself must be shaken out, and repotted, using good rich soil, and as a rule, the roots may be put into 6 and 7-inch pots. I like the 7-inch very well, as they go well out of these into 9-inch and afterwards into 11-inch, in which they produce their flowers. The best specimen pompon varieties are also produced from cuttings put in now. Root cuttings of course—that is, cuttings which spring up from the ground close to the main stem—when the cuttings are taken off from the stem itself, they have a greater tendency to run to flower prematurely in the month of May; they may be all right, but the chances are equal that they will be all wrong. I would also urge the importance of keeping the plants in steady, healthy growth all through the winter months. *J. Douglas.*

ZONAL PELARGONIUMS.

It seems almost superfluous to attempt to write anything about a class of plants so universally appreciated as zonal Pelargonium—I refer to that section generally grown under glass for decoration and cutting from. Probably no other class of plants rewards the labour bestowed upon them more generously than zonal Pelargoniums; with good cultivation they can easily be made to bloom profusely for three consecutive months, and that, too, in the depth of winter, when their brilliant colours are appreciated most highly. Thanks to the labours of enthusiastic raisers we have now a host of fine varieties greatly in advance of those cultivated ten years ago, especially as regards size of the flowers. One looks in vain amongst the older sorts for the beautifully compact massive and well nigh perfect circular outline of the individual pipes that characterise the best varieties. There is also a great improvement in the size of the pipes and trusses; many of the latter being like miniature bouquets when well grown. I venture to think they are not so well understood by some gardeners as their merits as winter bloomers deserve. There is one method of cultivating them which might be more generally followed with advantage especially to those who have to provide much cut blooms; it is as follows:—Take a batch of cuttings according to demands and convenience in February, and again in April, potting them up about the fourth week in May, the first batch into 32-size pots, the later batch into 40-size pots, having previously shifted them from the cuttings into 60-size pots. Use a compost consisting of three parts good loam, two parts well-rotted dung (cow-dung, if possible), and one part coarse, clean sand. Have nothing to do with poor, light sandy soil if the best results be desired, and place them on a bed of ashes in a perfectly open, sunny situation. Look them over regularly, and pick off all bloom and the points of the shoots. Continue this treatment, not forgetting to give a liberal supply of water till the end of September, when they should be housed. A house with a temperature of 60°, with an atmosphere rather dry, suits them best. All decaying blooms and leaves should be picked off once a week, as, by doing so, the blooming period is greatly prolonged. It is a good plan to keep a small coarse bag of soot, burned earth, or cow-manure in the water-tank during the blooming period. This kind of cultivation will give vigorous, short-jointed bushy plants with abundance of bloom. The April batch must be kept clear of bloom till required to succeed the first batch.

The following varieties will be found to give every satisfaction, and as there are unfortunately many synonyms, it is quite necessary to take the oft-repeated advice, to have no other sorts than those asked for, and to see that you get what you ask for:—Single varieties—Mr. H. Cannell, crimson, white eye, very fine; Lord Chesterfield, magnificent trusses of magenta flowers; Cato, orange-scarlet; Mrs. Gordon, crimson, very distinct white eye; Commander-in-Chief, a grand winter-blooming scarlet. John Gibbons, a strong bedder, is far too good to be left out of a collection of winter bloomers; the same remarks apply to H. Jacoby. Another very good thing is Lord Wolsley; Gathorne Hardy must not be omitted from the list of scarlets; Dr. Denny is a purplish-violet, and very distinct; T. Todman is a grand variety, faultless in shape, very free and fine; Dante, deep magenta, very good and distinct; Edith Little, bluish; Evening Star, a lovely gem for 60-size pots. The best salmon-coloured variety is Leviathan, but Lady Chesterfield and Fanny Catlin are both very good, and also of this colour. The best of the pink coloured ones are Mrs. Daniels, Eurydice, and Lady Sheffield; Lucy Bosworth is also worth growing; Queen of the Belgians and Eureka are among the best whites.

Amongst double varieties the following are worthy of a place:—F. V. Raspaill, Mr. H. Cannell, scarlets; Jules Simon, Rosa Bonheur, rose-coloured; the Lord Mayor, pink, very fine and good; light orange, Erl König; Lacena, purplish coloured, flowers very good; and the double Indian Yellow. Whites:—Le Cygne, and Madame Lemoine. All these varieties should be in every collection. *F. W. Sears.*

HINTS ON HOLLYHOCKS.

It is a fortunate circumstance that seedling Hollyhocks do not greatly vary from the form and colour of the parent flowers. It follows that, when the seed is obtained from plants carefully selected for their fine qualities, a good bloom may be expected by adopting the simplest and the cheapest method of cultivation. The seeds may be sown at any time from March to August; but early sowing is advisable, as the plants can be put out in time to make a free growth in the first season, to prepare them for a strong bloom in the season following. As a considerable number of the finest named sorts, that were things of renown fifty years ago, are still in cultivation, the propagation by divisions and cuttings is still a matter of some importance. The time for this business is in the decline of the summer, or early in the autumn. It is an easy matter to detach from the base a short shoot or portion of the stool, and this being potted, and kept through the winter in a frame, will grow freely in the spring, and should be planted out as soon as the weather permits in April or May—the earlier the better, provided there is no particular danger of injury from frost. In places much exposed the planting must be later than in warm, sheltered situations. The requisites for the production of fine blooms of Hollyhocks are a deep, rich, moist soil; perfect drainage, to prevent injury by winter damp; and full exposure to air and light. In places much overshadowed by trees, or where much hummed in by walls and fences, Hollyhocks do not prosper. They love sunshine and fresh air; they love good living, and in a hot, dry season may with great advantage be liberally supplied with water. *From "Familiar Garden Flowers" for November.*

FRUIT TREE PLANTATIONS, AND ARTIFICIAL MANURE.

APPLES on the Paradise stock will be a more profitable crop for the farmer of the future than standard trees. The orchard of dwarf trees can be planted, cultivated, and brought into profit while the standard orchard is struggling into growth. It is much less troublesome to surround a dwarf orchard with wire fencing than to protect every individual standard. I have found that rabbits are effectually prevented from burrowing under the fence by sinking a strand of barbed wire about 4 inches deep. The trees should be planted 9 feet apart row from row, and 4 to 6 feet in the rows, forming continuous hedges. The proper sorts to be cultivated are named in the catalogue. Owing to the extraordinary importations of Apples from America in the autumn, the planter should select early sorts which can be sold in July, August, September, and October. The soil should be surfaced with artificial manure if stable manure cannot

be easily obtained, as after a heavy crop the trees will require assistance.

In small gardens much trouble may be saved by the application of chemical manures to fruit trees. Bones, sulphate of ammonia, nitrate of soda, soot, superphosphate, sulphate of iron, fish manure, will replace stable manure, often difficult to obtain of good quality, and not so easy of application. An analysis of the soil would be of great use to the planter on a large scale, and would probably save valuable time.

The cultivation of Grapes with artificial manure will probably be more extended in the future than at present; but as different soils require different manures, it is necessary to discover the proper composition. White and black Grapes require studying as to the nature of the manures to be used. When this question is thoroughly understood less will be heard of shanking or failing to colour. Grapes may be successfully grown in perforated pots, the roots being allowed to penetrate into the soil surrounding the pot, which must be renewed every year, the roots being then cut off close to the perforations. The soil, supported by bricks, should extend about 2 feet from the pot, which is plunged up to the rim, and may be placed over hot-water pipes. This will be found a cheap method of making a Vine border. *T. F. Rivers, in List of Fruits for 1886 7.*



HOME CORRESPONDENCE.

Notes on Seedling Conifers.—I have just noticed a strange fact, that in the old genus *Picea* (now called *Abies*), *P. grandis* is the only member whose mode of growth in a seedling state is similar to that of the young plants of the *Abies* tribe, viz., that instead of the usual whorl of leaves produced in the *Picea* tribe (note *P. cephalonica*, *P. pinsapo*, *P. Nordmanniana*), *P. grandis* has an elongated stem, with the leaves placed, not in a whorl at the top, but regularly along it, similar to *Abies Douglasii*, *A. Menziesii*, or *A. excelsa* of equal ages. Seedling plants of *Abies grandis*, from seeds sown last season, are now 2½ inches in height; *A. Nordmanniana*, 1½ inch; *A. cephalonica*, 1½ inch; *A. pinsapo*, 1½ inch; while the *Douglas Fir* is 2 inches; *A. Menziesii*, 3 inch; *A. excelsa*, 1½ inch; and *Pinus sylvestris* and *P. laricio* 2 inches and 2½ inches respectively. The latter *Pine* is remarkably bushy for its height, and grows with unusual rapidity, two-year seedlings being 6 inches high, and with leaves 4 inches long. The peculiar twisted foliage is very noticeable in the plants under consideration, the seeds having been carefully collected from the typical *P. laricio*, which is readily detected by the peculiar twist near the base of each leaf. This form, I might add in passing, is the most valuable tree for commercial purposes. *Abies* or *Pseudo-Tsuga Douglasii* of two years old is fully 12 inches high; this tree grows rapidly even in the younger stages of its existence. How pigmy in size the twelvemonths old plants of *Menzies' Spruce* appear! these being only three-quarters of an inch in height, but remarkably bushy, if we may so speak, at the top. The *Glaster Pine* is 2 inches high at year old, stiff and strong. These are the average heights of seedlings sown the same day and in the same seed-bed. How different in appearance they are! the foliage of some being of a light silvery-green, while that of others is of such a deep green as almost to approach black. *A. D. Webster.*

Ivy-leaved Pelargoniums.—As a supplement to my remarks on the above subject, I regard those of Mr. W. J. Ireland as a valuable addition, not affecting what I wrote, as I did not touch upon growing plants for supplying cut flowers alone. I wished to call attention to their great value for decorative purposes when grown in pots from 4 to 6 inches in diameter, for arranging among other plants for house or conservatory embellishment, or when shifted into larger pots, and trained to pyramidal trellises, they make fine specimens for placing in prominent positions. In regard to your correspondent's statement, that when trained in the way above indicated the shoots do not get sufficient light to enable them to flower satisfac-

torily during the winter months, I will mention that our own plants are at the present time completely studded with flowers and opening buds, which daily find many admirers. Where plants are grown for supplying cut flowers alone, Mr. Ireland's method is, without doubt, an excellent one, and he has done good service in calling attention to his practice, but, as in the majority of gardens plants are wanted for using in the way I have described, it becomes necessary to grow them in smaller pots also, and train in the way most suited to the purpose for which they are required. *H. Dunkin.*

Mild Weather in Scotland.—Thursday, November 11, was in Scotland called the gardeners' term. Being an ardent Dahlia grower I have been anxious for the last thirty years to show Dahlia blooms on the term day, but was always disappointed on account of the frost, till this season, when on that day I showed a very nice stand of blooms in my warehouse, many of which would not have disgraced an exhibition stand; and what pleased me most was to see the interest the young gardeners took in them. *John Davonie*

Raising Potatoes and Peas.—I have no doubt whatever that your correspondent, Mr. Divers, in some recent observations on this topic, is not alone in holding the belief that Potato and Pea raising is a very profitable occupation. If I were to aver that the profit, if any is to be found, is rarely the raiser's, he would perhaps smile sceptically; but if I invite him to try for himself and see how much of wealth he can extract from the raising of new kinds of these vegetables, he will probably shrug his shoulders and respectfully decline. It may be that gardeners who have their employers' gardens and labour to operate in can carry out much of the kind referred to profitably. I do not know, but I doubt very much whether, even then they find the game worth the candle, and in the case of those who have to pay rent for ground and find a livelihood from out of their own labours, I am certain that profit is all moonshine. Perhaps I am asked, Why, then, do those who raise new kinds of these vegetables continue to do so? My answer is that they are under the influence of deep interest in what they have set about, an interest which is more potent than even the pursuit of wealth, for it possesses attractions which are to the true raiser irresistible. Those who raise seedling Potatoes or Peas find their interest increased with the extent of their operations; and it is well it should be so, for out of perhaps fifty or one hundred seedlings—each one of which saved needs more or more space each year—it will be found that a score or more of even the best will have to be cast aside each year, until the total number is weeded down to some half a dozen, or even less. My advice to those who envy raisers their profits (?) is to turn-to and reap some of those profits for themselves. *A. D.*

Abnormal Cypripedium Spicerianum.—In the normal condition of the flower of an Orchid it is so complicated by cohesion, adhesion, suppression, and other modifications, that the morphology of parts as they occur in other flowering plants generally is with difficulty recognisable. Notwithstanding the fact that there is less suppression in Cypripedium and its allies than in the other tribes, it is still a very complicated flower. In most species of Cypripedium the lateral sepals are connate into one piece, apparently for the support of the large pouch-shaped labellum, leaving no trace of their plurality of origin except two midribs and generally two small apical teeth. *C. arietinum* is an exception, as it has its lateral sepals almost free, almost to the base. A specimen of *C. Spicerianum* given me lately has the lateral sepals divided to the very base and enlarged on the contiguous sides and revolute there, giving them the same oblique appearance as occurs in *Phalænopsis amabilis*, *P. Aphrodite*, and *P. Schilleriana*. This extra development is pure white, like the greater part of the upper sepal, while the rest is green, as in the normal state of the flower. All the three anthers of the inner whorl of stamens are developed instead of two, and appear perfect in every respect. The third and unusual one, occurs immediately in front of, and below the stigma, which is bifid on that side, to accommodate the filament of the anther (an unusual phenomenon). The rest of the flower is normal excepting the labellum, which shows a tendency to lose its pouched condition, is rather deeply bifid in front, and has a green band extending along its middle throughout its length internally, with a purple band on each side of this, while the rest is spotted purple. The significance of the green and purple bands together with the fission of the labellum is not very evident. *J. F.*

Eucharis amazonica Planted Out.—I advocated the above system in these columns last January, after a fair trial of nine years, during the whole of which time I had been most successful in growing this most useful of stove flowering plants for cutting pur-

poses. I thought, perhaps, it might be of some interest to a few of the numerous readers of the *Gardeners' Chronicle* to hear what these have been doing since I sent my first few notes on the above subject. There have been in bloom twice since January, this last time for the past seven or eight weeks, and there are still some flower-spikes left to open. I have pleasure in submitting specimens to the Editor, to show what large leathery foliage they make, and strong spikes of bloom they carry. I have gathered some hundreds of blooms from these plants growing in the 76 feet of bordering in the plant stove here, and many who have seen them lately can bear out my statement; some of the spikes have measured as much as 36 inches long. I have watched these very closely, and still have no hesitation in saying that the same bulbs have already bloomed thrice within the year. After this time of blooming I do not expect to have them in bloom again till next January. I have seen spaces in many plant stoves that could well be utilised for this purpose, either as borders or rockwork; the Eucharis will do equally well in one as the other. Distance from the glass is no object; some of these are 12 feet from the glass, and others 6 feet, and the comfort of planting them in I would recommend to any (when it can be got good), with some coarse silver-sand added. I have a good stock of pot plants, and with these and the planted-out ones I am scarcely ever without Eucharis flowers throughout the year, and where hard forcing would have to be resorted to for supply, no better bulbs could be procured for potting-up than those grown under the above system. I have lately extended this system by planting in the back border 40 feet long, in a house of planted-out Camellias I should have the hot-water pipes run along by the side of this border. They were very small bulbs when put out, and have only been planted twelve months; they have grown well, and if they only bloom once in a year they will repay the little trouble they have been. I have also put some out in a short length of border in a greenhouse, which I hope also to be successful with; the plants will return pipe heating one range of houses is by the side of this house. There is also an old plant of *Stephanotis floribunda* growing in this border, part of the roof of the house being covered with it, and which produces hundreds of blooms through the summer months; this plant is never troubled with mealy-bug or scale, as would be the case were it growing in stove temperature. The system of planting-out Eucharis is becoming more general, and to those who have only lately adopted this system I can assure them (after ten years' experience) that they will meet with the greatest success; and they will also find that the growth they make is far stronger than those cultivated in pots, and also a far greater yield of flowers for cutting purposes. *Edward Ward, Hewell Gardens, Bromsgrove.* [The bulbs, foliage, and flowers, sent with this communication, were of extraordinary vigour. Ed.]

Bradford School of Science and Art.—I wish to inform you that I am laying out the grounds for the school, and that Mr. Fair & Holme have nothing to do with the work at all, it having been let by public tender. Having read the paragraph about the school in the *Gardeners' Chronicle* for October 30, I shall esteem it a great favour if you would kindly correct it. *Wm. Green.* [We regret having been misled, but the information we published, being taken from an official document, we were under the impression that it was correct. Ed.]

Narcissus viridiflorus in North Africa.—Three years ago I recorded through the pages of the *Gardeners' Chronicle* the rediscovery of the long-lost *Narcissus viridiflorus* in the neighbourhood of Gibraltar, and yesterday I had the pleasure of confirming its reputed occurrence on the African side of the Straits of Gibraltar, and found it in fair abundance about 6 miles from Tangier intermixed with *Narcissus serotinus*. I also found several hybrids between *N. viridiflorus* and *N. serotinus*. The individuals were very much some leaning in character towards one parent and some towards the other, a fine example being as nearly as possible intermediate in character between the two species. *George Mau, F.L.S.*

Chrysanthemums at Workshop Manor, Notts.—When visiting the above gardens in company with a gardening friend the other day we were shown one of the finest collections of Chrysanthemums in bloom I may safely say in North Notts. About 150 varieties are grown of the most approved sorts, with several duplicates of proved varieties, as specimens or large blooms are the first consideration with Mr. Sutton (gr. to J. J. Cookson, Esq.), who most certainly be congratulated on his achievements in the culture of this plant. The best description I can give your readers of them is that they resemble large show Dahlias, and there are hundreds of them. The plants range from 18 inches to 7 feet high, fine healthy plants, and are arranged in one of the large viner-

Should any of our brothers of the craft be in the neighbourhood of Workshop, they, like me, would not regret spending an hour inspecting this collection of Chrysanthemums. *J. Jefferson, Workshop.*

Convolvulus mauritanicus.—The Mauritanian, or North African Convolvulus, by many taken for a Campanula, being amongst the freest flowering of what are known as hardy greenhouse plants, rarely receives a tithe the cultural attention it so well deserves. Rarely is it met with amidst collections of plants, though frequently it enlivens by its beautiful light blue flowers (so abundantly produced) the window of the cottage. Blooming during the summer months, when showy pot-grown plants are scarce, it seems to have double claims upon growers. The plant strikes very readily, and may be propagated by division, occupying very little attention or space during the winter; it makes a rapid growth each spring, developing into a rare mass of bloom; and where grown it rarely has its growing capabilities pushed beyond what 48-sized pots are capable of producing; whereas if 24 or 16-sized pots were filled with it the result would prove a gorgeous display, quite unique in the matter of colour, habit, and floral wealth. *Convolvulus mauritanicus* succeeds well planted out of doors during the summer months, pointed up and wintered with ordinary cool greenhouse plants. *William Earley.*

Sonerilas.—Are the pretty silver-leaved Sonerilas to be relegated to the class of neglected plants? There is danger of this fate being done for them, and, as Mr. B. S. Williams observes in his book on *Choice Stove and Greenhouse Ornamental-leaved Plants*, they "are exceedingly attractive objects when laden with their bright-coloured although small flowers; but they are remarkable for the beauty of their leaves, heightened by their charming blossoms." That Mr. Williams regards them as plants to be grown more for their silvery leaves than for their flowers—pretty as they are—shows from the fact that he has classed the Sonerilas among the stove ornamental-leaved rather than among the flowering plants. It was about 1854 that Mr. Thomas Lobbs sent home to Messrs. Veitch & Sons from India the pearl-bearing *Sonerila margaritacea*; it was shown by them at the November meeting of the Royal Horticultural Society in that year, and it was greatly admired for its low growth and free branching habit, forming dense tufts of foliage, bearing numerous flower-stems of bright rose-coloured flowers. From this, either by fertilisation with an older species or simply as seedlings, have sprung a group of several forms, and these I saw in capital condition at Mr. B. S. Williams' nursery at Holloway a few weeks ago—small, but charming plants, with their leaf character beautifully developed, varying both in the size of the leaf and character of the leaf marking. They were growing out of doors in a stove-house, and appeared to be luxuriating in the warmth of the atmosphere surrounding them. I am unable to give the order in which the different varieties appeared in point of time, but the leading forms at Holloway are as follows, viz.:—*margaritacea* with medium sized leaves of a dark olive colour, marked with greyish-white oval spots, the reverse of the leaves rosy, with rosy veins; *Hendersoni argentea*, spotted clear silver leaves, with rosy midrib, and very slight dark green veins; *Hendersoni marmorata*, large leaved, silvery, having veins of reddish dark green; *Hendersoni metallica*, large leaved, olive-green ground, the veins having side spots; and blotches of grey, the midrib slightly rose; *Madame Legrelle*, small leaved, shining pale grey in colour, with slight rosy-green veins; *Rita*, the olive-green leaves marked with small dots of grey especially towards the point, medium sized leaves including small; and *argyrea*, the small grey leaved with broad but olive-green towards the point; the veins slightly rose. Looking upon the group as they were growing together there appeared to be great diversity of character in size and marking, though silvery-grey predominated in all, excepting *margaritacea*. A class for six specimens of Sonerilas always finds a place in the schedule of prizes offered at the great Whitsun show at Manchester, large and well grown specimens being produced. Occasionally they are shown in flower, when the Whitsun season falls later than usual; but when not in bloom the tufts of foliage are very attractive. The leading exhibitor is Mr. A. Cole, gr. to Joseph Broome, Esq., Woodlawn, Midsbury, Manchester. There appears to be some difficulty in growing specimens on for two or three years, and so Mr. Cole finds it best to strike fresh plants every year. The difficulty appears to be in keeping the plants through the winter after they have done flowering. Mr. Cole states that their natural time for blooming appears to be in November, and as Mr. Broome likes best to have them in flower at that season of the year, he finds it the best plan to throw away the old plants and start afresh with new ones. Therefore he propagates every year by means of cuttings several of each form that he grows, and

pushes them on freely in a propagating frame in a brisk heat, keeping the foliage quite dry, taking off the lights each morning to dry up any damp that may have accumulated and settled upon the foliage during the night. By keeping these young plants continually growing and not allowing them to flower, they grow very freely, and make much finer foliage and better marked than by growing them without the use of the frame. The plants are kept in this frame until about three weeks before the Whitsonide show, when they are exposed so as to bear the temperature of the large exhibition-house in the Botanical Gardens. Mr. Cole states that he does not confine himself to any particular soil, but generally uses a mixture of light fibry loam, peat, leaf-mould, and a good sprinkling of coarse sand, keeping the plants rather dry at the roots. *R. D.*

Senecio macroglossus.—Two or three years ago a correspondent sent me cuttings of an elegant plant, the leaves and habit of which greatly resembled some varieties of *Hedera*, and I gave it the name of *Senecio macroglossus*. Though the leaves were less divided the resemblance to such forms of *Ivy* was very remarkable even as regards thickness, colour, and the white veins the above forms are known to possess. I grew and bloomed this plant, and find it to be identical with what the Americans name *Senecio macroglossus*, the flowers, which form upon young terminal shoots being similar in shape to the single-flowered *Jessamine*, and twice or four times the size of pale yellow and also white colour. I do not find the plant catalogued by trade growers, though it seems a very desirable plant. I observe it occasionally called "German Ivy," though certainly not identical with the latter, a plant of which I also possess. *H. E.*

Dimorphism in Leaves.—Dimorphism is by no means of uncommon occurrence especially in some orders, but when it becomes of everyday occurrence we are apt to overlook the fact or altogether disregard it. Cut or lobed leaves, as mentioned in the *Gardeners' Chronicle*, p. 471 of the present volume, in the case of *Morus nigra* are exceptional, but have been recorded by London. Such have not come under my observation but in *M. alba* and some of its varieties there is a constant and well marked dimorphism at all times whether the tree has been subjected to severe pruning or not. In divided leaves the three-lobed is the commonest form, in accordance with the three strong basal nerves. *M. alba* has small undivided leaves, and the same applies to *M. s. var. pumila* with large leaves; while the large-leaved form, *M. a. Morettiana* occasionally exhibits more or less lobed leaves. On the other hand a variety known as *M. a. japonica* has large, habitually much divided leaves, exhibiting heart-shaped undivided ones only on the small lateral branches. Singularly enough in the specimen I have seen of *M. tatarica*, division only appears occasionally towards the tips of the exhausted branches, and on slender axillary ones where the leaves are also considerably below the average size. This is contrary to the usual rule, where the large leaves are the most divided. *Besnoyia papyrifera* belongs to the same natural group as *Morus*, and produces not only its peculiar and characteristically lobed leaves, but occasionally heart-shaped, undivided, and other intermediate forms, and all these, it may be, on the same branch. The Jack-fruit tree, *Artocarpus integrifolia*, a claiming affinity with the above, varies with entire or lobed leaves, and so does *Dorstenia contrayerva*, more rarely *Ficus Carica*. A more singular instance than any of the above, because less common, occurs sometimes on vigorous or rampant-growing shoots of *Ulmus campestris*. This also belongs to the great natural family *Urticaceae*, bearing its familiar unequal-sided leaves. A small leaflet sometimes appears on the part where the blade is normally cut away, springing from the midrib, more or less distinctly stalked, and practically constituting the leaf a compound one, with a large and a small leaflet. Dimorphism is also of not infrequent occurrence in the *Olive* family. The simple-leaved form of *Fraxinus excelsior*, grown under various names, produces simple, and occasionally tri- and quinquefoliate leaves. *F. rufa* may be cited as an instance of polymorphism, or heteromorphism. The leaves are mostly simple, and merely serrated, or variously incised. Occasionally a pair of leaves occurs with three leaflets, while of another pair one may be small and simple, while the companion leaf is many times the size, and consisting of three leaflets. Several species of *Jasminum* exhibit dimorphism, and *Forstia suspensa* very frequently produces simple and compound leaves of three leaflets on the same twig. Dimorphism in the leaves of many of the *Leguminosae* is well known, but probably frequently overlooked on account of its frequency. The *Gleditsias*, spoken of at p. 494 of the present volume, might be instanced as a case of heteromorphism. Various forms of leaves also present themselves in *Acacia*, *Lathyrus*, *Ononis*, and other genera. On vigorous growing and barren shoots of *Mespilus Smithii* the leaves are deeply

incised, sometimes almost trilobate, while those on the flowering shoots are narrower, and merely shallowly serrated. The variability of the leaves is more inexplicable and unexpected when it appears in such genera of the *Caprifoliaceae* as *Symphoricarpos* and *Lonicera*, where the leaves are not only undivided as a rule, but have very entire margins. On vigorous radical shoots of *S. racemosus* the leaves are often so deeply serrated that some botanists have mistaken the plant for a different species. The normally entire leaves of *Lonicera periclymenum*, *L. japonica*, and *L. brachypoda* are sometimes replaced, especially in the latter, by sinuated ones resembling those of an Oak. Furthermore, in a batch of young plants of *Collinsia bicolor* frequent instances occur of deeply three-lobed leaves—a remarkable deviation from the normally undivided form. *J. E.*

Humex elegans.—To succeed well, this peculiar form of the natural order *Compositae*, named after Lady Hume, and introduced by her from New South Wales, requires more than slipshod culture. It is biennial, but in the district named, and only by steady and regular attention for about eighteen months, or between the time the first seedlings show and flower-spikes are forming, can examples worthily representing the singular beauty of this solitary species be produced. This plant, with some others introduced from the same locality, requires very similar treatment to what New Holland plants receive, a treatment consisting of uniformity as regards temperate warmth, and care in supplying a moderate amount of moisture to the roots. Any extremes either way will tell against the stature and beauty of the future specimens, and if it does not disfigure them by loss of leaves, and from a peculiar disease, akin to what has been described as "spot" in connection with other forms of vegetation. With these reservations the culture of these plants may, nevertheless, be described as very simple. Seeds should be sown in pans or pots, and rich fibrous loam, with a liberal supply of silver-sand, and placed into a heat, not higher than 65° about the first week in the month of May. So soon as the young seedling plants are large enough transplant them singly into 60's and similar soil. When root growth is renewed keep upon an airy shelf in full sunshine, giving water very regularly. Give another small shift as necessary, at all times potting somewhat firmly. Place the young plants out-of-doors after the middle of June upon a properly prepared cinder-ash bottom, and on the most favourable site that can be found as regards free air and sunshine. Waterings must be given very regularly as needed. Any neglect in this regard, especially if the plants suffer from the want of water, will cause them to shed some of their lower leaves when housed again in the late autumn, and fine heads of bloom will not be possible. At the approach of cold weather re-house the plants, placing them in an airy light position, or such as will suit an *Epicure*. Water as necessary throughout the winter, and give a final shift into the blooming pots during the month of April following. The size of pot to be then used must depend on the size of plants and their healthful appearance, in the matter of retention of all their leaves, &c. Fine healthy leaves are an unfailing proof of the vigour of these peculiar plants and their capacity to make even better progress between then and the full blooming period. *H. E.*

Leeks.—I think that the taste for Leeks must be growing in this part of the United Kingdom, and that the people of England are beginning to appreciate it as much as the Scotchmen and Welshmen. That it is a good, fine-flavoured, wholesome vegetable there can be no doubt. It is said that "one reason of its fame in Scotland and the colder parts of Wales is its exceeding hardiness, for the severest winters do not harm the plant, and it may remain in the open ground until wanted, occasioning no trouble for storage." One mark of the growth of the Leek in popularity is shown in the fact that in London market gardeners are found growing it much more abundantly during the past few years than they formerly did. Last year, owing to the severe drought of the summer, the Leek crop was an almost entire failure; the growers still followed the old plan of growing their seeds in a bed, and then transplanting them to the open ground. Just as this had been done in 1885 a long spell of hot, dry weather followed, the plants made but little growth, and the crop was scarcely worth the trouble of marketing.

Unless Leeks are put out during what the market gardeners call a "dripping time," they are very slow in getting into growth, for it is a succulent and moisture-loving plant. During the past year—probably in consequence of having profited by the experience of the previous one—one of the largest market growers of Leeks in my neighbourhood adopted the practice of sowing the seed in the open ground in drills, as in the case of Onions, and the plants were as soon as the plants were large enough, and putting them out in a plantation near at hand. What a change from last season is witnessed

this? Now there are plenty of Leeks; and such Leeks too! I saw a labourer digging them up the other day—very large, thick, fleshy plants, that are gathered up by women, trimmed and washed, and sent to market. The one sowing in the open has produced successive crops—first the plants that have remained undisturbed in the soil; secondly, the thinnings of the lines that were transplanted. The ground in which they have been growing is somewhat light and stony, but heavily manured, and a very valuable crop has resulted. I suppose there is a kind of prejudice against Leeks, for they are not often seen in private gardens in anything like quantity, and yet when properly cooked and served up with appropriate gravy they make a delicious dish. It is recommended, in order to grow fine roots or Leeks, that, when the ground is strong and fertile, they be planted out quite a foot apart; that in planting the leaves should be shortened a little—only a little, then the dibber should be driven down deep enough to bury the plant to the base of the leaves, pressing the soil gently about the root. Liberal waterings are necessary as required; the ground should be occasionally stirred between the plants, and the tops of the leaves again shortened. Treated in this way very fine Leeks are produced. *D.*

Reports of Societies.

STOKE NEWINGTON AND HIGHBURY: November 4 and 5.

POT PLANTS.—This show was held in the hall of the Highbury Athenaeum on the above dates. It suffered somewhat because of its incapacity to fill the large area satisfactorily. Generally the exhibits were good—in some cases specially so; specimen plants being generally excellent, whilst the nine semi-pyramid trained plants from Mr. Monk were far better than are usually seen. One of the most interesting features of the show was a collection of cut flowers, comprising incurved, Japanese, and pompon *Chrysanthemums*, chiefly from the open ground, and bouquet, Cactus, and single *Dahlia*s from Mr. T. S. Ware, Tottenham. It is, indeed, a rare circumstance thus to see *Dahlia* blooms shown in such quantity and beauty on November 4, and well illustrated the middest of the autumn. All the best single and Cactus forms were well represented, while the bouquet kinds seemed as good as at any time. The *Chrysanthemums* included many first-rate sorts.

Mr. Crochane sent from Finsbury Park a couple of flat trained *Chrysanthemum* plants, somewhat cocked-hat in shape, about 4 feet across at the base and 3 feet high—one Mrs. Dixon and the other G. Glenny—with some blooms of Mrs. G. Rundle showing at the top in each case; these are screen or fireplace plants, and very effective. Mr. Crochane also sent some good cut blooms.

Mr. J. M. Chard, of Stoke Newington, dressed the large platform with large Palms and groups of *Chrysanthemums*.

Only two groups of *Chrysanthemums* competed—the best, from Mr. Willey, Highgate Cemetery, was a first-rate lot of plants, finely bloomed, and not crowded; they ranged from 8 feet high behind down to 2 feet in front, with a run of 10 feet slope, and the dwarf plants carrying very fine single blooms of Elaine, Mad. Lacroix, and others were just what should be seen in the facing of all similar groups. Mr. Osborne, gr. to A. Larkin, Esq., Highbury, had the other group.

In the class for nine trained plants the lot from Mr. Monk, gr. to W. Fowler, Esq., Leytonstone, was unexceptionally good, the exhibits consisting of semi-pyramids ranging from 3 to 4 feet in height, proportionately broad and grandly flowered. Dr. Sharpe had some 150 blooms, all good; Prince of Wales, Mrs. G. Rundle, G. Glenny, Lady Hardinge, and Chevalier Domage of solid flowered kinds; and Elaine, Madame de Sevin, and Cossack, Japanese. Mr. Bass, gr. to Miss Cotton, Leytonstone, came 2d; and Mr. Davey, gr. to C. C. Payne, Esq., Stamford Hill, was 3d. Both these lots were of the same style of growth and well bloomed, but lacked the fine quality found in the 1st lot.

The best four trained plants came from Mr. Gilbey, gr. to B. Booth, Esq., Clapton.

Standard plants were also excellent, some exceptionally so, the heads being masses of bloom. Mr. Gilbey was 1st.

Standard pompons were good, also such kinds as Mrs. Bayley, Marie Stuart, Sunset, Sour Melaine, and Fanny being finely bloomed. Mr. Gilbey was again 1st here.

Classes for foliated plants, Ferns, and table plants brought fair competition, especially in the latter class. Mr. Challis, gr. to H. Dare, Esq., Park Lane, had the best foliage plants, chiefly Palms; and the best Ferns, whilst Mr. Gilbey took 1st place with neat

medium-sized table plants, Mr. Chard coming next with others almost as excellent.

CUT BLOOMS.

The chief class was that for thirty-six incurved flowers, only two lots competing, the best coming from Mr. Bettsworth, gr. to R. Ewing, Esq., Cheshunt; the flowers were of average quality, some being fair and others moderately so.

There was no competition in the class for twenty-four blooms, and but three lots of twelve blooms, the best flowers here being Prince Imperial, Prince Alfred, Prince of Wales, Re-fugence, Mrs. Heale, Abbé Passaglia, Nil Desperandum, Jeanne d'Arc, Lord Wolsley, and Golden Empress. Mr. Monk was 1st.

Messrs. Davey, Osborne, and Saunders, took the prizes in the class for six blooms.

Some very good Anemone-flowered kinds came from Mr. Osborne, including several of the Japanese forms with their long florets.

Pompons in bunches were rather small. On the other hand Japanese flowers were good.

In the class for twenty-four blooms one stand had the flowers elevated on tubes quite 6 inches above the stand; this gave to the other flowers a disadvantageous appearance. Certainly schedules should insist upon some uniformity in relation to height of flowers, as well as to dimension of stands.

In the class for twelve blooms the competition was larger. Mr. Smith coming 1st. The best flowers here were very meritorious.

One of the best lots of blooms in the show was a dozen of incurved shown in an amateur's class by Mr. Bingham, Stoke Newington. They were clean, solid, and capitally finished.

The best stand for dinner-table, of Chrysanthemum blooms, a very telling arrangement, came from Mr. Clarke, gr. to W. Lund, Esq., Wanstead Park. Mr. Clarke also was 1st in the bouquet class with one of pure white blooms. Mr. Chard being 2d, with a much larger arrangement.

The vases holding twelve blooms on long stems were good, Japanese blooms filling the 1st prize one—from Mr. Jones; and Mr. Clarke came close with the 2d vase.

NORTH OF SCOTLAND ROOT ASSOCIATION.

THE annual exhibition of this Association was held on Saturday, the 6th inst., at Inverurie, near Aberdeen. From various causes the total entries were not so large as they have been for the last few years, but the quality all over was remarkably good. The entries numbered 774, as compared with 854 last year, a falling off of eighty. The deficiency was partly accounted for by a new rule introduced into the Association, which restricts members to two entries in each class.

It would appear, too, that the Turnip crop is not proving to be the success that was at one time predicted, and that Swedish, in particular, have not bulbed well. The display of Swedish Turnips was, therefore, not so good as in some former years, and not a few of those who intended to compete failed to put in an appearance, the result of their examination of the crop being probably unsatisfactory.

The season has been reckoned a good one for Potatoes, and there appears to be very little signs of disease. Exhibitors at this show have paid so much attention to the cultivation of Potatoes, and their success has been so great, that they do not expect to be able to make very great improvements on the different varieties now. At any rate the exhibition of Saturday was said to be in respect of the quality, though the entries were slightly back, as fine as any of the previous shows. Field-grown Potatoes were exceedingly fine, particularly the kidney varieties, Grampians, and the collections in the department for garden Potatoes. Everything nearer perfection than Mr. Moir's plants of the Sandrop variety could not be looked for. It is said that among the exhibitors who patronise the Association's show the favourite Potatoes, after the test of several years' experiments, are Yorkshire Hero, Bountiful, Dalmahoy, and Glenbervie; while for field produce the Grampians can hardly be beaten amongst coloured varieties. It is about eleven years since it was first introduced here, and it has since been an excellent Potato for general use. The Champion Potato takes a leading place in Potato-growing districts, and in a season when disease is prevalent it is nearly indispensable. There was a fine display of these and also of Donaldson's Victoria alba, which since it made its appearance has taken a pretty strong hold in Aberdeenshire. Mr. Greig, Inchgarth, exhibited several lots of seedlings, to which the Judges awarded 1st prizes in their respective classes. Vegetables were well shown. The display of fruit was meagre, the entries being only about one-half when compared with last year. The cold weather which prevailed during May and June spoiled the crop, and taking this into account the quality was very good.

The splendid collections sent forward for exhibition

by Messrs. Ben. Reid & Co., and Messrs. W. Smith & Co., Aberdeen, were a source of great attraction to the many visitors present. They excelled any of the kind ever seen at the Association shows, occupying one whole side of the hall. The first-named firm exhibited a large and splendid collection of Potatoes, including all old well-known sorts along with those of recent introduction. Splendid examples of the following sorts were shown:—Clarke's White Forty-fold—said to be one of the heaviest croppers yet introduced, the firm having lifted 15 tons per acre as the produce from the above variety; Ingliston Fluke, Cromwell, Rosebery, Gladstone, Keith Hall, Village Blacksmith, &c.; Fyvie Flower, a new kidney variety raised by Mr. Farquhar, to be sent out in spring by Messrs. Ben. Reid & Co. for the first time, was shown in fine condition, and is likely to prove a great acquisition. This variety obtained the First-class Certificate at Chiswick out of 100 varietal trial against it. A fine lot of vegetables were also exhibited.

Messrs. W. Smith & Co. exhibited a fine collection of Potatoes, over 100 varieties, all correctly named, including several not yet in commerce, viz., Ben Accord, Sims' Improved Glenbervie, Turnerhall Seedling, California or Gold-leaved, &c.; they also showed an excellent lot of Silesia Prize Green-top Yellow Turnips, originally sent out by this firm.

The weather during the day was cold and showery, but there was a large attendance of visitors. *W.A.C.*

SOUTHAMPTON CHRYSANTHEMUM: November 9 and 10.

As usual, the Victoria Skating Rink was the scene of the annual exhibition, of which Chrysanthemums form the chief part. An excellent exhibition it was, comprising a great variety of gardening productions. Trained plants of Chrysanthemums were very fine indeed, the groups of the plants were good, and cut blooms were staged in large numbers; in the winning stands the quality was first rate, when we consider that the weather has not been of the best for the best for the development and safe keeping of the expanded blooms, owing to the number of wet days recently experienced. Fruit was shown in capital condition—Apples, Pears, and Grapes; while vegetables were, as they always are, of the highest merit. At shows of this Society we always expect to see the same excellent arrangements, the committee, with Captain Gibbs as chairman, and Mr. Fudge as secretary, having regulated everything so well that the meeting passed off without hitch of any kind.

PLANTS IN POTS.

For the best collection of Chrysanthemums arranged in a space 8 feet by 5 feet Mr. Allen, gr. to J. Bailey, Esq., Elmfield Hill, Southampton, was 1st; his plant, dwarf, with good flowers of both Japanese and incurved varieties.

For the best six plants, incurved or reflexed, Mr. W. Joy, nurseryman, Shirley, Southampton, was an easy 1st; his plants were large, evenly trained, and freely flowered. Mr. Wills was 2d, with good plants, although smaller in size.

Mr. Joy also supplied the best six specimens of Japanese, with plants 5 to 6 feet in diameter, each one carrying about 1500 stems of good quality—Bouquet Fair and Peter the Great were the best.

With single specimens of both Japanese and incurved, the same places were occupied by these two exhibitors, the former staging a grand plant of Lady Selborne, while Mr. Wills relied upon Hiver Fleur, which was in capital condition.

CUT BLOOMS.

The principal class was that for sixteen incurved or reflexed and eight Japanese. This brought six competitors into the field. Mr. Wills was 1st, with a large, solid, and of neat finish, while the Japanese were full and fresh, the best of these being Madame C. Audiguier, Maiden's Blush, and Madame Laing. The best among the incurved was Golden Empress, Queen of England, Jeanne d'Arc, and Princess of Wales, very fine; Mr. Wills was 2d with an even clean lot, not quite so weighty as the others. His best were Barbara, Val d'Andorre, and M. Bamel.

For twenty-four blooms, not less than eighteen varieties, Mr. J. Allen was 1st, with large blooms, some of them a trifle too coarse—J. Delaux, Japonaise, Lord Alcester, and Queen of England as the best.

Mr. Wills repeated his previous success by taking 1st prize for twelve incurved blooms with varieties similar in character and quality to those in his leading stand.

Mr. Ward, Longford Castle, turned the tables on his former opponents by taking 1st for twelve Japanese varieties, with great solid flowers, Triomphe de la Rue Châtelais and Val d'Andorre being the best.

Anemone-flowered varieties were capitally staged by Mr. C. Penford, gr. to Sir F. Fitzwigram, Leigh Park, Havant, who won the 1st prize, his best being Empress, Lady Margaret, and M. Bertha Pigoy.

Mr. Allen was the winner in the class for reflexed flowers, twelve in eight varieties; his stand contained many excellent blooms.

Mr. Neville staged the best pompons, which were well deserving of the award.

Mr. Carter, St. Denys, took the 1st prize among the amateurs with good specimens.

MISCELLANEOUS PLANTS.

Mr. Osborne, gr. to J. Buchan, Esq., Wilton House, Southampton, gained the 1st prize for a collection of Orchids, staging a neat group of admirably grown plants, the best of which were Dendrobium formosum, Oncidium divaricatum, Cattleya maxima, and Calanthes of various species; Mr. Molyneux, Swannore Park, Bishop's Waltham, had the best nine table plants, Mr. J. Reynolds exhibited the best collection of Primulas, and Mr. Budd the best Cyclamens.

FRUIT.

For three distinct varieties of Grapes, one bunch of each, Mr. T. Hall, gr. to Captain Davidson, South Stoneham House, Southampton, was 1st for Alicante, large in bunch, berry, colour quite 1st-rate; Black Barbarossa, good bunch, the berries small, but of capital finish; the other bunch was one of Muscat of Alexandria, plummy, and of good quality. Mr. Molyneux followed closely, his bunch of Barbarossa, weighing from 5 to 6 lb., large in berry, and fine in colour, was all that could be desired; the Black Alicante was of good shape and finish, while that of Trebbiano was likewise fine in every point. 3d place was occupied by Mr. C. Warden, gr. to Sir F. Bathurst, Clarendon Park, Salisbury, who staged good bunches of Muscat of Alexandria, Gros Colmar, and Black Alicante.

For three bunches of Black Grapes, Mr. Molyneux was distinctly ahead with Barbarossa, each weighing from 5 to 6 lb., large in berry, and thoroughly coloured; Mr. Hall followed with Alicante, large in bunch, finely coloured, but the berries were rather small; 3d, Mr. Ward, with Mrs. Pince.

The best three bunches of white Grapes were staged by Mr. Chalk, gr. to G. Read, Esq., Westwood, Weymouth Road, Salisbury. A very good display of both every respect, as were also the bunches of Muscat of Alexandria which he put up.

For two bunches of black Grapes, Mr. Penford supplied the best, fine examples of Alicante; 2d, Mr. C. Warden, very fine in quality, although smaller than the preceding. The heaviest bunch was Barbarossa, 8 lb., belonging to Mr. Ward; while Mr. Molyneux ran this very close with the same variety, only 1 oz. less in weight.

Mr. Wildsmith staged the best Pine, a fairly good specimen.

Mr. Sanders was an easy 1st for four dishes of Pears with extremely large specimens—Palmiston Duchess, General Todleben, and Uvedale's St. Germain.

LAMBETH AMATEUR CHRYSANTHEMUM: November 8, 9, and 10.

THIS prosperous Society held its twelfth exhibition on the above date, at the Bridge House Hotel, London Bridge, S.E. A very good display of both blooms and plants was made, and especially so when it is remembered that the exhibits must be grown within a radius of 1½ mile from the "Elephant and Castle," Newington. Among the cut blooms the Japanese varieties were best shown, though the incurved forms were not far behind in merit.

PLANTS IN POTS.

There were three large groups (80 square feet) of Chrysanthemums in pots, the finest being that of Mr. J. A. Howett. The incurved varieties, which were most numerous, were well shown, the large even blooms being such as might well be staged at more pretentious shows. Mr. Dixon, Mr. Rundle, and George Glenny, were especially noticeable. Mr. Haddon's group was 2d, with large numbers of well-flowered Japanese varieties.

Mr. Williams received the 1st prize in the class for six standards; the plants were nicely trained and well flowered. This lot also received the Silver Cup offered for the best six trained plants in the show. He was also 1st with three dissimilar standard plants.

Standard pompons were well shown by Mr. H. Ellis; the flowers here were very beautiful and clear; a very close 2d was Mr. Davison, while the best untrained specimens were from Mr. J. A. Howett; his plants were massive, with good bright flowers. The dwarf pompons of Mr. H. Ellis, who was awarded the 1st prize for them, were very good plants, of fine size.

A nicely arranged group of well grown plants was that of Mr. Wibley. This was not for competition, and comprised, amongst others, good plants of various Palms, Dracenas, &c., and a few Chrysanthemums, which added to its elegance.

CUT FLOWERS.

The Japanese forms, as previously stated, were the best. In the class for twelve blooms, dissimilar, Mr. T. Childs was awarded the premier award; he had very fine blooms of *Grandiflorum*, *Gloriosum*, *La Triomphe*, *Madame C. Audigier*, and *Fair Maid* of Guernsey: the whole lot were very fine and fully deserved the award. Mr. H. Ellis was a close 2d. The Cossack, Le Chinois, and Val d'Andorre being the finest forms.

For twelve incurved there was a good competition the premier award going to Mr. Haddon for a creditable collection, the best varieties were Prince Alfred, Nil Desperandum, Golden Beverly, White ditto, and Guernsey Nugget. Mr. J. A. Howett was a close 2d with smaller flowers.

The first twelve Anemone-flowered *Chrysanthemums* were from Mr. Clarke; all were finely grown and clean—*Fleur de Marie*, *Glück*, *Acquisition*, being very fine. The chief prizes in other classes were also taken by the above-named exhibitors.

WILTS HORTICULTURAL SOCIETY'S
CHRYSANthemum SHOW:

November 11 and 12.

As the result of letters written to the Salisbury papers by Dr. F. W. Coates and a gardener in the neighbourhood a few weeks ago, a successful exhibition of *Chrysanthemums* and fruit was held in the Council Chamber, Salisbury, on the above dates, and notwithstanding the unfavourable weather, was well attended.

Messrs. Keynes & Williams, of the Castle Street Nurseries, made a fine display of fresh, well flowered plants of *Chrysanthemums* in the entrance hall, in which two well grown specimens of *Araucaria excelsa*, staged by the same firm, were very effective. Messrs. Brittain & Son, of the Waterloo Nursery, Salisbury, had two good and effectively arranged groups of *Chrysanthemums* in the banquetting-room, but, like Messrs. Keynes, Williams & Co.'s collection, not for competition.

GROUPS.

There were two classes provided for these in the schedule—one to consist chiefly of *Chrysanthemums* in pots, and the other group to be composed of miscellaneous plants, and these (eleven in all) were admirably arranged. In the former class Dr. F. W. Coates was 1st, with a very good arrangement of well grown plants, the flowers of which were large, fresh, and substantial.

Mr. E. L. Brown, Portland Place, Salisbury, had the best group of miscellaneous plants; Mr. John Curry, gr. to Colonel Pepper, Elm Grove, Salisbury, was 2d: this group would have been better had there been fewer plants in it.

CUT BLOOMS.

Seven classes were provided for these in the schedule, and, though the competition was not keen, many beautiful blooms were shown, including several stands of winners from the Southampton show.

In the class for twenty-four blooms Mr. H. W. Ward, gr. to the Right Hon. the Earl of Radnor, Longford Castle, Salisbury, was 1st with a good even fresh lot of blooms of fine kinds; Dr. C. Warden, gr. to Sir F. H. Bathurst, Bart., Clarendon Park, Salisbury, was a good 2d, the kinds chosen being similar to those in the winning stand.

Mr. Ward was 1st in the two incurved blooms, as he also was for six blooms incurved. Mr. Ward was again 1st with a good stand of twelve Japanese of the most approved varieties. Mr. Ward had the best six blooms of Japanese, and Mr. G. Marlow the second best. Mr. Ward was also 1st for six blooms of reflexed, and for six Anemone-flowered blooms, showing good all-round blooms in the seven classes.

FRUIT.

This was shown in the grand jury room. Mr. Ward was the only exhibitor of a collection of six kinds of fruit, and he was awarded 1st prize for a good even lot, consisting of Queen Pine, Muscat of Alexandria, and Mrs. Pince's Black Muscat Grapes, a highly-coloured and nicely netted fruit of Longford Perfection Melon, Cox's Pomona Apple, and Chaumontel Pear.

Grapes.—Mr. Warden was 1st out of three competitors for two bunches of Black Alicante, showing compact, well-finished bunches.

Mr. E. L. Brown was 1st for any other black variety, with good examples of Gros Colmar; Mr. Ward being 2d, with Gros Guillaume.

Out of three lots of Muscat of Alexandria Mr. Warden was a good 1st.

Mr. Ward was a good 1st for any other white than Muscat of Alexandria, with two fine bunches of Trebbiana.

The last-named exhibitor staged (not for competition) several large bunches of Mrs. Pince's Muscat of

Alexandria, and Gros Guillaume Grapes, including one of the latter over 8 lb., together with several dishes of Apples, Pears, &c.

Mr. Warden staged (also not for competition) four creditable bunches of Grapes, including Muscats, Gros Colmar, and Black Alicantes; and Mr. William Marlow showed a good Orange tree heavily laden with golden fruit.

Apples and Pears were shown well, both dessert and culinary kinds, the prizes going to local exhibitors.

Tastefully arranged bouquets of various patterns were shown in numbers, and elicited much admiration.

EDINBURGH BOTANICAL: November 11.

THE Society met this evening at 5, St. Andrew Square, Professor Dickson, President, in the chair.

During private business Miss E. A. Ormerod, Dunster Lodge, Isleworth; and Miss C. Owen, Knockmullen, Gorey, Ireland, were elected Associates.

The following office-bearers were elected for the session 1886-87:—

President: Professor Dickson, M.D., LL.D., F.R.S.E.

Vice-Presidents: Alex. Buchan, M.A. F.R.S.E.; Hugh Cleghorn, M.D., LL.D., F.R.S.E.; Robert Lindsay, Rev. John Macmurtrie, M.A.

Councillors: Symington Grieve, Andrew Taylor, F.C.S.; William Sanderson, Rev. J. M. Robertson, M.A.; William Watson, M.D.; Robert Gray, F.R.S.E.; William Craig, M.D., F.R.S.E.; F.R.C.S.E.; William B. Boyd, of Faldonside; Thomas A. G. Balfour, M.D., F.R.S.E., F.R.C.P.E.; Malcolm Dunn, Dalkeith Palace Gardens.

Honorary Secretary: Professor Sir Douglas MacLagan, M.D., LL.D.

Honorary Curator: the Professor of Botany.

Foreign Secretary: Andrew P. Aitken, M.A., D.Sc., F.R.S.E.

Treasurer: Patrick Neil Fraser.

Assistant-Secretary: John M. Macfarlane, D.Sc., F.R.S.E.

The following communications were read:—

1. "Notes on Three Rare Welsh Plants" illustrated by specimens. By A. D. Webster, Llandelaph, Penryn.

The plants in question were *Lloydia serotina* (Reichb.), *Cotoneaster vulgaris*, and *Potamogeton Griffithii*.

2. "On Australian and New Zealand Plants growing in Arran, with supplement in regard to West of Scotland." By Rev. P. Landsborough, Kilmarlock.

3. "On a supposed New British Sagina." By Dr. F. Buchanan White. This plant was brought from Braemar in 1878 by Mr. Boyd, of Faldonside; it is distinct from *S. procumbens*. The author proposed to name it *S. Boydii*.

4. "Record of the Occurrence of *Trichomanes radicans* in Arran." By W. B. Simson, Dundee. Mr. Simson gave in detail the narrative of his discovery of this Fern, along with R. Douglas, the postal runner betwixt Lamblash and Corrie, in 1863. The discovery was claimed in the newspapers for other parties, and the dispute was mentioned in these columns (*Gardeners' Chronicle*, March 5, 1864, p. 220), when it was stated that there could be no doubt that Mr. Simson's locality was an authentic natural habitat, if it had not been planted by Douglas. The Society came clearly to the opinion that such had not been the case.

Dr. Paterson, Bridge of Allan, sent for exhibition a plant of *Dryas raniflora*.

Mr. Simson, Dundee, exhibited a large plant of *Trichomanes radicans*, which had grown from a small rhizome originally found by him in Arran in 1863.

Mr. Lindsay exhibited a large number of flowers from the open air, including Dahlias, Geraniums, Lobelias, Calceolarias, *Senecio speciosus*, *Aponogeon*, &c. He also exhibited from the garden a plant of *Eucalyptus Gunnii*, raised from seed ripened at Whittingham, East Lothian, last year, and the new *Sagina Boydii*.

Several of the papers read at the meeting, for which we are unable to find space this week, will appear in a subsequent issue.

CHRYSANthemum SHOW AT
LEWISHAM.

THE Lewisham District Floral Society having brought their summer exhibition to a successful issue, made bold to hold an autumn *Chrysanthemum* show also. This was held on the 12th and 13th inst.

at the Ladywell Public Baths, and proved a very decided success. Exhibits were numerous and extremely good; the competition, generally keen in all classes, especially in that for forty-eight blooms.

Miscellaneous exhibits included a very fine group

of large dimensions from Messrs. John Laing & Co., Forest Hill, this being much the finest group exhibited by them this season. Mr. H. J. Jones, Hope Nurseries, Lewisham, also staged a very fine group, equal in size to the above; the two groups together, placed side by side in front of the stage—which also was liberally decorated with large Palms from the Stanstead Nursery—giving a charming effect to the whole. Messrs. Cannell & Sons, Swanley, sent bright masses of zonal Pelargoniums, *Chrysanthemums*, &c.; Messrs. Carter & Son, Holborn, collections of flowering, berried plants, &c.; Messrs. Buoyard & Son, Maidstone, an exceptionally fine collection of Apples; Mr. Luders a dozen dishes of fine dessert Pears, &c.—these with the competitive exhibits together filling two large rooms.

POT PLANTS.

These consisted of groups of *Chrysanthemums* arranged in a space of not more than 50 square feet. There were five competitors, Mr. W. E. Jupp, Brockley, being 1st.

A similar class for gentlemen's gardeners only, found F. W. Prior, Esq., Blackheath, and J. Soame, Esq., J.P., respectively 1st and 2d.

Minor classes for specimen plants were well represented, Mr. W. Smith, Catford, Mr. L. Luders, and Mr. J. W. Upton, being each 1st in the three leading classes; and the best group of miscellaneous plants (not *Chrysanthemums*), an effective arrangement, were shown by Mr. C. Nunn, gr. to J. Soames, Esq., Greenwich Park.

CUT FLOWERS.

For forty-eight blooms, twenty-four Japanese and twenty-four incurved, Mr. Moore, Blendon Hall, Bexley, was 1st, having amongst others very fine blooms of John Salter, Thunberg, Flambeau, &c. Mr. Bettsworth, gr. to R. Ewing, Esq., Burton Grange, Chesham, was a good 2d, showing Comte de Gerniny, Golden Salter, Lord Wolsley, and Princess Imperial, in rare form.

Classes for twelve Japanese, distinct, and twelve incurved, distinct, with a minor one or two besides, proved Mr. H. Shoesmith, gr. to the Rev. Canon Hodgson, Hythe, 1st in each, a grand bloom of Jeanne Delaux appearing amongst the former.

Twelve Japanese or large flowered Anemones (class 26), were well staged by Mr. J. Hudd, gr. to F. W. Prior, Esq., Blackheath Park, who took 1st prize. Mr. C. Nunn was a good 2d with finely formed blooms.

In the two classes for twelve incurved and six incurved, Mr. J. W. Banner, Brockley, won both 1st prizes; Mr. J. W. Upton taking 2d in the former class, having also therein the finest bloom in the show amongst amateur exhibitors.

Mr. J. J. Hillier was 1st with twelve blooms incurved and six blooms Japanese Anemones.

Mr. C. Lambert was 1st for twelve blooms, incurved, in the amateur members' classes, Mr. T. Wickham Jones being the fortunate winner of 1st prizes for twelve Japanese, six Japanese (one variety); Mr. Henry Dike, Limes Grove, proving a very fine 2d in the third class.

Mr. F. T. Shipley was 1st for six incurved flowers.

TABLE DECORATIONS AND HAND BOUQUETS.

For the former, an arrangement upon a table, 6 feet by 4 feet, Mrs. Jupp was 1st; Miss Edith Brooks, Eltham, 2d; and Mrs. Berry 3d.

The hand bouquets were extremely good, especially as they consisted of *Chrysanthemum* flowers only. The judges ultimately awarded 1st prize to Mr. H. J. Jones.

One of the best features in the show was the display made in the competition for the best basket of *Chrysanthemums*; here Mrs. T. Wickham Jones distanced all competitors, winning 1st prize with a chaste arrangement made up of a few fine blooms only of purple-bronze and yellow coloured blooms. *W. E.*

READING CHRYSANthemum: Nov. 12.

THIS is a distinct organisation from the Reading Horticultural Society. It was the third annual exhibition, and the success of it is mainly due to Mr. Richard D. Catchpool, the Hon. Sec., who works very hard to this end. The exhibition took place, as usual, in the old building, and both Town and Halls were called into requisition. The exhibition was a large and distinctly good one, plants and flowers alike being very fine indeed, while fruit was well represented. Mr. Catchpool had distributed about the old Town Hall a number of cage birds, and they sang very sweetly during the afternoon, having the hall to themselves, as the band was in the new building. The arrangement of the exhibit was carried out by Mr. J. Turnton, The Gardens, Maiden Elreigh.

PLANTS.

In the class for a collection of plants arranged for effect Mr. Baskett, gr. to W. J. Palmer, Esq.,

Reading, was 1st with an excellent lot of plants of natural growth admirably arranged, the blossoms of capital quality.

The best six specimens, Japanese excluded, came from Mr. R. Booker, gr. to R. Tomkins, Esq., Reading, who had well grown and flowered specimens.

Mr. Surman, gr. to C. H. Witherington, Esq., Sonning, had the best three specimens.

Mr. Surman had the best six Japanese varieties, staging remarkably well grown and flowered plants of La Nymphe, La Charmeuse, Lady Selborne, Bronze Dragon, Peter the Great, and Elaine; 2d, Mr. Farey, with good specimens of Peter the Great, James Salter, Lady Selborne, Red Dragon, Hiver Fleur, and La Charmeuse.

Mr. Franklin had the best three specimens, having admirable plants of James Salter, Elaine, and Peter the Great; 2d, Mr. Armitage, with Elaine, Peter the Great, and Mons. Delaux.

Standard plants were well grown and flowered, but tied down much too close. Mr. Booker had the best three. Mr. Armitage had the best standard specimen.

Pompon varieties were shown in good specimens also, though there was no entry in the class for six plants.

Mr. Surman had the best three, having well grown and flowered plants.

The best standard pompon was Mdle. Marthe, a charming plant, naturally grown and finely bloomed, from Mr. W. T. Abrey, nurseryman, Tinehurst.

CUT FLOWERS (INCURRED).

The cut flowers throughout were remarkably good, and the incurred varieties were a decided advance upon anything we had previously seen at Reading.

Messrs. W. & G. Drover, nurserymen, Fareham, were 1st with a very fine lot of the leading kinds. 2d, Mr. W. Wildsmith, gr. to Lord Eversley, Heckfield Place, who was very close up with some remarkably good blooms, amongst them a variety, Lord Eversley, a charming white sport from Princess of Teck, and as Mr. Wildsmith exhibited four other blooms of it, it was awarded a First-class Certificate of Merit. It is a flower of excellent build, and of the best quality.

The best twelve blooms came from Mr. W. R. Strong, Wellington College, who had very fine examples of Princess of Wales, Lord Wolsley, Golden Empress, and Mr. Brunelles; 2d, Mr. Trinder, gr. to Sir H. Mildmay, Bart., Dogmersfield Park, Winchester, with a very good lot indeed.

As there were six eighteens and two twelves, the competition was very keen indeed. There were five lots of six incurred blooms, the best coming from Mr. Jennings, gr. to J. T. Freeman, Esq., Farnborough.

REFLEXED VARIETIES.

These were numerous and very freely shown; there were eight stands of twelve blooms, and Mr. W. Wildsmith was 1st, with the very finest lot we have seen this season, large, solid, and well coloured; 2d, P. Southby, Esq., Bampton, Oxon (Mr. Neal, gr.), also with fine blooms.

JAPANESE CHRYSANTHEMUMS.

These, as might have been expected, were very numerous, wonderfully effective, large, and of the best quality. How extensively they are being grown was shown by the fact that ten stands competed in the class for that number of varieties. Mr. Baskett, gr. to W. J. Palmer, Esq., Reading, was 1st, with a very fine lot.

Mr. J. Freeman, Farnborough, had the best six varieties, staging a half-dozen very fine blooms in a class where there were ten competitors.

ANEMONE FLOWERED.

Mr. Kendall, gr. to W. S. Holland, Esq., Rotherhampton, had the best twelve Anemone-flowered varieties, setting up fine blooms of the choicest.

POMPON VARIETIES.

Mr. Wildsmith had the best six bunches of these, staging large and well flowered trusses of Adèle Fresette, Mdle. Marthe, Lizzie Holmes, Marguerite de Coy, Mr. Astic, and G. Nachel. 2d, Mr. Holland, with single blooms, disbudded to produce size.

One very interesting class was for twelve large-flowered Chrysanthemums, in eight varieties, shown as grown; and in this case they were set up on stems with 6 inches or so of foliage—a good way in which to exhibit blooms. Here Mr. Wildsmith was again 1st with fine blooms of Princess of Wales, Jardin des Plantes, Jeanne d'Arc—incurred varieties, mostly in duplicate, and the following Japanese:—Maiden's Blush, Mad. C. Audiguer, Mignon, Japonaise, l'Adorable, and Cullingfordi; 2d, Mr. Baskett, all being Japanese varieties.

Mr. Phippen, nurseryman, Reading, had the best bouquet of Chrysanthemums, Mr. Howe, gr. to J. O. Taylor, Esq., Reading, had the best vase of Chrysanthemums; the best stand of cut flowers and foliage

came from Messrs. Phillips. Messrs. Phillips also had the best stand of autumn leaves, flowers, and berries. These were admirably arranged.

MISCELLANEOUS PLANTS.

Prizes were offered for plants for table decoration, for berried plants, the berried Phytolacca and Solanum being prominent; for Chinese Primulas, Poinsettias, Bouvardias, Violets, Epiphyllums, &c.—all of which might be dispensed with, and the money given to the classes for Chrysanthemums, in which there is a large and close competition.

The best stand of six "Last Rose of Summer," came from Mr. J. Tranter, Henley-on-Thames, very good indeed for the season of the year.

FRUIT.

There was a good representation of fruit, though Grapes were not so good as in former years.

The best two bunches of Black Alicante came from Mr. Bowerman, gr. to C. Hoare, Esq., Hackwood Park, Basingstoke.

Mr. Moore, gr. to Mrs. Hay, Braywick, Maidenhead, had the best two bunches of Gros Colmar.

The best two bunches of any other black kind were Cooper's Black, from Mr. Wills, gr. to R. Ravenhill, Esq., Winkfield.

Mr. Pope, The Gardens, Highclere Castle, had the best two bunches of White Muscat.

In the class for two bunches of any other white kind, Mr. Turton, Maiden Eleigh, was 1st with Trebbiano.

Mr. Howe had the best collection of six dishes of ripe English dessert fruit.

Mr. Turton had the best six dishes of dessert, and also of culinary Apples.

Mr. Trinder had the best four dishes of Pears. Despite the wet weather, the show was remarkably well attended.

WATFORD CHRYSANTHEMUM:

November 16 and 17.

This first show of this Society, which was held in the Agricultural Hall, Watford, on the above named dates, promises well for the future.

GROUPS

were the great feature here, occupying, indeed, the whole of the ground floor of the building, and many were comprised of plants of first-class quality. The competition in the leading group classes was very keen, and the successful competitors generally deserved the recognition received.

In this section the leading class (open) was for a group to occupy a space of not more than 50 square feet. There was a good competition between the seven groups shown, in which the highest award was taken by Mr. J. Fitt, gr. to the Earl of Essex, Casiobury Park, Watford, for a tastefully arranged group of excellent quality, the plants well grown and strong, Japanese varieties greatly preponderating. A few pompons were judiciously placed along the front. Mr. W. Cox, gr. to W. Thompson, Esq., The Warren, Bushey Heath, received the 2d prize for a group of smaller plants very effectively arranged. 3d, Mr. T. Waller, gr. to H. G. Stephens, Esq., Finchley.

In the class for groups of miscellaneous plants there was also an extensive and keen competition. Mr. E. Beckett, gr. to H. H. Gibbs, Esq., Aldenham House, was the leader here, and took the 1st prize with a group containing many plants of excellent quality, Palas, Crotons, and Ferns being the chief foliage plants, whilst colour and grace were given by various Orchids, Bouvardias, Primulas, Chrysanthemums (which were very fine), and Anthuriums; Mr. J. Duismore, gr. to T. J. Blackwell, Esq., The Cedars, Harrow Weald, was 2d, his group containing more flowering plants than the former; Calanthes were the most prominent, forming the groundwork, which was consequently very bare. The 3d place was given to Mr. Condie, gr. to S. J. Blackwell, Esq., Harrow Weald, for a compact group of tasteful arrangement, and containing Eucharis and Chrysanthemums, and the usual foliage plants.

For a group of 50 feet (members only) Mr. J. Fitt was again 1st, the grouping being similar to that in the open class; the 2d was from Mr. J. G. Barnes, gr. to C. R. Humbert, Esq. (the secretary), Dell Field, Watford, for a group of plants of fair quality, which, however, were too much drawn.

The best group in a space of 25 square feet was shown by Mr. C. Chipp, gr. to Mrs. H. Manning, North End House, Watford. The group was circular, and the consequent difficulty of arrangement well surmounted. The plants themselves were of good quality. Mr. J. G. Barnes was 2d with dwafier plants.

The 1st prize for a specimen plant from a member was awarded to Mr. C. Chipp, the variety shown being Madame Rendler; the 2d prize going to Mr. J. G. Barnes for a better grown plant, with clear and bright blooms.

Three specimen plants, open, were best shown by Mr. Henry Petty, Denmark Street, Watford—Ethel, Mrs. Dixon, and Christine being the varieties. They were all good plants, trained well, and evenly flowered. Mr. G. P. Darby, High Street, Watford, was 2d, with plants of medium quality.

Plants for table decoration were shown, prizes being taken by the above-named exhibitors.

CUT BLOOMS

were not very numerous, but on the whole well shown, especially in the Japanese classes, where some very fine blossoms were shown.

Mr. E. Beckett had the best twenty-four incurred, staging a collection of fair quality blooms, among which Lord Alcester, Queen of England, Empress of India, Venus, Golden Empress, Barbara, and Nil Desperandum were the finest. Mr. G. Beard, gr. to C. J. Hegon, Esq., Bucknalls, Watford, took the 2d prize with rather irregular blooms, Golden Empress, Prince Alfred, and Novelty, being especially fine. Mr. C. Brown, gr. to R. Renty, Esq., Langley House, Abbots Langley, was 2d, showing fine blooms of the same varieties as Mr. Beckett.

In the open class for twenty-four incurred better blooms were shown throughout, Mr. E. Beckett again securing the premier award with almost the same varieties. Mr. J. C. Mundell, gr. to Lord Ebury, was 3d, with a stand of smaller but well finished blooms.

Mr. E. Beckett also staged the best six incurred (one variety), showing in fine form Princess of Wales; Mr. Rumbold, gr. to G. Lake, Esq., Bushey, followed with Empress of India, also good.

Forty-two Japanese, Mr. Beckett staged a very good lot of large and clean flowers, and justly received the highest award; especially fine blooms were shown of Madame J. Laing, Sarnia, Madame C. Audiguer, Boule d'Or, Marguerite Marroux, Dormillon, and Val d'Andorre. The next collection in order of merit was from Mr. Condie; this was also a good lot, and followed closely on the 1st prize; Roseum pictum, Mons. Hubert, Bronze Dragon, and Grandiflora were the finest blooms.

The finest show of Japanese blooms, however, was in the open class for twenty-four varieties, and here Mr. Beckett distinguished himself once again with his former varieties; the 2d was taken by Mr. J. Fitt, with creditable samples of Grandiflora, Ethel, Falt Maid of Guernsey, Criterion, Peter the Great, and Japonais.

Mr. C. Brown staged the best twelve reflexed, having good samples of Cullingfordi, Peach Christine, and King of the Crimson. Mr. Mundell was awarded 2d for a good stand including Cullingfordi, Cloth of Gold, and Froge.

Anemone-flowered varieties were best shown by Mr. C. Brown, whose stand fully deserved the 1st prize, which was awarded (he was the sole exhibitor). His best were Lady Margaret and Empress. Mr. Beckett and Mr. Mundell were the successful exhibitors of pompons, and received prizes in the order of the names.

FRUITS AND VEGETABLES.

Grapes were well shown, some fine specimens being staged by Mr. Beckett, who carried off 1st prize with Black Alicante. Mr. J. C. Mundell and Mr. Fitt were 2d and 3d with good bunches of the same.

All the leading prizes in Apples, Pears, &c., were also taken by these exhibitors. Other prize winners were Messrs. Cox, Barton, Barnes, and Carnfield.

The finest collections of vegetables from a member were from Mr. Beckett, and Mr. R. Stevens, gr. to Howard Gillett, Esq., Abbots Langley—both showing well. Mr. H. L. Sell, Luton, showed best in the open class. Cottagers' collections were also extensively shown.

NON-COMPETING EXHIBITS

were rather numerous. Mr. J. Fry, gr. to Capt. Edwards, Watford Heath, exhibited a showing four very good fruits. Messrs. H. Lane & Son, Berkhamstead, staged a large representative collection of Apples, especially noticeable, in which was Lane's Prince Albert, and the popular varieties. This firm also had a good group of Chrysanthemums.

A group of miscellaneous plants was arranged in the centre of the hall by Mr. J. Myers, gr. to the Earl of Clarendon, Grove Park, Watford. This was a very elegant and attractive exhibit, and consisted of well grown stove and greenhouse plants.

LUTON HORTICULTURAL.

The third exhibition of this Society was held on Wednesday, November 17.

GROUPS.

The principal feature was the groups of Chrysanthemums arranged for effect. Two groups, both containing some good flowers, were awarded equal 1st, the exhibitors being Mr. E. Couper and Mr. J. J.

Kershaw. For six specimen plants, Mr. Kershaw was also 1st.

CUT BLOOMS.

These were only fairly represented, the Japanese being by far the best. For twelve incurved blooms Mr. Jarvis took 1st, and for twelve Japanese Mr. Kershaw received a similar award.

FRUIT.

Grapes were very poorly shown. Only one entry was made for a collection of fruit; this was awarded 2d prize, the 1st being withheld. Apples and Pears were better, but not of the usual quality.

VEGETABLES.

For a collection, Mr. Jones, Harpenden, was 1st with a good collection. Potatoes, Cauliflowers, Beets, Turnips, &c., were shown in great quantity, the competition being keen.

AMATEURS AND COTTAGERS.

These showed well all round, the prizes offered bringing many competitors, who showed very creditably in the various classes.

A novel feature in the show was prizes offered for a collection of hardy wild fruits and berries. The 1st prize was awarded to Master James Bloomfield, who showed a very nice collection, well put up, and named.

TRADE NOTICES.

CHANGE OF PROPRIETORSHIP.

MR. J. TRANTER, a well-known amateur cultivator of Roses, Dahlias, &c., at Upper Assenden, has become the lessee of the nursery at Henley-on-Thames formerly in the occupation of the late W. E. Jones, and will carry on the business of nurseryman and seedsman.

JUBILEE ONION.

The seedling Onion called Shedwick, exhibited by Mr. W. Finlay, gr. to the Earl of Sondes, which obtained the 1st prize at the Royal Horticultural Society's show, Oct. 27 last, the stock of which was purchased by Mr. H. Deverill, Royal Seed Stores, Banbury, has been named the Jubilee. It is a magnificent Onion, the result of a cross between the imported White Spanish and Brown Portugal. *H. Deverill.*

SKETCHES OF WINTER GARDENS, &c.

We are informed that Mr. F. A. Fawkes, London Road, Chelmsford, will shortly bring out a work containing photo-lithographed sketches of some thirty winter gardens, ranges of hothouses, and ornamental conservatories of various sizes and designs erected in different parts of the country.

HANDLING THE TOBACCO CROP.

It will be remembered that among the growers who have this season tried Tobacco as a field crop, Messrs. James Carter & Co., of High Holborn, tested seventeen distinct varieties on land not far from Lower Sydenham station on the South-Eastern Railway. Planted at too late a time, and encountering an unfavourable season of growth, the crop, on well-manured ground, produced very fine tall plants bearing an abundance of leaves, at the rate of one plant to a square yard. After the crop had been caught more than once by four degrees of frost, it was deemed unsafe to delay cutting; and, accordingly, the plants were cut short off close to the ground, threaded butt-end upwards upon sticks, and the sticks of pendent stalks with their drooping leaves carried to the farm premises, and hung upon light wooden framing, filling the barn up to the lofty ridge-tree, with the plants suitably exposed to currents of dry air, the green succulent leaves not being crowded close together. Here it was intended to make use at once of artificial heat, by means of a big brazier placed on the barn floor, in which wood (preferably dry faggots of Wych Elm) was to be the fuel, a cap being arranged over the brazier in order to divert to the floor and dash out of combustion any sparks which might be dangerous. But for some weeks the Tobacco had unavoidably to be left to take the chance of the air temperature, owing to a delay in effecting the fire insurance. On a portion of the crop the desirable yellow colour which is acquired by quicker artificial heating was

sacrificed; and the fire was got into action only just in time to stop the mould, which had begun to set in. Ultimately the burning wood came to the rescue of the experiment, the smoke was not found detrimental to the quality and flavour of the Tobacco, and the plants have become perfectly desiccated, beyond a gumminess or viscosity about the junctions of the leaf-stems and the central stalk; the colour is, for the most part, a rich golden brown, the texture fine, with a due toughness, and the skin of the leaves silky and glossy, the experts pronouncing the Tobacco leaves of admirable quality, the greater part for "fillers," but an ample proportion for "wrappers," so as to present the appearance which is valued in cigars made of well-grown Tobacco. The most approved varieties are Big Frederick, Florida, Yellow Pryor, Pennsylvania, Kentucky, Connecticut, and White Burley.

We witnessed on Friday, November 12, the process of preparing the dried plants for the market. There is no difficulty or particular nicety in the matter to require a careful training, as one might have supposed from the instructions which have been published by various authorities. One plant at a time is taken up, and as it is held the leaves are separated by stripping each leaf-stem or rib off from the fundamental stalk, and then another person picks up these separated leaves of one plant, places them together in a bunch, wraps a leaf round the thick ends, tucking one end of the leaf under, so as to hold the small bunch in what is called "a hand." Imperfect, torn, or green leaves called "lugs" are laid by themselves; and, like the "primings," or trimmings, or second shoots of the plants during growth, are kept for making an inferior kind of Tobacco. The central woody stalk, which is very short, is waste, but still the Excise regulations forbid its being utilised or merely thrown away. The stalks have to be burnt in presence of an Excise officer, but it is probable that a use could be found for them.

There appears no doubt that the Tobacco-growing experiment is a success all through as far as the practices of cultivation and preparation for the market are concerned. The "hands" of Tobacco in the stage which they have now reached may be preserved for any length of time in bulk; or they may be now forwarded any distance to a manufacturer, who will subject them to the necessary process of fermentation or curing for aroma and flavour. In their present state they are considered to be worth 6d. to 8d. per pound. Messrs. Carter's total crop of three-quarters of an acre is expected to weigh about 15 cwt., and if so, the market value must approach £42, or at the rate of £56 per acre. Of course this is outside any Excise duty. It is evident that Tobacco is not a difficult crop for a farmer to deal with, and it seems precisely adapted for small cultivators and their families to handle. But while the Excise authorities are giving facilities in minor matters, they have, at present, withheld any information as to any favourable or encouraging terms in conformity with which Tobacco may be grown next year by other than capitalist farmers and experimenters. It is desirable that the intentions of the Government should be made known without delay, as farmers who propose to undertake the culture of the profitable crop have to begin at once with preparation of the necessary quantity of land. *Times.*

The Weather.

LONDON: Atmospheric Pressure. — During the week ending November 13, the reading of the barometer at the level of the sea increased from 29.26 inches at the beginning of the week, to 29.78 inches by the morning of the 8th, decreased to 29.28 inches by 5 P.M. on the 9th, increased to 29.58 inches by the morning of the 12th, and was 29.48 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.51 inches, being 0.32 inch lower than last week, and 0.47 inch below the average of the week.

Temperature. — The highest temperature in the shade in the week was 48° on the 13th; the highest on the 9th was 45°. The mean of the seven high day temperatures was 46°.6.

The lowest in the week was 30° on the 8th; the lowest on the 12th was 38°.8. The mean of the seven low night temperatures was 36°.4.

The greatest range of temperature in one day was

16° on the 8th; the smallest was 8° on the 11th. The mean of the seven daily ranges was 10°.2.

The mean daily temperatures were 41°.4 on the 7th, 38°.2 on the 8th, 41°.5 on the 9th, 42°.8 on the 10th, 43°.2 on the 11th, 43°.2 on the 12th, and 43°.1 on the 13th. These were all below their averages with the exception of the 12th and 13th, which were 0°.3 and 3°.4 above, by 3°.3, 6°.1, 2°.4, and 0°.7 respectively.

The mean temperature of the week was 41°.9, being 7°.1 lower than last week, and 1°.7 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 95°.5 on the 8th. The mean of the seven readings was 62°.1.

Rain. — Rain fell on four days to the amount of 1.34 inch.

ENGLAND: Temperature. — During the week ending November 13, the highest temperatures were 54° at Truro, 51°.3 at Plymouth, and 51° at Leeds; the highest at Wolverhampton was 45°.7, at Bradford 47°.6, and at Blackheath and Sunderland 48°. The general mean was 49°.5.

The lowest in the week were at Wolverhampton, 26°.9, at Nottingham 29°, and at Truro, Blackheath, Sheffield, and Hull 30°; the lowest at Liverpool was 38°.7, and at Bradford and Preston 37°. The general mean was 32°.9.

The greatest ranges of temperature were at Truro 24°, and at Sheffield and Hull 20°; the least ranges were at Liverpool 10°, at Bradford 10°.6, and at Preston 12°. The general mean was 16°.6.

The mean of the seven high day temperatures was highest at Truro 52°, at Plymouth 49°.6, and at Newcastle 48°.5; and lowest at Wolverhampton 44°.3, at Bradford 45°.7, and at Preston 46°.1. The general mean was 47°.4.

The mean of the seven low night temperatures was highest at Liverpool, 40°.8, at Brighton, 39°.2, and at Preston, 39°; and was lowest at Hull 35°.4, at Wolverhampton, 35°.6, and at Sheffield, 36°.2. The general mean was 37°.8.

The mean daily range was greatest at Truro, 14°.8, at Hull 12°.4, and at Plymouth 12°.2; and least at Liverpool, 6°.1, at Bradford 6°.9, and at Preston 7°.1. The general mean was 9°.6.

The mean temperature was highest at Truro, 44°.1, at Liverpool 43°.4, and at Newcastle 43°.1; and lowest at Wolverhampton, 39°.4, at Sheffield 41°, and at Hull 41°.1. The general mean was 42°.1.

Rain. — The largest falls were 1.84 inch at Newcastle, 1.74 inch at Bristol, and 1.35 inch at Brighton; the smallest falls were 0.09 inch at Bradford, 0.17 inch at Leeds, and 0.23 inch at Preston. The general mean fall was 0.79 inch.

SCOTLAND: Temperature. — During the week ending November 13th, the highest temperature was 50°.3 at Perth; the highest at Greenock was 48°. The general mean was 49°.1.

The lowest temperature in the week was 33°.4 at Dundee; the lowest at Leith was 36°.5. The general mean was 34°.5.

The mean temperature was highest at Leith, 43°; and lowest at Dundee, 40°.7. The general mean was 42°.2.

Rain. — The largest fall was 1.35 inches at Greenock; the smallest fall was 0.33 inch at Perth. The general mean fall was 0.65 inch.

STATE OF THE WEATHER AT BLACKHEATH, LONDON FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 17, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRICAL DEDUCTIONS FROM CHAISELIER'S TABLES 5th Edition.		WIND.	RAINFALL.
	Mean Reading 30" Bar.	Dep. from 30" Bar. 18 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure from Mean for Day.	Dew Point.		
Nov. 11	29.32	-0.48	46.5	38.8	8.0	43.0	0.1	42.4	S.S.W.	0.71
12	29.36	-0.43	47.2	38.8	8.4	43.2	+0.3	41.7	S.W.	0.06
13	29.34	-0.46	48.0	38.5	9.5	43.1	+0.4	40.9	91	0.00
14	29.40	-0.37	51.5	41.1	10.4	46.3	+3.8	39.3	71	0.00
15	29.37	-0.39	54.0	41.2	12.8	48.6	+6.3	47.5	97	0.00
16	29.47	-0.28	48.5	46.0	2.5	46.7	+4.5	39.9	79	0.07
17	29.54	-0.40	53.0	39.2	13.8	47.0	+5.0	44.7	92	0.35
Mean	29.35	-0.41	48.8	40.7	9.1	45.5	+2.0	42.3	88	0.12

Nov. 11.—Wet and overcast all day.

- 12.—Fine, but light noon, occasional rain afterwards.
- 13.—Fine, but overcast and bright at night.
- 14.—Generally fine; a slight mist in the evening.
- 15.—Overcast; frequent showers.
- 16.—Rain in early morning, fine and bright afterwards.
- 17.—Generally overcast, with frequent rain.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, November 15, 1886, issued by the Meteorological Office, 116, Victoria Street, London, S.W. :—The weather has continued in a very dull, unsettled, and rainy condition over the whole kingdom.

The temperature has been above the mean in all districts, the excess being 1° or 2°. The highest of the maxima, which were generally recorded on the 15th, varied from 51° in "Scotland, N." and "England, N.E.," to 55° over the southern and western parts of England and in the south of Ireland, and to 57° in the "Channel Islands." The lowest of the minima, which were registered in most places on the 9th, ranged from 25° to 27° in Ireland, from 31° to 34° in Scotland, and from 31° to 35° over England; in the "Channel Islands" the minimum was no lower than 42°.

Rainfall has been rather less than the normal amount in "England, N.E.," "England, N.W.," "England, S.W.," and the "Channel Islands," but more in all other districts; in "England, E.," and "England, S.," the excess has been very considerable.

Bright Sunshine shows a very general decrease, the percentages of the possible amount of duration varying from 7 in "Scotland, E.," and 8 over central and southern England, to 23 in "England, N.E.," and 25 in "Ireland, S."

Depressions observed.—The distribution of barometric pressure has been rather irregular, and the movements of the depressions very erratic. During the greater part of the period the barometer was comparatively high, both over Spain and Scandinavia, while in the intervening regions (i.e., over the North Sea, the United Kingdom, and the Bay of Biscay) numerous small depressions have appeared. Some of these disturbances have travelled in a south-south-easterly direction over the more western parts of our islands, while others have moved in a north-north-westerly direction over the North Sea. At the close of the week the conditions were somewhat less complex, a depression which had travelled south-south-eastwards to the neighbourhood of Bristol, and afterwards east-north-eastwards was disappearing over the Baltic, while a rather deep disturbance had approached the north of Scotland from the Atlantic. The winds have been very variable in duration, and, with few exceptions, light or moderate in force, but towards the end of the period a south-westerly current had become general over our islands.

Enquiries.

"He that questioneth much shall learn much."—BACON.

ROSE OF SHARON.—Fifty years ago I knew a Rose under this name. What is it? Can it be had now? I do not find it in any Rose Catalogue. *Diss.*

Answers to Correspondents.

TO THE TRADE.—Members of the Trade will oblige by sending notes of matters of Trade interest, Cultural or Commercial. Short notes of daily experience are what are most useful.

A BOOK ON LAYING-OUT A GARDEN: *A Constant Reader. How to Lay-out a Garden*, by Ed. Kemp. London: Bradbury, Agnew, & Co., 11, Bouverie Street, E.C.

COLLETTIA CRUCIATA: *C. E.* We flowered this in the open on Middlesex clay for many years till the fatal winter of 1880 killed it. It is the same as *C. biconensis*, and moreover is only a form of *C. spinosa*. You will find the proof of this, accompanied by illustrations, in the *Gardeners' Chronicle* for 1878, vol. ix., p. 243.

FLOWERING EVERGREEN AND BERRIED PLANTS TO COVER A WALL: *E. W., Etham.* **Crataegus pyracantha*, **Fyrus japonica*, *P. alba*, *P. princeps*, and *P. Maulei*; *Eunonymus radicans*; *Bignonia radicans* and *B. capreolata*; *Ampelopsis Veitchii*; *Lonicera reticulata*, *ajacina*, and other species; **Hedera* of all kinds; *Escallonia macrantha*; **Berberis Darwini*

and *B. stenophylla*; *Amelanchier coccinea*; *Lardizabala biterata*; *Eritholobium Siphio*; *Clematis* of many varieties; **Pastiflora corulea*; *Banksia* and other Roses; *Canochus* in variety; *Jasminum officinale*, *J. revolutum*, &c. Those with an asterisk bear insects or fruits.

INSECTS: *Y. T.* The insect found on your *Iberis coraeolia* is a grasshopper (*Ephippiger* sp.), apparently *E. vitium*, found among vines in middle and south Europe. Evidently imported with plants from abroad. *I. O. W.*

FUNGUS: *G. P., York.* The fungus with the "stag's-born" character is *Clavaria fastigiata*; the red example is *Hypophorum coccineus*; the "columnar one," a "deformity," as you say—such deformities are common late in the season; the "small white one" we cannot see.—*F. S. K., Sevenoaks.* The name of the fungus growing in tufts under Holly, and which you apply compare with large yellow *Chrysanthemum* flowers strewn on the ground, is *Clavaria fusiformis*. It is not uncommon. *W. G. S.*

NAMES OF FRUITS: *J. Barclay.* Duchesse d'Angoulême.—*Weston Birt.* 1, Hoffer's Golden Reineette; 2, Fearn's Pippin.—*R. Tucker.* 1, Louise Bonne of Jersey; 2, Glou. Rogers.—*H. Rogers.* 1, *Alfred Pear*, not recognised.—*Gertrude Horner.* Apple: Fearn's Pippin; *J. W.* 1, Flemish Beauty; 2, Emille d'Heyst; 3, Swan's Egg; 5, Vicar of Winkfield; 6, Beurre Dubaume; 7, 12, Glou Moreau; 8, Catillac; 10, 15, Bergamote d'Espere; 16, Forelle; 17, Seckel; 18, Beurre Gris d'Hiver; others not recognised.—*G. B. H. Apple:* 2, Bedfordshire Foundling; 3, Cellini; 4, Hawthornden; 6, not recognised. *Pears:* 1, Beurre d'Aremberg; 5, Nakon.—*James Hopkins.* 1, Cox's Orange Pippin; 2, Flower of Kent; 3, Duchesse d'Angoulême; 4, Regenie.—*Received without letter; post-mark Troubridge.* Held attached with blue string: 5, Beurre d'Aremberg; 6, Knight's Monarch; 7, Marie Louise; 8, Easter Beurre; 9, Marechal de la Cour; 10, Brown Beurre; 12, Chaumontel; 13, Beurre Diel; 18, Napoleon; 21, Doyenne du Comice; 22, Beurre d'Aremberg; 24, Beurre Bachelier.—*A Subscriber.* 1, Van Mons' Léon le Clerc; 2, Hacon's Incomparable; 3, Knight's Monarch.—*W. Rarrant.* Passe Crassane.—*J. T. S.* 1, Winter Hawthornden; 2, not known. Your Pears are certainly undergoing a strange process of decay, which we are unable to account for at present.

NAMES OF PLANTS: *O. W. P.* *Bouvardia longiflora*; *Dracena marginata*. The piece of an Orchid is covered with a species of white scale.—*Redwood.* *Salvia aurea*. *T. W. R.* Numbers and specimens mixed. Large fruit and green leaves, *Crataegus punctata* variety; large brown leaves and small fruit is a form of *Crataegus coccinea*.—*C. D., Ryde.* *Umbellularia californica*.—*Southampton.* The specimen sent was insufficient for us to name.—*E. M. P.* *Abies Washingtoniana*, *A. B.* 1, *Adiantum Capillus-Veneris*; 2, *Adiantum formosum*; 3, same as No. 1; 4, *Cytisium caryocarpium*; 5, *Davallia Tyermani*; 6, *Davallia bullata*.—*C. D. M.* 1, *Pilea muscosa*; 2, we are unable to name the Rose from the specimen sent, please forward a bloom. The "Bridal" Rose we do not know, but it is probably an American species.

PRODUCE OF AN ACRE OF GROUND: *G. H. B.* That would depend on the mode of culture. If very good, and not much of it under Potato crops, a garden of that size can be made to supply a family of eight persons with almost every ordinary vegetable and fruit required for the kitchen and the dessert. It would be rendered easier if the area were surrounded with walls, or only partially so. We cannot say anything as to value of produce, as that would be ruled by the quantity and quality, lateness or earliness, &c.

STOVE PLANTS SHOWN AS GREENHOUSE PLANTS AT EXHIBITIONS: *Enquirer.* In the southern parts of Great Britain the former are commonly grown during the summer in a greenhouse, and the greenhouse plants out-of-doors, but as a rule stove plants go into the stove in the winter even there, and greenhouse plants are brought from the open air and placed in the greenhouse, so that, notwithstanding the summer treatment, each division is sufficiently marked by its mode of culture. We think judges should disqualify a group of greenhouse plants in which stove plants, so called, are found, and *vice versa*, i.e., the dubious *Cycas*, which rightly belongs to the stove, as it would be destroyed if kept as a true greenhouse plant in the winter.

VINE BORDERS: *C. M.* The border can be made at once, and the Vines replanted, as soon as it is finished. Do not let the roots suffer from drought or frost during the operation, and avoid throwing the soil together when it is very wet, or during heavy rain.

WINTER NELIS PEAK TURNING MEALY: *R. C. Lee, Sundridge, Kent.* *Kangra, E.I.* We should suppose your Pear becomes mealy and rots because the warmth is greater than it needs. The same failing is noticed in this country when Williams' Bon Chretien, jargonelle, and Louise Bonne of Jersey are planted against the wall with a south aspect. The report on the Pear Congress will appear, but at some date at present unknown.

CATALOGUES RECEIVED.

J. SMITH & SONS, Matlock, Derbyshire—Trees and Shrubs, Trade List.

DANIELS BROTHERS, Norwich—Floral Novelties.

P. L. LAIRD & SINCCLAIR, Dundee—Roses.

T. BUNYARD, Ashford, Kent—Fruit Trees (Special Offer).

R. H. VEREIGANS, Chad Valley, Birmingham—Trees, Melons, Pear Curiosity, Fruit Trees, Brambles.
THOS. KENNEDY & CO., 106 and 108, High Street, Dumfries, N.B.—Trees, &c.
IMRIE & CO., The Nurseries, Ayr, N.B.—Trees, &c. (General and Trade Catalogue).
W. SMITH & SONS, The Nurseries, Kintore, Aberdeen, N.B.—Roses and Trees, &c.
ANTHONY WATERER, Knapp Hill Nursery, Woking, Surrey—Nursery Stock of Trees, &c.
CLARK BROTHERS & CO., 65, Scotch Street, Carlisle—Trees, &c.
JOHN CRANSTON & CO., King's Acre, near Hereford—Roses.

W. P. LAIRD & SINCCLAIR, Dundee, N.B.—Trade List of Trees and Shrubs.

JAMES VEITCH & SONS, Royal Exotic Nursery, Chelsea, S.W.—Roses and Fruit Catalogues.

CHAS. & J. W. TOWNSEND, Fordham, near Soham, Cambridgeshire—Fruit and Forest Trees.

F. & A. DICKSON & SONS, Upton Nurseries, Chester—Forest and Ornamental Trees.

LITTLE & B., BALLANTYNE, Carlisle—Trees, Shrubs, Alpines, &c.

FREDERICK REMYER, Quedlinburg, Germany—Choice Flower Seeds.

V. DÜFFLE, Erfurt, Germany—Special Offer, Vegetable and Flower Seeds.

A. LÉTELIER & SON, Caen, Calvados, France—Fruit Trees, Roses, Conifers, Cider Apples (Wholesale List).

EUGÈNE VERDIER FILS AÎNÉ, 37, Rue Clisson (Gare d'Ivry), Paris—Gladioli, Roses, &c.

COMMUNICATIONS RECEIVED:—*Jas. Rackhouse*—*W. S. M.* Owen Thomas, Chatsworth—*J. V. W.* Aberdeen—*James Veitch & Sons*—*Baron E. von Tueller*, Melbourne—*C. Gaudin*, Antibes—*J. T. B.*—*Max Leichlin*, Baden-Baden—*E. G. A. M.*—*H. Cannell*—*Diss.*—*G. H.*—*E. G.*—*L. Kienast*—*N. E. B.*—*C. D.*—*P.* (too late for this issue).—*H. Harland*—*J. R.*—*J. H.*—*H. C.*—*J. F.*—*J. B.*—*W. S. C. B.*—*C. F. B.*—*A. R. L.*

DIED.—On November 15, at Wood's Hotel, Farnival's Inn, CHRISTOPHER EDMUND BROOME, of Elmhurst, near Bath, aged seventy-four.

Markets.

COVENT GARDEN, November 18.

PRICES OF Grapes still keep low, large quantities of late sorts being sent to market. St. Michael Pines to hand in heavy supply, considerably affecting home fruit. Business quiet. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	<i>s. d.</i>	<i>s. d.</i>		<i>s. d.</i>	<i>s. d.</i>
Apples, $\frac{1}{2}$ -sieve	..	1 6-3 6	Pears, per dozen	..	1 0-1
Grapes, per lb.	..	0 6-2 6	Pine-apples, Eng., lb.	1	6-2
Kent Cobs, 100 lb.	..	65 0-..	— St. Michael, each	1	6-6
Lemons, per case	..	12 0-21 0	Plums, $\frac{1}{2}$ -sieve	..	0 9-2

VEGETABLES.—AVERAGE RETAIL PRICES.

	<i>s. d.</i>	<i>s. d.</i>		<i>s. d.</i>	<i>s. d.</i>
Artichokes, per doz.	4	0-10	Mushrooms, punnet	1	6-2
Beans, Kidney, lb.	0	6-10	Mustard and Cress,		
Red, per dozen	1	0-2	punnet	0	4-0
Brussels Sprouts, lb.	0	4-6	Onions, per bushel	3	0-5
Carrots, per bunch	0	6-10	Parsley, dozen bunch	3	0-4
Cauliflowers, per doz.	3	0-5	Potatoes, per cwt.	4	0-5
Celery, per bundle	1	6-2	" " " "	4	0-5
Cucumbers, each	0	6-1	Shallots, per pound	0	3-0
Endive, per dozen	2	0-2	Spinach, per bushel	5	0-10
Herbs, per bunch	0	4-0	Tomatoes, per lb.	1	0-1
Leeks, per bunch	0	3-10	Turnips, bunch	0	4-0

POTATOES.—Kent Regents, 8s. to 10s.; Schoolmasters, 7s.; Beauty of Hebron, 6s.; Magnum, 6s. to 8s. per ton.

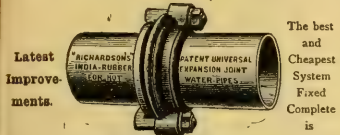
PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	<i>s. d.</i>	<i>s. d.</i>	
Aralia Sieboldi, doz.	6 0-18 0	Evergreens, in var.,	
Begonias, per dozen	6 0-12 0	per dozen	0 6-2 0
Bouvardias, doz.	0 0-10 0	Ficus elastica each.	1 6-7 0
Chrysanth., per doz.	4 0-18 0	Ferns, in var., dozen	4 0-18 0
Cyperus, per dozen.	4 0-12 0	Foliage Plants, var-	
Dracena terminalis,		ious, each	0 20-1 0
per dozen	30 0-6 0	Marguerite Daisy,	
— viridis, per doz.	12 0-24 0	per dozen	0 6-10 0
Epiphyllum, dozen.	18 0-30 0	Mignonette, per doz.	4 0-6 0
Erica gracilis, doz.	0 10-12 0	Myrtles, per dozen	6 0-12 0
— hymenalis, doz.	18 0-24 0	Palms, in var., each	2 6-31 0
— reginae, doz.	8 0-12 0	Pelargoniums, scar-	
various, dozen.	9 0-24 0	let, per doz.	3 0-6 0
Eunonymus, in var.,		Primula sinensis, doz.	4 0-6 0
per dozen	6 0-18 0	Solanums, per dozen	0 12-0 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	<i>s. d.</i>	<i>s. d.</i>	
Arum Lilies, 12 blms.	4 0-6 0	Mignonette, 12 bun.	1 0-3 0
Azaleas, 12 sprays	0 6-10 0	Pelargoniums, per 12	0 10-1 0
Bouvardias, per bun.	0 6-10 0	trusses	0 10-1 0
Camellias, 12 blms.	3 0-5 0	— scarlet, 12 trusses	0 9-1 0
Carnations, 12 blms.	1 0-3 0	Primulas, single, 12	0 4-0 6
Chrysanth., 12 blms.	0 4-1 6	bunches	0 4-0 6
" " "	1 0-4 0	Pyrethrums, 12 bun.	2 0-4 0
Eucharis, per dozen	4 0-6 0	Roses, 12, per doz.	1 0-1 0
Geraniums, 12 blooms	3 0-5 0	— red, per dozen	1 0-2 0
Hellebore, 12 spr.	0 6-10 0	Stephanotis, 12 spr.	4 0-6 0
Jasmine, white, bun.	0 6-10 0	Tropaeolums, 12 spr.	0 10-1 0
Lapageria, red, 12 bl.	1 0-3 0	Tuberose, 12 blms.	1 0-1 6
" " " "	1 0-3 0	Violets, 12 bunches	1 0-1 6
Lilium longiflorum,		— Parme, French,	
12 blooms	4 0-6 0	per bunch	3 0-4 0
Marguerites, per 12	3 0-6 0	— Cear, Fl., bunch	1 3-1 9

HOT-WATER PIPES.



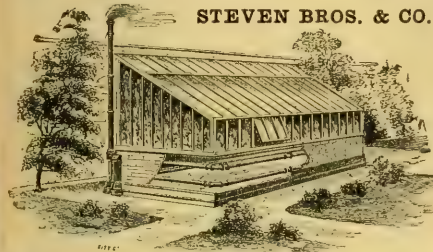
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OBTAINED
179° 5' OF HEAT
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PRODUCED MOST HEAT PER BUSHEL OF FUEL
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OFFICE 1 SOUTHWARK ST. HARLOW, ESSEX.

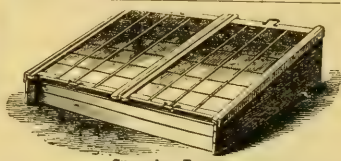
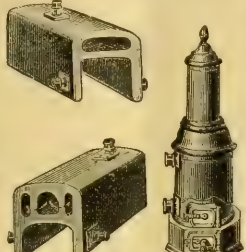
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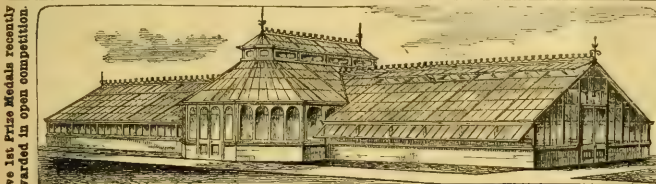
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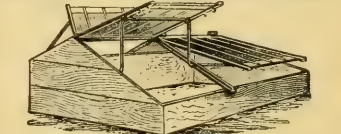
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13½ × 8 inches for 9	6		15 × 9 inches for 12	0	
12 × 9 " " 6	6		18 × 8 " " 12	0	
12 × 10 " " 6	6		18 × 10 " " 12	0	
12 × 12 " " 6	6		18 × 12 " " 12	0	
12 × 14 " " 6	6		20 × 12 " " 23	0	
14 × 10 " " 6	6		24 × 12 " " 25	0	

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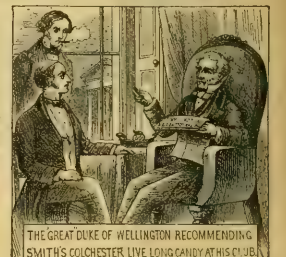
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1886.

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G. C.
Nov. 20, 1886.

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THE GARDENERS' CHRONICLE.

Established 1841.

No. 674.—Vol. XXVI. { NEW SERIES. } SATURDAY, NOVEMBER 27, 1886.

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{ Post-office as a Newspaper. } POST-FREE, 53d.

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will be
REDUCED TO THREE PENCE.

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OUR ALMANAC for 1887.
Secretaries of Provincial and Metropolitan Horticultural Societies are invited to send us, not later than **THURSDAY NEXT, Dec. 2**, the Dates of their Meetings and Exhibitions during the ensuing year, so as to ensure their insertion.

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ROSES.—ROSES.—ROSES.—The finest Dwarf Plants of the leading Exhibition varieties, at 6s. per dozen, package included. Special prices for quantities. The Trade supplied.
A. U. GORRINGE, 75, Terminus Road, Eastbourne.

TEN LARGE CAMELLIAS, very fine, full of flower-buds, in pots and tubs, 610 to 10 feet, specimens—Apply to **WILLIAM BARRON, Sketty, Swansea.**

Rhododendrons.
JOHN WATERER AND SONS, Bagshot, Surrey, are the Great Exhibitors of Hardy Scarlet and White RHODODENDRONS. Their CATALOGUE is ready, and may be had on application.

SPIRÆA JAPONICA, fine imported clumps, 12s. 6d. per 100.
LILY OF THE VALLEY (German Crown), very fine.
Low offers on application.
WATKINS and SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, W.C.

Hollies for Hedges.
JOHN CRANSTON and CO. offer a very fine stock of Green HOLLIES for Hedges, Sizes, 6, 9, 12, 24, to 36 inches. Prices, with samples if desired, on application to **JOHN CRANSTON and CO., King's Acre, Herford.**

ROSES.—ROSES.—ROSES.—Strong Plants, best varieties—30 H.P.'s and 10 Teas for 21s. Ties in pots, 9s. and 2s. per doz., 75s. per 100 and upwards. Standard H.P.'s, choice variety, 12s. per pair. Six large 12 H.P.'s to be sold cheap. **EDWIN HILLIER, Nurseries, Wunstetter.**

FRUIT TREES.—Well-ripened clean trees. Best sorts of APPLES, PEARS, PLUMS, and CHERRIES, Standards and Pyramids, 1s. 6d. to 2s. 6d. each; Trained, 2s. 6d. to 3s. 6d. each. APRICOTS, NECTARINES, and PEACHES, extra large and handsome. Fruiting Trees, 3s. to 7s. 6d. each.
CATALOGUES gratis.
JOHN LAING and CO., Nurseries, Forest Hill, S.E.

FOR SALE, large PEACH and NECTARINE TREES, fine trained and in splendid bearing condition; Bellegrard and Diamond Peaches, half standards; and other varieties of Agricultural Kitchen Garden and Flower Seeds, will have much pleasure in making Special Offers to the Trade on application.
C. ROBERT, Highfield Hall, near Leek.

Strong Standard Fruit Trees, ready to bear.
APPLES, PEARS, PLUMS, and CHERRIES, best kinds, cheap. Fruiting TREES, RANTS, 3 feet, 12s.; GOOSEBERRIES, 3s. 7s. 10s. per 100; President and Vicomtesse H. de Thury STRAWBERRIES, 1s. 6d. per 100; strong transplanted runners, large plants, 2s. 6d. per 100; CHRISTMAS TREES and handsome CONIFERS, up to 12 feet.—Apply to **W. JACKSON and CO., Nurseries, Bedale.**

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, having now completed Harvested their selected Stocks of SWEDS, TURNIPS, MANGELS, and other varieties of Agricultural Kitchen Garden and Flower Seeds, will have much pleasure in making Special Offers to the Trade on application.

SPECIAL NOTICE.—

On and after Jan. 1, 1887,

the Price of the

"GARDENERS' CHRONICLE"

will be

Reduced to Three Pence.

SALES BY AUCTION.

Dutch Bulbs.

Every MONDAY, THURSDAY, and SATURDAY.
GREAT UNRESERVED SALES.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every MONDAY, THURSDAY, and SATURDAY at half-past 12 o'clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSES, and other bulbs from Holland, in various quantities, and lotted to suit the Trade and Private Buyers. Client catalogues, and lotted to suit the Trade and Private Buyers. Client catalogues, and lotted to suit the Trade and Private Buyers.

On view morning of Sale, and Catalogues had.

Monday Next.

3000 LILIAM AURATUM, oldseed Bulbs, just received from Japan
1500 SPIRÆA JAPONICA, fine clumps.

MESSRS. PROTHEROE AND MORRIS will include the above in the SALE of BULBS, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, November 29.

On view morning of Sale, and Catalogues had.

Tuesday Next.

SPECIAL AND IMPORTANT SALE OF ORCHIDS.—

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, November 30, at half-past 12 o'clock precisely, a large quantity of ESTABLISHED ORCHIDS in Flower and Bud, from various Orchidists, and amongst the numerous species will be found the following valuable plants:—

Cyclopogon cristata alba
Gardneriana
Masdevallia ignea Masdevallia
Dendrobium nobile nobiliss
Saccobolus illustre
Cattleya bicolor, fine specimen
Cypripedium Morganian, fine plant
"Domianum
Odontoglossums, Calanthes, Cypripediums, Masdevallias, and many others.

On view morning of Sale, and Catalogues had.

Tuesday Next.

300 double CAMELLIAS and AZALEAS, beautifully budded; 300 Standard and Dwarf ROSES, fine named trees; selected HARDY TREES, CONIFERÆ, and EVERGREEN SHRUBS, BULBS, &c.

MESSRS. PROTHEROE AND MORRIS will sell the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, November 30, at 12 o'clock precisely.

On view morning of Sale, and Catalogues at the Rooms, or of the Auctioneers, 67 and 68, Cheapside, E.C.

Wednesday Next.

500 CAMELLIAS and AZALEAS, very fine Plants, well budded; PALMS, and other Plants from Belgium; 600 English ground STANDARD and DWARF ROSES; a choice assortment of English grown LILIES and other HARDY BULBS; Barry's beautiful DAFFODILS; CARNATIONS, LILY of the VALLEY, SPIRÆAS, Dutch BULBS in variety, &c.

MESSRS. PROTHEROE AND MORRIS will sell the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on WEDNESDAY NEXT, December 1, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Fine-apple Nursery, Edgware Road, W.

In consequence of the Closing of the Colonial and Indian Exhibition.

HIGHLY IMPORTANT SALE OF SPECIMEN PLANTS, by order of Messrs. E. G. Henderson & Son, who have completed their contract for furnishing the Colonial and Indian at the above Exhibition, and are compelled to dispose of the plants through want of room to house them.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Messrs. E. G. Henderson & Son to sell by AUCTION on the Premises, as above, on WEDNESDAY and THURSDAY, December 1 and 2, at 12 o'clock precisely each day, the above valuable COLLECTION of SPECIMEN ENCEPHALOTRIS, and other plants, opportunity for securing rare specimens from this interesting Exhibition. Among the Plants are noble examples of Phoenix, Kentia, Chamerops, Arecas, Cyclops, Latanas, Scaevolas, splendid specimen Eucalyptus (unequalled in this country, except at Kew Gardens); grand Tree Ferns in many species, Nephrolepis, also a choice assortment of Ornamental Plants, Palms, Ferns, Acazias, Begonias, Orchids, flowering bulbous roots; Roses, Carnations, &c.

May be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Friday Next.

ANGRÆCUM SCOTIANUM.

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Brixton, S.W.

IMPORTANT TO MARKET GROWERS.

MESSRS. PROTHEROE AND MORRIS are instructed to sell by AUCTION, at an EARLY hour, previously, the LEASE of the NURSERY and about 20,000 feet of GLASS, all in capital working order. Ground rest very low.

Arrangements can be made for allowing a portion of the money to remain, thus bringing the property within the reach of small capitalists.

Further particulars will appear next week, and in the meantime can be obtained of the Auctioneers, 67 and 68, Cheapside, E.C.

Bulbs—Bulbs—Bulbs.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, first-class BULBS from Holland, lotted to suit all buyers.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 795)

5000 Grand Bulbs of LILIAM AURATUM, just received from Japan; first-class Standard and Dwarf ROSES to name, BULBS, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, December 1.

On view morning of Sale, and Catalogues had.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his NEXT SALE of ORCHIDS in Flower and Bud will take place at 38, King Street, Covent Garden, W.C., on THURSDAY, December 16, and he will be glad if Gentlemen desirous of entering Plans for this Sale will please send particulars as soon possible.

To the Seed Trade.

WANTED TO PURCHASE, by the Advertiser, an Established Seed BUSINESS, where a thorough good Retail Trade is done, either in London or Provinces.

K. S., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

SPECIAL NOTICE.—

On and after Jan. 1, 1887,
the Price of the

"GARDENERS' CHRONICLE"

will be


Reduced to Three Pence.

Old Established.



Forest Trees,
ORNAMENTAL TREES,
Fruit Trees,
EVERGREENS & COVER PLANTS,
Roses,
AND ALL OTHER TREES & PLANTS
SPLENDID QUALITY.
Pronounced by everyone "Unequalled."
NURSERIES 200 ACRES.
Write for Catalogues.

Reliable always. Address in full—
F. & A. Dickson & Sons
THE QUEEN'S SEEDSMEN,
Chester.



CROUX & FILS,
Nurserymen,
VALLÉE D'AULNAV,
CHATENAY (SEINE)
Great Specialty:
Trained Fruit Trees,
very strong, will fruit
early.
1867—Prize of Honour for
Artistic Efforts.
1878.—Two Large Prizes, Cross
of the Legion of
Honour.

HERBACEOUS AND ALPINE PLANTS.

CATALOGUE of 50 Pages, containing full information as to colour, height, situation, time of flowering, &c. free on application.

A CAPITAL COLLECTION for ROCKS, STUMPS, and BORDERS, from 25s. per 100, or 4s. per dozen.

Most of the Plants, being in Pots may be despatched at any time, or by Parcel Post when fit.

RICHARD SMITH & CO.,
NURSERYMEN AND SEED MERCHANTS,
WORCESTER.



FRUIT TREES
A LARGE AND HEALTHY STOCK OF ALL
KINDS TO SELECT FROM.

CORDON FRUIT TREES
A SPECIALTY. SEND FOR NEW
ILLUSTRATED CATALOGUE.

Ornamental Trees and Shrubs,
Roses, Rhododendrons, &c.

CATALOGUES Post-free.

J. CHEAL & SONS
Crawley, Sussex.

CARTERS' CHEAP BULBS

FOR PLANTING

In Masses, Shrubberies & Borders.

	Per 100.	Per 100.
	s. d.	s. d.
HYACINTHS, equal quantities red, white, and blue	150	0 16 0
TULIPS, fine mixed	40	0 4 6
NARCISUS, mixed border	25	0 3 0
NARCISUS, sweet-scented double	50	0 5 6
NARCISUS, Peasant-eye	30	0 3 6
DAFFODILS, single Trumpet	25	0 3 0
CROCUS, fine mixed	12	6 1 6
CROCUS, golden-yellow	10	6 1 3
CROCUS, large blue	13	6 1 6
CROCUS, large white	14	6 1 9
CROCUS, large striped	14	6 1 9
BLUE BELLS	30	0 3 6
SCILLA PRÆCOX or SIBIRICA	30	0 3 6
WINTER ACONITES, yellow	21	0 2 6

All Parcels Carriage Free.

ILLUSTRATED CATALOGUES POST-FREE.

SEEDSMEN BY ROYAL COMMANDS TO H.M. THE QUEEN
AND H.R.H. THE PRINCE OF WALES,

237
238 High Holborn, London, W.C.

CHIONODOXA LUCILÆ (Glory of the Snow), azure-blue with white centre; lovely for early Spring bedding. Large English-grown Bulbs. 8s. per 100.
WATKINS and SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, W.C.

HAMPTON COURT BLACK HAM-BURGH VINES.—Extra strong, Fruiting Canes of the above, and all other leading varieties, at greatly reduced prices. F. JACKSON and SON, Nurserymen, Kingston-on-Thames, and Royal Kitchen Gardens, Hampton Court.

FRUIT TREES, SEVENTY-FOUR ACRES.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, and other FRUIT TREES, as Standards, Dwarf, Pyramid, Bushes, Cordons, and Trained Trees in great variety.

VINES, excellent Canes, 3s. 6d. to 10s. 6d. Orchard House Trees in pots, PEACHES, APRICOTS, NECTARINES, &c. from 5s. FIG—from 3s. 6d.

DESCRIPTIVE LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.

RICHARD SMITH & CO.,
WORCESTER.

CANNELL & SONS' CHRYSANTHEMUMS.

WE wish to announce that our New and Revised CATALOGUE of the whole family of the above will be ready in a few days.

Send free to all applicants.

Cuttings of 100 New Varieties, 1886, 25s.

60 " " " 10s.

"Messrs. H. CANNELL & SONS, Swanley.—Je vous prie de m'envoyer par la poste votre Descriptive Illustrated Catalogue of Chrysanthemums. Je vous remercie, et j'ai le plaisir d'être Votre Serrurier, J. CH. SIEMON.—Au Ministère d'Agriculture et du Commerce, 3, Rome, Italy."


W. H. CULLINGFORD, Esq., 7, Phillimore Garden, Kensington, W., Nov. 20, 1886.

"At the Aquarium Show what gave me the greatest pleasure was Messrs. Cannel's exhibit of Chrysanthemum, the most varied and lovely sorts I ever saw."

Mons. J. MASUREL, Nord, France, Nov. 19, 1886.

"I succeeded beautifully with the cuttings you sent me last winter, and should willingly complete my collection with the best Chrysanthemums you have this year. Have you any more to be seen in bloom? If so, I will send my 'GARTNER' to have a look at them, and to order those I miss."

THE HOME OF FLOWERS,
SWANLEY, KENT.



"Planting Season."
"unequalled for quality, Variety & Extent."

**FOREST, FRUIT
& ALL OTHER
TREES & PLANTS.**

ROSES EVERGREENS VINES &c

Descriptive Catalogues Post Free.

"James Dickson & Sons"
"Newton Nurseries"
TELEGRAPHIC ADDRESS
CONFIDENCE
CHESTER.

GRAPE VINES.—Our stock of Vines is in unusually fine condition this year. A LIST of kinds and Prices will be forwarded on application to
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

To the POTATOES.
AND F. SHARPE'S Special Price
H. LIST of SEED POTATOES is now ready, and may be had on application. It comprises all the best varieties in cultivation grown specially for Seed purposes from the finest selected stocks. The prices will be most very advantageous. Seed Growing Establishment, Wisbech.

LAING'S GOLD MEDAL BEGONIA
TUBERS, Free by Post.
NAMED SINGLES, from 12s. to 42s. per dozen.
UNNAMED SEEDLINGS, selected to colour for pot; from BEDDING, selected to colour, 9s. per dozen. 12s. per dozen mixed colours, 3s. to 6s. per dozen. CATALOGUES 2s. 6d.
JOHN LAING and CO, Nurseries, Forest Hill, S.E.

PINE PLANTS for SALE.—Thirty-six Charlotte Rothschild, and Twenty Smooth Cayenne, clean healthy stock, in 6-inch pots; all well rooted. Apply for particulars to
DICKSON, BROWN & TAIT, Seed Merchants, Manchester.

ROSES 20 acres.

Well-rooted, many shooted, truly named, of matured vigorous growth, and of the best kinds. BUSHES, R. S. & Co's selection, 8s. per dozen, 60s. per 100. STANDARDS, 15s. per dozen, 105s. per 100. Packing and Carriage Free for cash with order.

These World-famed ROSES cannot fail to give the greatest satisfaction.

ROSES in pots;

all the best New and Old English and Foreign sorts, from 18s. to 36s. per dozen.

Descriptive List free on application.

RICHARD SMITH & CO.,
WORCESTER.



**CHEAP OFFERS IN
CHOICE PLANTS**
For House and Garden.
100 STOVE or GREENHOUSE PLANTS.
In 100 varieties, 12 4s. 6d., or 105s.
Other offers and in smaller quantities, see CATALOGUE, which will be forwarded on application.

Choice Varieties of the following:—

- 12 TREES CARNATIONS, 6s.; 12 Yellow-flowered, 12s.
- 12 PINKS, Laced Flowers, 4s. and 6s., strong plants.
- 12 AZALEA INDICA, covered with flower buds, 18s. and 24s.
- 12 " MOLLIS, duto, fine for cutting, 12s. and 18s.
- 12 CAMELLIAS, covered with flower buds, 21s., 30s., 42s.
- 12 CROTONS, choice varieties, 6s., 9s., 12s.
- 12 DRACÆNAS, choice varieties, 6s., 9s., 12s., 18s.
- ORCHIDS, choice varieties, for cool or warm house, in 12, 24, or 36 varieties, at 21s. and 42s. per dozen.
- 100 varieties, 400s.; 50 varieties, 100s. and 150s.
- 1000 BULBOUS FLOWER ROOTS, 21s.

E. G. HENDERSON & SON,
Pine-apple Nursery, Maida Vale,
LONDON, W.

NOTICE.

King's Acre Nurseries, Hereford (Established 1785).
JOHN CRANSTON begs to announce that, having PURCHASED THE BUSINESS, together with the most valuable portion of the stock, from the late Nursery & Seed Company (Limited), their Old-established Nurseries will, on and after NOVEMBER 2, 1886, be carried on by him under the name of
"JOHN CRANSTON AND CO."

King's Acre, Hereford.—October 1, 1886.
THE AUTUMN for FOREST PLANTING and HEDGING—Alder, 3 to 4 feet, 22s. per 1000. Ash, 2 to 3 feet, 17s. per 1000; ditto, 3 to 4 feet, 20s. per 1000. Birch, 2 to 3 feet, 20s. per 1000. Spanish Chestnut, 2 to 3 feet, 20s. per 1000. Elm, 2 to 3 feet, 16s. per 1000; ditto, 3 to 4 feet, 20s. per 1000. Larch, 2 to 3 feet, 12s. 6d. per 1000; ditto, 3 to 4 feet, 14s. 6d. per 1000; ditto, 4 to 5 feet, 16s. 6d. per 1000; ditto, 5 to 6 feet, 18s. 6d. per 1000; ditto, 6 to 7 feet, 20s. per 1000; ditto, 7 to 8 feet, 22s. per 1000; ditto, 8 to 9 feet, 24s. per 1000; ditto, 9 to 10 feet, 26s. per 1000; ditto, 10 to 11 feet, 28s. per 1000; ditto, 11 to 12 feet, 30s. per 1000. Spruce Fir, 1 to 1½ feet, 10s. per 1000; ditto, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 2½ feet, 14s. per 1000; ditto, 2½ to 3 feet, 16s. per 1000; ditto, 3 to 3½ feet, 18s. per 1000; ditto, 3½ to 4 feet, 20s. per 1000; ditto, 4 to 4½ feet, 22s. per 1000; ditto, 4½ to 5 feet, 24s. per 1000; ditto, 5 to 5½ feet, 26s. per 1000; ditto, 5½ to 6 feet, 28s. per 1000; ditto, 6 to 6½ feet, 30s. per 1000. Sycamore, 2 to 3 feet, 15s. per 1000; ditto, 3 to 4 feet, 18s. per 1000; ditto, 4 to 5 feet, 20s. per 1000; ditto, 5 to 6 feet, 22s. per 1000; ditto, 6 to 7 feet, 24s. per 1000; ditto, 7 to 8 feet, 26s. per 1000; ditto, 8 to 9 feet, 28s. per 1000; ditto, 9 to 10 feet, 30s. per 1000. Privets, 2 to 3 feet, 16s. per 1000. Privet ovifolium, 2 to 3½ feet, 30s. per 1000; ditto, 3½ to 4 feet, 32s. per 1000; ditto, 4 to 4½ feet, 34s. per 1000; ditto, 4½ to 5 feet, 36s. per 1000; ditto, 5 to 5½ feet, 38s. per 1000; ditto, 5½ to 6 feet, 40s. per 1000; ditto, 6 to 6½ feet, 42s. per 1000; ditto, 6½ to 7 feet, 44s. per 1000; ditto, 7 to 7½ feet, 46s. per 1000; ditto, 7½ to 8 feet, 48s. per 1000; ditto, 8 to 8½ feet, 50s. per 1000. Myrabolana Plum, 2 feet, 25s. per 1000. Special offer for 50,000 and 100,000.
GAILLES MITCHELL, Nurseryman, Stranraer.

THE FINEST NEW PEAS
SHARPE'S QUEEN, 2s. 6d. per ½ pint sealed packet.
SIR F.A. MILLBANK, 2s. 6d. per ½ pint sealed pkt.
TRIUMPH, 2s. 6d. per pint sealed packet.
PARAGON, 2s. 6d. per pint sealed packet.

Post-free. Special descriptive offer of these and other Novelties sent to the Trade on application.
CHARLES SHARPE AND CO., Seed Merchants, Sleaford.

LIMES—ELMS—LIMES.
STANDARDS for Avenue or Street Planting, straight stems, fine heads, good roots.
LIMES, best red-twigged variety, 12 to 14 feet, and 14 to 16 feet.
English, 12 to 14 feet, and 14 to 16 feet.
Very cheap by the dozen or hundred.
JOHN PERKINS and SON, Billing Road Nurseries, Northampton.

TO PLANTERS
for immediate effect.
ABIES DOUGLASS, 5 to 10 feet; Weymouth PINE, 6 to 10 feet; Scotch PINE, 10 to 15 feet; CUPRESSUS LAWSONIANA, 4 to 7 feet; CEDRUS ATLANTICA, 4 to 8 feet; THUIA OCCIDENTALIS, 2 to 6 feet; THUIA LOBBII, 3 to 5 feet; Horse CHESTNUT, 2 to 15 feet.
And many others, at very low prices.
Apply, THOS. WOODFORD, The Nurseries, Atherstone.

ROSES—ROSES—ROSES.—Gloire de Dijon, Marechal Niel, Cheshunt Hybrid, Reine Marie Henriette, Reine Marie Pia, W.A. Richardson, &c., fine plants, 8 to 12 feet, 10 inch pots, 2s. 6d., 3s. and 4s. 6d. each; Niphetos, Perle des Jardins, Etoile de Lyon, Madame Falot, Isabelle Sprunt, and other Dwarf Tea Roses, in about 100 varieties, fine plants, 12 to 14 feet, 14s. and 20s. per dozen.
CATALOGUES on application.
THE LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, The Vineyard, Garston, Liverpool.

Fox and Game Covers.
FOREST TREES.—English BROOM, 10s. 6d. per 1000; English FURZE, 10s. 6d. per 1000; Evergreen PRIVET, 25s. per 1000; LAURELS, 15s. 6d. per 1000; MAHONIAS, 15s. 6d. per 1000; GREEN BOX, 20s. 6d. per 1000; OAKS, 20s. 6d. per 1000; BIRCH, 20s. 6d. per 1000; HAZEL, 20s. 6d. per 1000; LARCH, Scotch SPRUCE, Austrian PINE, &c. Price Lists on application to
W. MAULE AND SONS, The Nurseries, Bristol.

DWARF ROSES, on Seedling Briers. First-class plants in the very best sorts 20s. per 100 and 300s. per 1000.
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SMALL SHRUBS and CONIFERÆ:—Capensis Lawsonii, 12 to 15 inches, transplanted, 80s. per 1000; C. erecta viridis, 1 to 1½ feet, extra, 12s. per 1000; C. stricta, 10 to 12 inches, 12s. per 1000; C. gracilis, 10 inches, 12s. per 1000; Cedrus Desziana, 2½, 3, and 4 feet; Thia Lobbi, 10 to 12 inches, 50s. per 1000; T. Ellwangeriana, 9 to 10 inches, 12s. per 1000; Thuopsis dolabrata, 9 to 10 inches, transplanted, 10s. per 1000; Ruscus plumosa, 12 to 15 inches, bushy, 22s. per 1000; R. squamata, 9 inches, transplanted, 10s. per 1000; Araucaria imbricata, 8 inches, fine, 40s. per 1000; Pinus sylvestris, 10 to 12 inches, 12s. per 1000; Pinus Nordmanniana, 8½, 9½, and 10½ feet; Abies Douglasii, 6 inches, 6s. per 1000; Pinus excelsa, 2½, 3, and 4 feet; English Yew, 6 to 9 inches, 8s. per 1000; American Arborvitæ, 9 to 10 inches, 50s. per 1000; Box trees, 9 to 10 inches, 40s. per 1000; Sweet Bay, 9 to 12 inches, 6d. per 1000; Evergreen Oaks, 9½, 10½, and 11½ feet; Laurustinus, 8 inches, 8s. per 1000; Common Laurels, transplanted, 6 to 8 inches, 60s. per 1000; Common Laurels, 2½, 3, and 4 feet.
GAILLES MITCHELL, Nurseryman, Stranraer.

EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest and most valuable Single Varieties (some of the flowers of which will become to the darkest purple), and are of every shade, from pure white to the darkest purple, for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ROSES (Strong Dwarf)—best H.P. kinds, 25s. per 1000; finest named CARNATIONS and PICO-TREES, 30s. per 1000; TREE CARNATIONS, 12 best sorts, 25s. per 1000; strong Spruce FIRS, for Christmas Trees, 4 to 5 feet, 4s. per 1000.—W. JASON, Blackdown, Kidderminster.

R. GILBERT is now prepared to send out his Three Important Vegetables, which have now absolutely solved the great problem of pleasing everybody. VICTORIA BROCCOLI, 2s. 6d. per packet; UNIVERSAL SAVOY, 1s. 6d. per packet; and BRUSSELS SPROUTS, 1s. 6d. per packet. Send 4s. 6d. and by return you will receive the Three Novelties free by post. Trade supplied. Apply,
R. GILBERT, High Park Gardens, Stamford.

Dissolution of Partnership.
JOHN R. BOX, for the last ten years Co-partner with JOHN LAING, at Forest Hill, S.E., has PURCHASED THE BUSINESSES known as the East Surrey Seed Warehouse (established upwards of 50 years) North End, Croydon; also the Upper Tooting Park and Balham Hill Nurseries. CATALOGUES now ready.

MARECHAL NIEL ROSE.—On Sale, many thousands in pots; grand plants, 5 to 12 feet in length, 18s. to 60s. per dozen.
HUGH LOW AND CO., Clapton Nursery, London, E.

A Specialty.
RHODODENDRONS, grown in sandy loam.—Thousands of Rhododendron ponticum, catabense, hybridum, and all the choicest named varieties. Magnificent plants, 1, 2, to 3 feet, beautifully set with buds. Price per dozen, hundred, or thousand, on application to JOHN CRANSTON & CO., King's Acre Nurseries, Hereford.

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ORCHIDS, a SPECIALITY.—Stock immense in extent, fine in quality, and moderate in price. Inspection invited.
HUGH LOW AND CO., Clapton Nursery, London, N.

RASPBERRY CANES.—Fine Canes of the following sorts:—Carter's Prolific and Falstaff, at 10s. per 1000.
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FLOWERING PLANTS.
ROUVRARDIAS, 12s. per dozen.
CARNATIONS, Tree, 18s. 12s. per dozen.
ERICA CAFFRA, 9s. per dozen.
ERICA CAFFRA, specimens, 30s., 42s. per dozen.
ERICA GRACILIS, 9s. 12s. per dozen.
ERICA HYEMALIS, 9s. 12s. 18s. 30s. per dozen.
HUGH LOW AND CO., Clapton Nursery, London, N.

NARCISSUS MONOPHYLLUS, or PULBODODIUM ALBUS, or CLUSII, the White Hoop Petalled Narcissus. The undersigned are expecting a new introduction of very fine bulbs of this nice bulbous plant, fit for immediate planting and for flowering this winter within a short period. Only immediate Orders can be attended to, as the stock not sold within ten days, is planted. Cash price, per 100, 12s. 6d.; per 250, 30s.; per 500, 55s.; per 1000, 100s. Discount to the Trade.
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THE BEST NEW CULINARY PEAS for 1887 are ECKFORD'S "MAGNIFICENT," ECKFORD'S "VICTOR," ECKFORD'S "DIGNITY."

In sealed packets only. For particular vide *Gardeners' Chronicle*, October 30, page 550. Descriptive LIST on application. Now being sent out by WILLIAM BULL, F.L.S., Establishment for New and Rare Plants and Seeds, 536, King's Road, Chelsea, London, S.W.

Sweet-Scented Rhododendrons. ISAAC DAVIS and SON have this season a fine stock of the above, mostly well filled with flower-buds, at 2s. 6d. to 3s. 6d. each.

These varieties are of the most special treatment, but care should be taken not to give them too much fire-heat. We are informed that in South Wales they have withstood the severest weather in the open ground unjured, but it is well to give the protection of glass to bring the flowers to perfection.
Descriptive CATALOGUE on application.
Ormskirch, Lancashire.

YEW S, 3½ to 4½ feet, 84s. per 100, good and bushy.
HOLLIES, green, 2 to 3 feet, 60s. per 100; 3 to 3½ feet, 84s. LAURELS, Portugal, 1 to 1½ feet, 50s. per 100. (per 100.)
AUCUBA, 2 to 2½ feet, bushy, 18s. per dozen.
HOLLIES, variegated, 2 to 3½ feet, 15s. per dozen, good.
QUICK, strong, 14s. per 100.
Some prime specimen YEWs, good 3 to 3½ feet, 2s. 6d. each, also some larger ones up to 12 feet.
JOSEPH SPOONER, Goldworth, Woking Station.

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LAXTON'S WALTON HERO.

First-class Certificate from the Royal Horticultural Society after Trial at chiswick

T. LAXTON is prepared to SELL the WHOLE STOCK of this fine, large, and handsome podded NEW PEA, raised from a cross of Telephone by British Queen, and which is of the highest quality and fertility—the produce this season from 5 weeks' growth on about 3 groods of ground, under ordinary field culture, being 35 bushels, and the grower says he considers it far superior in quality to Yorkshire Hero.

If the Stock be not sold, "Walton Hero" will be sent out in Sealed Half-pint Packets, at 2s. retail, with liberal allowance to the Trade.

For further Particulars apply to
T. LAXTON, Seed Grower, BEDFORD.

T. L. has disposed of that fine new Pea "Charmers," sent out last season, together with his new First Early variety, "Primum," and "Sensation" and "Ameer," two fine new Peas Certified by the Royal Horticultural Society to Messrs. HARRISON AND SONS, Seed Merchants, Leicester.

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On and after Jan. 1, 1887, the Price of the "GARDENERS' CHRONICLE" will be Reduced to Three Pence.

Clapton Nursery, London, E.; and Bush Hill Park Nursery, Enfield.

HUGH LOW & CO. Invite inspection of the stock in these Nurseries—immense in fine in quality, moderate in price—comprising AZALEAS, CAMELLIAS, CYCLAMENS, CONIFERS, EPARIS, ERICAS, FERNS, FRUIT TREES, GRAPE VINES, GREENHOUSES and DECORATIVE PLANTS, HARDY SHRUBS, PALMS, PELARGONIUMS, ROSES, STOVE and SOFT-WOODED PLANTS, TREE CARNATIONS, &c.

274,600 Superficial Feet of Glass.

King's Acre Nurseries, Hereford. ESTABLISHED, 1785.

SPECIAL CULTURE, ROSES and FRUIT TREES.

These old-established Nurseries have gained a reputation unsurpassed for the cultivation of ROSES and FRUIT TREES.

JOHN CRANSTON & CO. are now offering from their magnificent stock ROSES, Standard Hybrid Perpetual, and others, 12s., 18s. to 24s. per dozen.

Standard Tea-scented, fine heads, 18s., 24s. to 30s. per dozen.

Dwarf Hybrid Perpetual, 8s. to 12s. per dozen.

Dwarf Tea-scented, all on the Brier stock, 12s., 15s., 10 18s. per dozen.

Roses for Greenhouses and for Forcing. SPECIALLY GROWN UNDER GLASS.

"The Largest and Finest Stock in the Kingdom. ROSES, Specimen Tea-scented, in 8 and 9-inch pots.

"Half-Specimens, in 6 and 8-inch pots.

"Smaller sizes, in 4 and 5-inch pots.

FRUIT TREES. AN IMMENSE STOCK.

Standards, Pyramids, Dwarf-trained, Horizontal-trained, Cordons, &c., of APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, CURRANTS, GOOSEBERRIES, &c.

ORCHARD-HOUSE TREES. Fine bearing Trees, well ripened under Glass.

VINES—Extra fine Fruiting Canes. STRAWBERRIES—A large Collection—well-rooted Runners.

Descriptive CATALOGUES on application to JOHN CRANSTON & CO., KING'S ACRE NURSERIES, HEREFORD.

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None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached W.M. CUTBUSH AND SON Limited, Nurserymen and Seed Merchants, Hughtate Nurseries, N.

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FIRST QUALITY. PRICES LOW.

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Specialties—Garden Seeds, 1886.

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WHOLESALE LIST of their SPECIALTIES in NEW PEAS and other VEGETABLE SEEDS is now ready, and will be forwarded, post-free, to the Trade, on application.

A Copy has been posted to all CHARLES SHARPE AND CO.'S regular Customers. If any have not been received they will be glad to be informed, that another may be sent.

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SEED WAREHOUSE, SLEAFORD.

SEEDLING BRIERS.
Any quantity of 3, 2, and 1-year old plants.

NEW ROSES of 1885-6.

15s. per dozen varieties (my selection) ; 20s. per 25 varieties (my selection)

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Strong Roots, 4s. per 100. Plants in small pots, 16s. per 100 ; ditto in large pots, 24s. per 100. Descriptive LIST free. **RICHARD SMITH & CO.,** Nurserymen and Seed Merchants, Worcester.

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The most remarkable Importation ever seen.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. SANDER to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, December 3, at half-past 12 o'clock precisely, the grandest lot ever introduced of the extremely rare **ANGRÆCUM SCOTTIANUM**. The plants are in most superb condition and in extraordinary masses, nothing approaching them having ever been seen. This *Angræcum* is not only one of the rarest extant, but also one of the most beautiful. Its pure white flowers are round and compact, nearly 3 inches across. The spur measures some 6 inches, and is of a lightish red. It is figured in the *Gardeners' Chronicle*, July 31, 1880, p. 136.

There will also be included in the above Sale **ANGRÆCUM LEONII**, in grand pieces ; **ONCIDIUM MACRANTHUM**, the rare and beautiful **ONCIDIUM UNDULATUM**, **ODONTOGLOSSUM PARDINUM**, **O. HALLII LEUCOGLOSSUM**, a fine lot of **CATLEYA PERCIVALIANA**, **ONCIDIUM NUBIGENUM**, in large masses ; **ODONTOGLOSSUM EDWARDII**, &c.

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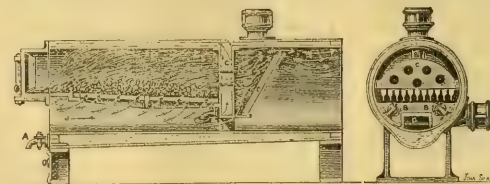
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The "Garden Annual" may be ordered through all Booksellers, Nurserymen, and Seedsmen.

PRICE, ONE SHILLING ; POST-FREE, ONE SHILLING AND THREEPENCE.

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SILVESTER'S PATENT STEEL TRENTHAM BOILER.

HOT-WATER PIPES
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All kinds of HOT-WATER HEATING APPARATUS erected complete.

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STABLE and HARNESS ROOM FITTINGS, ENGINES, BOILERS, and MACHINERY.

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Standard PEARS, PLUMS, and DAMSONS.
Dwarf-trained APPLES, PEARS, and PLUMS.
Transplanted Pyramid FRUIT TREES.
Dwarf-trained PEACHES and NECTARINES, of extra size.
VINES, Fruiting and Planting, good.
STRAWBERRIES, in Pots, for Forcing or Planting.
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CURRANTS, strong, Red and White.
NUTS, on single stems.

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Varietated HOLLIES, all sizes.
AUCUBAS and LAURELS, of kinds.
Oval-leaved PRIVET, 5 to 6 feet.
LIMES, in large quantities, all heights.
LABURNUMS, Standard, English.
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FLOWERING SHRUBS, of the better sorts.

HERRACEOUS PLANTS, in select kinds.
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"Early to bed, early to rise,
Makes a man healthy, wealthy, and wise."

IT IS SO WITH DAFFODILS,
The earlier they are in the ground, the better they bloom.
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An IMMENSE STOCK, in SPLENDID CONDITION.
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Cases free. Terms net cash 1 month. For further particulars,
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50,000 SINGLE DAFFODILS, 9s. per 1000.

50,000 NARCISSUS POETICUS (Pheasant-
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PRIZE COB and other NUT TREES.

Gentlemen desirous of obtaining the true

WEBB'S PRIZE COB FILBERT TREES,

AS ALSO THE

Kentish Cob and other Nut Trees,

should send their Orders as early as convenient to
Mr. COOPER, F.R.S., Calcut Gardens, Reading,
of whom alone the various sorts can be obtained.

PRICE LISTS and PAMPHLETS on application.

JERSEY FRUIT TREES.

Carriage Paid for Cash with Order. Write for Illustrated
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40 JERSEY ROSES FOR 21/-

These are very strong dwarf bushes, selected from amongst
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THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 27, 1886.

AUSTRALIAN AND NEW ZEALAND TREES IN ARRAN.*

THE island of Arran is the most northern
locality where Australian and New
Zealand trees and shrubs have been exten-
sively cultivated. The success which has
attended the experiment has attracted much
notice. Baron Mueller in his most valuable
work on the *Eucalypts of Australia*, and also
in his *Select Extra-Tropical Plants*, makes
constant reference to them. This has led the
writer to give this year a much more detailed
account than would otherwise be desirable.

Arran, situated between 55° 10' to 55° 15' N. latitude,
20 miles in length by 8 or 10 miles in
breadth, is one of the Inner Hebrides, and lies
at the mouth of the Clyde. The northern half
is mountainous, ascending to the height of
2866 feet; the southern half is much more
level, ascending to only half the height of the
northern. The rainfall varies much, but every-
where it is great; at Lamlash it averages
66 inches. There is, however, little mist or fog
along the coast, where all the trees are planted;
and there are few days some part of which is
not dry. The temperature in winter is much
higher than on the mainland. On the light-
house at Pladda, half a mile south of Arran, at
the height of 110 feet, the lowest temperature
for thirty years was in January, 1881, when it
sunk to 28° F. The temperature is moderated by
its insular position, by the Gulf Stream, and by
the fact that channels of deep water (averaging
about 450 feet in depth) run lengthways near to
the shore along both sides of Arran.

Many of the trees mentioned grow in the
garden of Captain Brown at Lamlash. His
house is in the middle of the Bay of Lamlash.
The bay is 3 miles in length and is protected
by the Holy Isle, lying in the centre of the bay,
at 13.8 miles from the shore and 1030 feet in
height; while the mountains behind Lamlash
also ascend to the height of 1003 feet. The
trees are planted in a good soil, abounding in
water-springs on the slope of the old coast line,
and about 200 yards from high-water mark.
Trees are also planted at Brodick Castle high
garden. This is on a slope about 100 feet
above the sea, and is sheltered by wood on
all sides; the soil is light and the garden
slopes to the sun. Cromla garden, Corrie, is
only separated by the highway from the sea at
high water; it is also sheltered by trees, while
the mountains rise so abruptly behind it and
so shelter it from the wind, that though
seemingly exposed to the full fury of the east
wind, it is in reality so protected that the
branches of the trees all incline towards the
sea, and at high water some of them actually
overhang it. The soil of this garden is stiff
clay, thoroughly drained.

* The measurements, unless mentioned, are taken at 3 feet
from the ground. When trees are not from Australia or New
Zealand this is stated. Rev. P. Landsborough, in Report of
Edinburgh Royal Botanic Society, November 11.

GUM TREES.

The Alpine Gum (*Eucalyptus alpina*: Victoria).—This is one of the most remarkable of the Gum Trees. Its native habitat is the summit of Mount William, the highest peak (3825 feet) of the Grampians of Victoria. Though exalted in position it is the opposite in stature, being "a mere bush 3 or 4 feet high, showing no tendency to form a main stem. Its leaves, broad and rarely above 3 inches in length, are dark green (purple when young); the flowers single, sessile, and much resembling those of the Blue Gum (*E. globulus*), and almost as large." (Mueller.) Baron Mueller was so much interested in what he heard of it that he visited its lofty habitat and took away seed which he sowed in the Botanic Garden of Melbourne. Here it retained much of its original character, and remained so dwarfish that "in a quarter of a century it grew only to the height of 12 feet, and showed no tendency to alter its bushy habit." I am happy to report that, as became a Grampian plant, it has taken most kindly to the original land of the Grampians, and bids fair in Scotland speedily to out rival all its Australian compeers. It was planted in Arran, in 1884, when its height was only 2 feet, now, in 1886, it is 5½, having last year grown 2 feet, that is four times the growth of the one in the Melbourne Botanic Garden. Instead of the leaves being only 3 inches in length, one of them, besides being so thick as to weigh three quarters of an ounce, measured 9 inches in length and 5 inches in breadth. Alpine though its original habitat is, it grows in Corrie Hotel gardens, in a sheltered spot so near to the sea as to be only 35 yards from high-water mark. So very vigorous is its growth, that my friend Mr. Lindsay has doubted its being the genuine alpina, and has given me another plant from the Botanic Gardens that he can certify. Through the kindness of Mr. Murray, factor to the Duke of Hamilton, this one has this year been planted in his garden in light soil and in a sheltered spot open to the sun almost the whole day. Here I doubt not, it will soon equal the one at Corrie. At present it is about a foot in height. The low habit of this Gum tree adapts it for many places for which most of the Gums would be unsuited. Its large and interesting flowers will also be all the better seen.

The Blue Gum (*Eucalyptus globulus*: Victoria and Tasmania).—The size, rapid growth, striking appearance, the property of absorbing more moisture from the soil than any other tree, and thus of rapidly drying marsh-land, the abundance of the anti-malarian perfume that is diffused by its leaves, especially when growing when the leaves are broad and soft, have united to render this the most popular of all the Gum trees. As the leaves also generate ozone largely it is recommended for window culture, and also for the wards of hospitals. "In Australia it attains the height of 350 feet. On the mountains of Guatemala, in Central America, where it has been introduced, it grows so rapidly that in twelve years it has been known to attain a height of 120 feet, with a stem circumference of 9 feet." (Mueller.) Unfortunately it is not so hardy as many of the other Gums. "In South Europe it withstands a temperature of 19° F., but is killed by one of 17° F." At Arran several at various times have been planted, but the severe winter of 1880-81, which destroyed all the Blue Gums in the open air on the mainland of Scotland, killed those in Arran with the exception of one at Captain Brown's, Lamlash. It was sown in 1874 by James Paterson, Esq., factor to the Duke of Hamilton, and is now 40 feet in height and 2 feet ½ inch in girth. It would have been about 8 feet taller had it not been killed to prevent its being blown down by the wind. Its girth would also have been greater had not the winter of 1880-81 destroyed all its leaves, and so injured it that it was more than a year before it fully recovered its former vigour. It is near to the highway, and well seen from it, and as Lamlash is much frequented in summer by visitors, and Lamlash Bay is much resorted to as a harbour of safety, the Blue Gum attracts much attention. At times sailors or foreigners may be seen in the highway looking at it. Then they come up the avenue to have a nearer view, when not un seldom they become demonstrative. Long may it live and flourish!

The Cider Gum (*Eucalyptus Gunnii*: Victoria, Tasmania, and New South Wales).—This Gum receives its name from the juice that flows from it when pierced in spring. When it grows on the plains it differs a good deal from the mountain variety, and is

often called the "Swamp Gum," from the nature of the ground in which it delights. "It grows to a considerable height. Bees obtain much honey from its flowers. Cattle and sheep browse on its foliage." (Mueller.) A special interest attaches to this Gum in Britain from the fact that at Kew it has withstood severe frost [it is injured more or less every winter, but produces new shoots from the old trunk every summer.—Ed.] At Whittinghame, East Lothian, there is a tree, planted in 1845, which, though cut to the ground by frost in 1860, is now more than 60 feet in height, and matures seed, which, having been sown by Mr. Lindsay at the Edinburgh Botanic Gardens, has germinated, so that we have now Scottish-bred trees of this species, which may be expected to be even more accommodating to a Scottish climate than their parent. Mr. Stewart informs me that in New Zealand he found that, while somewhat straggling in habit when left to its natural growth, when topped it acquires a weeping habit, and becomes a beautiful tree. It grows vigorously at Captain Brown's, Lamlash. One was planted last year at the Free Church Manse, Whiting Bay, where its power to resist the sea breeze will be tested.

The Coccus-bearing Gum (*Eucalyptus coccifera*: Tasmania).—This is one of the Box Gums. The leaves of the plant when young are not unlike in colour, shape, bloom, and substance to Box, only much larger, being about the size of a penny. It is, so far as yet known, the most hardy of all the Gum trees. A plant of it grows in perfection at Captain Brown's, Lamlash; there is another at Clachaig, near Lagg, where its power of resisting the sea breeze will be ascertained. Its flowers are purple. At Powderham Castle, Devonshire, there is a tree, said to be of this species, more than 60 feet in height and 9 in girth. (See figure 18, in *Gard. Chron.*, vol. x., 1879, p. 113.)

The Crimson Gum (*Eucalyptus scitfolia*: South-Eastern Australia).—I have ventured to name this species popularly for this country as "the Crimson Gum," because of its crimson flowers. A few other Gums have crimson flowers, but this is the only one of the crimson bloomers likely to be cultivated in Britain. "Although not a tree of large dimensions, this splendid species is very notable for its magnificent trusses of crimson (filaments cinnabar-red) flowers, and its handsome leaves, which resemble those of the Indian rubber tree (*Ficus elastica*). It is a shady heat-resisting avenue tree, not standing in need of watering, and grows to the height of about 50 feet." (Mueller.) I owe to the kindness of a friend a specimen of this gorgeous Gum. It is now in the greenhouse of another friend, and I have had the pleasure of seeing it in bloom. I will not venture it, even in Arran, in the open air. When planted it must be placed in as warm and sheltered a spot as possible.

(To be continued.)

CHRYSOGONUM VIRGINIANUM.

THE recent unusually dry autumn afforded a very good test of the drought-withstanding capabilities of hardy plants in general, and few have passed through the trying ordeal more satisfactorily than the above-named plant, of which the accompanying illustration (fig. 131) shows only one of its numerous flower-heads. It is closely allied to the Silphiums, and though long since introduced, is rarely met with in gardens now-a-days. It is an extremely useful plant, especially for the front of mixed borders, or even as edging; and as it cares little for drought, we have found it indispensable for covering bare dry banks, &c. It has the merit, too—an unusual one for a North American plant—of beginning to open its flowers early, and continuing until the severe frosts set in; this year, notably, it has flowered since early summer, and when we saw it the other day it had lost little of its usual vigour. In light sandy soil it seems more floriferous than in that of a heavier nature; in the latter, too, it grows more robust, and loses its creeping character to a large extent. It produces numerous creeping rootstocks, rooting deeply as they travel along, and presenting a ready means of propagation. It rarely exceeds 9 inches in height, bearing three or four pairs of ovate, crenate, long petioled leaves, those on the stem semi-cordate, and surmounted with large heads of clear yellow flowers, each an inch or more in diameter. It is found on dry ground in Pennsylvania, Florida, &c., and is apparently very variable. One of the more distinct forms has been selected by Gray and called *detantum*; it has deltoid-ovate leaves, more coarsely dentate-serrate, the teeth as well as the tips of the bracts having a more conspicuous mucilage. The specimen from which our illustration was taken was sent by the Rev. C. Wolley Dod, D.

New Garden Plants.

MORMODES PARDINUM MELANOPUS, nov. var.

WHEN the varieties *asperum* and *armeniaceum* came I was puzzled enough. How can I describe my astonishment at the sight of a fine inflorescence loaded with flowers of such a dark brownish-purple tinge that they looked almost black? It is a great satisfaction to me to thank for this novelty Consul Kienast Zölley, of Zurich, one of the most intelligent orchidists of our days. *H. G. Rehb. f.*

PAPPERITZIA LEIBOLDI, Rehb. f.

This plant forms, as it becomes older, small dense tufts. There are a few often ascending filiform roots. The depressed pyriform one- or two-leaved bulbs are very small, nearly concealed by the lowermost leaves, and not attaining three-quarters of an inch in length. Leaves strong, cartilaginous, linear, acuminate, cuneate at the base, 2–3 inches long, three lines broad, very thick, with a projecting midnerve beneath, and sharp red borders. The peduncles I had before me were pendulous (!), filiform, 4–5 inches in length. Flowers in lax racemes. Bracts narrow, triangular, shorter than the stalked ovaries. Flowers small, three to five lines long, green with finally yellow bristles on the sepals and petals and some yellow on the lip. Median sepal conic-gibberose, with a tail-like apex equal to the inferior compressed-conical part. Side sepals connate, compressed, with a nearly square base and an aristate apex, arista shorter than the connate sepaline body. Petals oblong aristato-acuminate. Lip connate with the base of the column, forming a blunt pouch at the base, hairy inside and closed in front by a high tridentate lamina. Epichile of various forms, oblong, with basilar auricles, or cuneate, ligulate, blunt acute; with a tumour at its base, reaching to the base of the tridentate lamina. Column compressed, with a protruded rostellum and an androclinium with a blunt not very pronounced border. There is a triangular curved arm on each side the stigmatic hollow at the base of the column. Anther gibbous at the top, long, looking from the side like that of a *Leochilus*, or like an obtusely beaked bird's head. Pollinia globular, hollow inside. Caudicula broad, elliptical, or rhombic, convex at the base, linear at the top, with a small glandule.

This is a description of a plant that might, indeed, better be understood by figures. The plant is one of my oldest friends. Curiously enough, with a certain persistency, it always returns to me, but up to now it has avoided the friendly shore of Old England.

Returning from South Europe in December, 1843, I found at Dresden Mr. Leibold, just returned from Mexico. The first pick of his herbaria had been permitted to some wealthy amateurs, so that I had but a smaller set of those Orchids, which I named and described in the *Linnaea*. Quite accidentally I obtained a bottle, containing some branches with fruits and a queer little Orchid, that had an erect raceme and reddish looking flowers. Not leeching it to represent a new genus I named it *Leochilus Leiboldi*, in 1844. In 1852 I proposed a fresh genus, *Papperitzia*, dedicated to a lamented botanical friend of my youth, W. Papperitz, who discovered *Hymenophyllum tuarbridgenae* in Saxony, in 1858. I gave a figure of it in *Xenia Orchidacea*, i. t. 100, with that of *Cohnia*, a genus found again a few weeks ago, and kindly sent by Herr Oberhofgartner Wendland, the greatest practical connoisseur of Palms. I dried my alcohol specimen carefully, to escape the possibility of its accidental destruction. Unique specimens should never be kept in alcohol, and I was exceedingly pleased the other day to see that Professor Oliver has just the same view. Many, many hundreds of Mexican Orchid specimens and scraps passed through my hands, but my beloved Orchid was never seen any more.

I was not aware that I had a rival, or better, an associate in my love for this unique plant. This associate—Herr Kienast Zölley, of Zurich—born in Mexico, and knowing great part of the land as well as he does the environs of Zurich, kept silence, but sent copies of my drawing to his brown collectors in Mexico. Imagine my surprise when, in November, 1883, this excellent gentleman sent me two dried specimens of the plant. One is quite a dwarf, the other has a kind of a panicle, there

being a side branch to the raceme. Both inflorescences are upright, the flowers yellow. A living plant, sent also, had a raceme, but it did not develop, neither did the plant make good progress.

In July of this year came a glorious living plant with two rich and one poor pendulous inflorescence. The same plants growing wild have the inflorescences upright. The purple colour of my first specimen may have been developed in the spirit, perhaps from the fruits.

The genus is as it were a connecting link between *Ornithocephalus* and *Rodriguezia*. It answers rather well the incorrect diagnosis of *Zygostates*, but it has really two pollinia. A new species might show some new unexpected affinity.

My life has been very rich in orchidic pleasure. I may, however, state that I have seldom experienced

form a broad, wide body nearly as long as the lip, veined on the same plan. Petals spreading, ligulate, acute, ciliate on the borders, with seven dark purple nerves, the three looking towards the side sepals, green at the base, all covered with much darker purple spots. Lip nearly that of *Cypripedium barbatum*, very fine dark purple, full of dark warts on the involved side lacinia, pallid underneath towards the base. Staminate transverse, with one tooth each side, and a small one in mid.

This fine novelty is the *Sedenian opus* n. ? It was kindly sent me by Mr. Harry Veitch, at whose request it is dedicated to Mr. F. G. Tautz, Studley House, Goldhawk Road, Shepherd's Bush, London, S.W. It is with the greatest pleasure that I give it this name, since I know very well the uncommon enthusiasm for, and love of, Orchids that has suddenly

benefactor is Mr. Tautz, Studley House, Goldhawk Road, London, W. The lovely flowers are quite surprising in their uncommon colour, white with transverse purple bars, and in their very long petals and triangular lip. They resemble certain moths. The plant furnishes one of those difficulties which give so much work to the botanist, although the amateur knows nothing about them. The lip, when dried, becomes so very narrow, that no one would recognise the fresh plant from dried specimens. In the present instance, however, we have been fortunate, inasmuch as the living plant was known first, and the habit of its flowers could be well watched from the first. A representation of the species has been given in *Lindley*, l., xxvii. *H. G. Rehb. f.*

NERINE MOOREI, n. sp.

Leaves 9—12 inches long, half to three-quarters of an inch broad, very curved, slightly twisted, broadest about one-third of the length from the base, blunt-pointed, thick and leathery in substance, bright shining green, as if polished, on both surfaces, nerves not, or scarcely visible; leaves little behind the flowers; peduncle short and stout, compressed, dark brownish-green, 8 inches long; flowers centripetal, six to nine in number; pedicels thin but stout, three-quarters to 1 inch long; spathe valves lanceolate, red, longer than the pedicels; ovary globose trigonous, one-eighth of an inch in diameter; perianth erect, of the deepest and brightest imaginable scarlet; segments cut down to the ovary, oblanceolate, crisped, nearly quarter of an inch broad, 1½ inch long; filaments erect, of the same colour as the flowers, longer than the perianth segments; anthers oblong; one-sixth inch long, style straight, 1½ inch long.

This very beautiful plant is at once distinguished by its thick, leathery shining leaves, its compact constitution, and the very wavy, or rather crisp flower segments, and by the very brilliant colour of the perianth. I have named it in honour of the able Curator of the Royal Botanic Gardens, Dublin, Mr. F. W. Moore, to whom I am indebted for the bulb. *Max Leichtlin, Baden-Baden.*

LASTREA LEPIDA, n. sp.

Fronds ovate acuminate, a few of the lower pinnae abbreviated, herbaceous in texture, pinnato-pinnatifid; pinnae distinct, mostly alternate, very shortly stalked, the upper ones almost sessile, the longer central ones 3½ inches long, the lower four or five pairs shorter, the lowest being 1½ inch long, narrowly lanceolate, broadest in the centre (about a quarter of an inch), attenuately acuminate at the apex, and much contracted at the base except the lowest pair of lobes, which are about one-fourth of an inch long, and lie parallel to the rachis; divided two-thirds down into narrow linear-oblong blunt falcate ascending lobes, which are decurrent behind, glabrous except on the costa, which is hairy above, and on the margins, which are sparingly setose; veins simply pinnate, four or five on each side, very short, except the lower anterior one of each lobe, which extends to the sinus and terminates in a few slender setose hairs; sori medial on each side and very near to the midrib, covered by inflated roundish-reniform lead-coloured hairy indusia; caudex erect; stipes furnished with a few pale brown lanceolate scales while young, and as well as the main rachis green, furrowed in front, rounded behind, and freely setose on the margins.

This remarkably elegant evergreen *Aspidiaceous* Fern has sprung up without a history in the tropical fernery of Messrs. E. G. Henderson & Son, at the Pine-apple Nursery, Malda, Vide. It comes near the Fijian *Lastrea Prenticii*, as pointed out to us by Mr. Baker, but does not quite fit in with the peculiar features of that species as indicated by Mr. Carruthers, its original describer in the *Flora Vitiensis*, and by Mr. Baker in the *Synopsis Filicum*. *Lastrea Prenticii* is said to have rhomboid fronds, sessile pinnae, basal pinnule of considerable length, close set pinnales, and small involucre—characteristics which are not found in the specimens we have seen of *Lastrea lepidia*, which latter, moreover, has the basal pair of pinnules of full length but narrow. These basal pinnules, extending as they do, parallel to the main rachis, in consequence of the very narrow lance-shaped pinnule decreasing in width to their base, suggest the idea of resemblance to the guard of a small dagger. The veins are also much fewer in our plant, in which, instead of nine or ten pairs in each pinnule or lobe, there are four or five only in the very largest lobes. Whether it has found its way into our



FIG. 131.—CHRYSOGONUM VIRGINIANUM: DWARF HARDY PERENNIAL: FLOWERS YELLOW. (SEE P. 680.)

such delight as when my good little plant, the first orchidic curiosity that fell into my hands, reappeared after forty years, not accidentally, but in consequence of the persevering zeal of so distinguished an amateur as Consul Kienast Zölley. *H. G. Rehb. f.*

CYPRIPIEDUM TAUTZIANUM ×, n. hybr. art. ex Hort. Veitch.

This is stated to be a male between *Cypripedium niveum* and *C. barbatum*, to have the dwarf habit and manner of growth of the first; leaves unknown to me; and a two-flowered inflorescence. The flowers are very nice indeed, and are much like those of *Cypripedium tessellatum* porphyreum. The colours, however, are much more brilliant. The elliptical, acute, median sepal is white, with very dark purple veins, some of which have veinlets radiating outside, which look remarkably neat. There are two green veins on each side of the midrib. The connate lateral sepals

given Mr. F. G. Tautz the reputation of being one of our most zealous Orchidists. *H. G. Rehb. f.*

CATTLEYA GRANULOSA (Lindl.) ASPERATA, nov. var.

A fine *Cattleya granulosa* with brownish sepals and petals, spotted with dark purple. Lip yellowish at the base, anterior part of the finest light vivid purple with a broad white border, which looks remarkably fine. The anterior surface is rough in an extraordinary manner. It was kindly sent me by Major Lendy, in August last. *H. G. Rehb. f.*

CATASETUM TIGRINUM, Rehb. f. (Gard. Chron., 1881, p. 40, Jan. 8).

I was exceedingly pleased to receive a very fine inflorescence with twelve well developed flowers. I had previously seen only a single flower, and at another time a single inflorescence. My present

gardens amongst imported Orchids it is not possible to say, there being no information on the subject; but this surmise has perhaps more probability attached to it than the supposition that it is a mere garden sport, which is indeed all the less likely inasmuch as there is no cultivated Fern which at all closely resembles it. In any case it is as graceful in aspect as it is novel in character, so that it must become popular.

As known to us, the plant produces fronds of about 1½ foot in stature from a short erect caudex, the fronds being erectly arching in their mode of growth, of a tender herbaceous texture, and of a light bright green colour. They are nearly glabrous, a row of close-set setose hairs being found on the edges of the main rachis, and a few in the sinuses of the lobes, while the upper surface of the costae or secondary rachides is covered with shorter hairs of a denser character. The fronds are pinnate, and the pinnae pinnatifid, a style of division which we think most clearly expressed by the compound term pinnato-pinnatifid; these pinnae are more or less horizontally spreading, those on the upper part of the frond especially so, and they stand about half an inch apart, or rather closer upwards; they are of a very elegant narrow lance-shaped figure, pinnatifid throughout, but with the lobes towards both the base and apex very much reduced so that the base assumes a cuneate outline, and the apex is much acuminate; the lobes are narrow and falcate, with the posterior base decurrent, and at the base next the main rachis occur the two straight narrow longer lobes already alluded to. The greatest width in the central part of the pinna is about one-fourth of an inch; the greatest length is about 3½ inches, and the length of the lowest abbreviated pinna 1½ inch. The venation is but little developed, owing to the small size of the lobes, and consists of three or four pairs of short simple veins, bearing the sori near their base, close to the mid-vein, the lowest anterior vein, which bears a medial sorus, being elongated so as to reach the sinus, where it terminates in the fewestose hairs already mentioned. These sori are abundant over the frond, but scarcely crowded; they are punctiform, and covered by somewhat puffed-out lead-coloured hairy indusia, which are large for the size of the plant, and change to a whitish-brown colour when dry.

We owe our knowledge of this handsome plant to the Messrs. E. G. Henderson & Son, of the Pine-apple Nursery, who, we understand, have ascertained that it may be obtained without variation from the spores. It is a hothouse Fern of especial merit. *T. Moore, Chelsea.*

EFFECTS OF TOBACCO ON LAND.

THERE may be great profits in growing Tobacco (for a while), but I do not think we can keep it up long unless we are willing to spend a good share of the proceeds of sales in the purchase of manure and fertilisers to keep the yield up.

So far as my observation and experience goes, I find Tobacco very exhausting to the soil. A heavy coat of manure is needed for every crop, and that is something that can hardly be said of any other farm product. We often read and hear it said that any soil that will grow a good fair crop of corn is all right for Tobacco. I do not find this to be the case. A very good crop of corn can be grown where Tobacco would be a comparative failure. Not only does the crop require an immense amount of fertilising material, but it seems to have a bad effect on the land for succeeding crops. As "Uncle Jotham Sparrowgrass" used to say through "Tim Bunker's" papers, "it seems to pizen the land."

One of my neighbours raised last year an acre of Tobacco, putting on the land after it was ploughed a very heavy coat of fine manure, hauled at considerable expense from a neighbouring village. This was cultivated and dragged in thoroughly, so that there could have been no loss to speak of from evaporation or washing. That acre is the corner of a field which he has planted this year to corn—last year's Tobacco land and all. He told me several times that he expected a big crop of corn on that acre. I have seen the field almost daily during the season, and if anything, the acre corner is under the average of the field, notwithstanding it received so heavy a coat of manure while the balance of the field received none.

It hardly seems possible that the one crop of Tobacco could have absorbed the manure applied.

Until I find a more scientific and satisfactory explanation, I must fall in with "Uncle Jotham" when he says "it pizen the land." Unless the farmer makes a specialty of it, and buys manures constantly to keep his land up, I think the less he has to do with Tobacco the better off will his land be. It is no fit factor in ordinary farm operations with regard to rotation or aught else. While it is no doubt of a more permanent nature, it is something like the Hop craze that went through the country a few years ago—every one is rushing into Tobacco growing. Even away up north of the 44th degree, where a crop is never safe from frost, people are expending thousands of dollars for outfits. The business will not wear long under these unfavourable conditions. *W. D. Boynton, in "Farmer's Review," Oct. 23.*

THE NAMES "ABIES" AND "PICEA."

THE confusion that now exists in horticultural catalogues—both British and foreign—respecting the generic names of the Spruce and Silver Firs, is so great that scarcely two can be found in concord. Such diversity used not to be. For fifty years, I believe, the horticultural world, in this country at least, systematically called Spruce Firs "Abies," and Silver Firs "Picea." Now we are told that the old horticulturists were altogether wrong—that "Linnaeus made an accidental mistake," and so forth.

I am quite aware that it is a dangerous thing to call in question a change which began, I believe, with so acute and justly renowned a botanist as Dr. Lindley. Yet even the wisest men sometimes do questionable things. Soon after Dr. Lindley abolished the distinction between the two genera—(calling all the Spruce and Silver Firs, Abies)—my father wrote upon the subject, expressing his regret, and pointing out that the generic differences—to a nurseryman at least—were very real and visible; that even in the seedling state he could tell which was which with his eyes shut; that the Silver Fir, when I year old, had not more than six foliaceous divisions, while the Spruce Fir always had many more; that the cones of the Spruces were pendent, and had persistent scales, while those of the Silver Firs were erect, and had deciduous scales, so say nothing of the diverse form and texture of the leaves, with which most nurserymen are familiar. Dr. Lindley replied, "Mr. Bickhouse has pointed out a distinction without a difference."

I am well aware that it is now said that, while the determination of species depends upon the recognition of permanently diverse structure, the naming of genera is merely a matter of arrangement for scientific convenience, or to that effect. But science is not, or ought not to be, the author of confusion! If, for a century or more, Spruce Firs were called Abies, and Silver Firs, Picea, very substantial evidence of error ought alone to permit of change. By blending the two genera, Dr. Lindley virtually obliterated the generic name Picea. Obedient to this decision very many horticulturists have blended the two, so that now, all being classed under the name "Abies," you have to guess whether such and such a species is a Silver or a Spruce Fir.

An article in the *Gardeners' Chronicle* of June 20, 1863, p. 579, says "Dr. Lindley requests us to state on his part that he is not the author of the name *Picea nobilis*. . . . Like other scientific writers, he has refused to acknowledge the so-called genus *Picea*, which is a mere shop name, whose place is in the limbo of trade lists."

But soon followed another "upset," which I presume, Dr. Lindley would have emphatically protested against. We are now asked actually to reverse the old names, and to call the Spruce Firs *Picea* and the Silver Firs *Abies*! and we are told that Linnaeus accidentally reversed the original names of these genera. Obedient to this decision, catalogues now reach us so altered. And what is the result? It may almost be said that, horticulturally speaking, everybody is "at sea, in a perfect fog." It is, indeed, a most unsatisfactory state of things. I know that the argument is that scientific laws must be obeyed, how-

ever inconvenient and confusing they may sometimes seem to be. But may not a rule like this, though good as a whole, sometimes be carried too far?

I demur to the evidence upon which these generic names are reversed, and also to the declaration that *Picea* is a "shop name" that ought to be expunged. Though quite open to correction, I hold, still, that Linnaeus made no mistake; 24, that the name *Picea* is no "shop name," but as old as Abies; and 3d, that *Picea* is the right generic name for the Silver Fir.

In a large and valuable Latin dictionary, of which I am the fortunate possessor, printed in 1684, and therefore long before the time of Linnaeus, I find the meaning of Abies "Fir tree"; and, in an accompanying note, the words "Abietarius negotiator, a timber or Norway merchant." Surely this proves that, two centuries ago, the word Abies was applied to the Norway Spruce, as that is emphatically the Fir of Norway.

The same dictionary gives "Picea, the Pitch or Resin tree," plainly recognising, at that early date, the distinction between the two genera. If, with evidence so old as this, and the fact that Linnaeus applied to the Spruce Fir the specific name Abies, and to the Silver Fir the specific name Picea, we couple the national custom in this land for a very long period—almost certainly for 150 years—surely it is not unreasonable now to object to change, unless it can be shown that the authority for such change is unmistakably strong and solid.

In the introduction to my friend Mr. Veitch's excellent *Manual of Conifere* it is stated that Professor Don separated the Silver Firs from Abies, and constituted them a new genus under the name of Picea—which reversed the names of Pliny and the ancient naturalists.

Surely there is a mistake here? Pliny, in his *Natural History* distinctly enumerates "the Pine, the Pitch-tree, the Fir, and the Larch," and says "the Pitch-tree (*Picea*) loves the mountain heights," and "the Fir (*Abies*) grows upon the summits of lofty mountains." In chap. 18, he speaks of Picea as "a funeral tree," which, "as an emblem of death is placed before the door of the deceased," plainly indicating, I think, the dark Yew-like "comb-like" foliage of the Silver Fir. Again, Pliny says, "The Fir (*Abies*) is of a rounder form than the others, and its leaves are closely packed and feathered, so as not to admit the passage of rain;" and again, "From the branches of these different varieties . . . there hang numbers of scaly nuts of compact shape, like so many catkins." The cones of Picea [*Silvers*] do not hang—as is well known—but are erect upon the branches.

Now, if the Abies of Pliny grows higher up on the mountains, has closely packed leaves, and hanging cones, while his *Picea* grows lower down, and has comb-like funeral leaves, we are surely justified in regarding the former as the Spruce Fir, and the latter as the Silver Fir. Nor can I admit a mistake in the Linnaean names, especially as the Oriental Spruce (as described in the *Species Plantarum*) follows next to his "Pinus Abies," and he (Linnaeus) distinctly describes P. Abies as having "subulate mucronate leaves," while his "Pinus Picea" has "foliis solitariis apicemarginatis." Again, Pliny says, "the Pitch tree has a leaf more sparsely scattered than those of the Larch." The leaves of the Spruce are far less sparsely scattered than those of the Larch! Its foliage is more dense than that of the Silver Fir.

Pitch, though now mainly drawn from Norway, is not by any means exclusively so, and it is very probable that, in Pliny's time, it would be drawn mainly from trees growing upon mountain "heights," rather than from trees growing upon the "summits of lofty mountains" (to which positions respectively he assigns his "Pitch tree" and "Fir").

Admitting that there are some points in Pliny's descriptions of these trees which are, to say the least, perplexing, and which do not seem quite to harmonise with others, and that the summary of evidence may therefore perhaps be represented by the word "uncertain," I hold, nevertheless, that, with the

* The translators of Pliny's work remark, naturally enough, "If this is the case, the Pitch-tree can hardly be identical with the Abies eximia of Dr. Candolle."

† In not quoting Pliny as an authority, Linnaeus probably recognised the obscurity of a name to which he attached to his own *Picea*, in no way proves that he accepted their names, or intended to write *Picea* where he wrote *Abies*, and *Abies* where he wrote *Picea*. How could Tournefort's "*Abies fœtis foliis, fructu sæpe specioso*," or Bauhin's "*conis cæcis*," be given by Linnaeus under his name *Picea* if he misapplied it for *Abies*?

* The same names were apparently used, both by Telford & Co., who had the York Nurseries for nearly a century before my father and uncle took them in 1814, and by the Norwich nurserymen, Mackie & Co., where my father "learned the business."

† I believe these were the exact words, though I cannot easily find the article.

strong evidence which centuries afford of the name Abies having been applied to the Norway Spruce, and especially by Linnaeus, it is unwise now to overturn all this, as a name, if worth anything, ought certainly to convey a distinct and not a confused idea, which latter will undoubtedly be the case if generic names so long accepted have to be either annihilated or reversed. It is on this ground that we at the York Nurseries have continued to call the Spruce Fir Abies, and the Silver Fir Picea, and that we have declined to change till evidence of error, more clear and satisfactory than any yet in our possession, is brought forward. *Jas. Backhouse, York, November 14.*

THE AGRICULTURAL RETURNS, 1886.

WE have received from the Agricultural Department the "Agricultural Returns of Great Britain, with Abstract Returns for the United Kingdom, British Possessions, and Foreign Countries," for this year. The following information concerning the United Kingdom, gleaned from the book, may be of interest to our readers. It is stated that "as regards corn crops in Great Britain, that, compared with 1885, there is a decrease in the area under Wheat and Barley, and a further increase in that under Oats. The total area returned under Wheat is this year 2,286,000 acres—a decrease of more than 192,000 acres, or 7.8 per cent. less than that of the area of 1885, then the smallest recorded."

"The diminution of the area under Wheat is reported to have been due to the unremunerative prices which have prevailed during the last year, and to the unfavourable seed time in the autumn of 1885 and spring of the present year. The precarious nature of this crop in Great Britain, and the competition with foreign grain, have further induced farmers to devote their land to grazing purposes instead, while in many districts where Wheat had been sown and had failed in consequence of the untoward season, the land was ploughed up and other crops substituted. It is further explained that, in the majority of instances in which farms are on the owner's hands, but little if any Wheat is sown." These facts make it evident that "Wheat is no longer our most valuable crop in this country, and it can hardly be doubted that it will probably become less and less a food of home dependence. The 4,419,000 acres of Oats, for example, grown in the United Kingdom are now worth more money value than the 2,358,000 acres of Wheat. Barley also, which this year occupies a smaller total area than in 1885, and very much less than the average area of the last ten years, appears to be soon likely, in England, to exceed in extent as it does in the other divisions of Great Britain and in Ireland, the more rapidly diminishing acreage under Wheat, while the average produce of the Barley crop is already, indeed, worth quite as much per acre." Green crops are on the decrease: "The total area was 3,480,400 acres, or 41,000 acres less than last year's figures." Flax was returned as being "grown on 3000 acres," and it is stated that "where its acreage has slightly increased, it is mainly experimental."

"The cultivation of Hops has not been quite maintained, there being about 70,000 acres grown in 1886 as compared with rather more than 71,300 acres in 1885; a decrease of 1200 acres, or nearly 1.8 per cent. Part of the decrease in Kent is, however, in some districts only apparent, from over-estimates made in the acreage of last year, when many growers objected to make returns who have this year furnished them." It is also shown that "there is a further increase of 2745 acres in the area of orchards in Great Britain, it being now 200,284 acres. Market gardens likewise show an increase, namely, from 59,473 acres in 1885 to 60,850 acres in the present year. Several collectors report under both these heads a continually growing demand for fruit and fresh vegetables for towns situated even at considerable distances from the district where these are grown, and that farmers are therefore induced to appropriate some land to this produce."

"The importations of raw Apples and other raw fruit decreased in 1885, as compared with those of the preceding year, but in the first eight months of 1886 augmented imports in these descriptions of fruit taken together appear in the Customs' Returns, so that there is apparently scope for yet more extended production in this direction. In land

used by nurserymen for the growth of trees, shrubs, &c., about the same area is occupied as last year."

Turning now to Ireland we observe it stated that "as regards corn crops there appears to be a decrease of 2400 acres or 3.4 per cent. in the average under Wheat which was sown only on 63,400 acres against 70,800 in 1885; Barley shows an advance from 179,700 acres to 180,700 acres, but Oats, the most important corn crop, were less by 4500 acres, the area being now 1,333,200 acres against 1,328,000 acres in the preceding year. Rye increased by 2200 acres, while Beans and Peas occupied practically the same area, showing a total diminution of 3400 acres under cereal crops. The area under Potatoes, which covered 797,000 acres in 1885, was increased by 2700 acres in 1886. Turnips were more by 2300 acres, occupying 299,273 acres against 296,900 acres in the previous year. Mangel and Beetroot increased by 200 acres. The land under Cabbages and Rape was less by nearly 2000 acres, and that under Vetches, Lucerne, and other green crops by about 1100 acres, showing however, altogether, a net increase of 2300 acres under green crops. Flax was grown on nearly 128,000 acres, or an increase of nearly 20,000 acres over the acreage of 1885. The land returned under bare fallow was less by 2000 acres."

We take the following statistics from tables showing the distribution of the crops, &c., in Great Britain (excluding Ireland):—

ACREAGE OF ORCHARDS, MARKET GARDENS, AND NURSERY GROUNDS, AS RETURNED ON JUNE 4 IN 1825 AND 1886, AND OF WOODS AS RETURNED IN 1881.

	Total r	Orchards.		Market Gardens.		Nursery Grounds.		Woods.	
		1826.	1883.	1826.	1885.	1826.	1885.	1881.	1885.
England	168,771	1,093,344	55,930	31,902	10,705	19,678	1,450,018		
Scotland	1,879	1,837	4,502	4,869	1,642	1,134	820,475		
Isle of Man	64	150	210	177	1		not		
Jersey	1,187	174	121			3	ascertain-		
Guernsey, &c. .. .	412	475	130	173	50	19	tained.		
Great Britain .. .	200,284	107,539	60,850	39,473	12,614	12,894	2,458,360		

Number of Garden Allotments (excluding Railway Allotments) and exceeding one-eighth of an Acre in extent, attached to Cottages held by Labourers and Working Men in June, 1886, and average Rent (including Cottage).

	Total Number, including those returned as Rent free.	Number returned as Rent free.	Held on Rental.	
			Number.	Average Rent, including Cottage.
Total for Great Britain ..	272,557	9,953	262,614	4 s. 6 d.

The number of garden allotments of and exceeding one-eighth of an acre in extent attached to cottages granted by railway companies to servants in their employment in June, 1886, was returned thus:—Total for Great Britain, 6142, including those returned as rent-free, the number returned as rent-free being 710.

Statement showing Quantities and Values of Imports into the United Kingdom of the Undermentioned Articles in 1886.

Article.	Quantity.	Value.
FRUITS (raw):—		
Apples	2,387,683 bushels	£ 717,011
Oranges and Lemons ..	4,385,739 "	1,461,000
Not otherwise described ..	2,827,401 "	1,411,717
Total	9,566,823 bushels	£ 3,589,728
NUTS (edible):—		
Almonds	21,325 cwt.	£ 254,515
Principally used as fruit ..	....	447,285
Total .. .. .	....	£ 701,800
VEGETABLES (raw):—		
Potatoes	2,299,931 cwt.	£ 737,206
Onions	3,537,616 bushels	492,288
Unenumerated .. .. .	....	457,287
Total .. .. .	....	£ 1,686,781
Grand total .. .. .	....	£ 6,000,199

THE WEATHER IN THE SOUTH.—A correspondent writing from Antibes, says the weather there has been frightful. "The deluge has recommenced." Let us hope it will soon cease.

MESSRS. C. LEE & SONS' NURSERIES, FELTHAM.

TITIS is one of the branch nurseries of what was the old firm of John Lee & Co., devoted exclusively to the cultivation of a fine collection of Conifers and shrubs.

Historical information also attaches to the place, the nursery being skirting on one side by some old Scotch Fir—a remnant of old Hounslow Heath.

A walk up the avenue to the nursery brings one at once into view of many exotic species of trees. To cite only a few examples out of the many—California contributes Abies amabilis, true—the beautiful conifer is the rarest and decidedly one of the handsomest of the Silver Firs. A note of interest in connection with this plant is well worthy of being placed on record here. Mr. Isaac Dixon, who has spent the best part of a lifetime at this nursery as manager, believes that it forms part of the original stock of this tree, sent home by Douglas when travelling for the Horticultural Society, about the year 1831. From the Rocky Mountains came that lovely glaucous variety, Picea pungens. Japan, that land of gardeners and fine shrubs, sends those magnificent things—Thiopsis borealis, Thuia falcata, T. Standishii, Cryptomeria elegans, C. Lobbi, Taxus adpressa, T. cuspidata, fine Retinosporas in variety, and a plant that the Japanese have used from time immemorial in planting round their temples—the Umbrella Pine, Sciadopitys verticillata. From the mountains of Chili comes that

effective lawn tree, Araucaria imbricata; Prumnopitys elegans, an erect growing green shrub, also comes from the same land.

The Silver Firs are an unusually fine lot of stock. We noticed handsome specimens of Nordmanniana, grandis (this needs no words to recommend it), nobilis, conspicuous for its whitish-green leaves; magnifica, some superb examples; and Pinsapo, of neat and erect growth.

Golden Yews form a very conspicuous feature in the avenue; they are of all sizes, and are trained in various shapes—some as pyramids, others as flat as tables, many vase-shaped, and a lot of fine standards, the principal varieties being Taxus baccata (common), T. adpressa, T. a. stricta, T. aurea, T. Davstoni, T. dumosa, T. fructu-luteo, T. Washingtoni, T. japonica, T. fastigiata, T. f. aurea (Standish), T. elegantissima.

Golden, silver, and green Hollies, from 10 to 20 feet high, are especially fine, of such sorts as Golden Queen, I. Hodginsii, I. heterophylla, I. latifolia, I. pendula aurea (Waterer's), I. Fisheri, I. chrysocarpa (yellow berried), I. baccata, and others.

Cupressus Lawsoniana aurea variegata, a variety which originated here, was in fine form, a stock of it is being worked up; C. L. lutea, another good introduction, was also very bright and attractive.

Retinospora squarrosa.—This is probably the finest specimen to be met with in the country; it is one of the many striking objects in the avenue.

There are many other fine subjects in this avenue that deservedly demand notice, but it is quite sufficient just now to say that every tree or shrub worth growing, and proved hardy, is represented in it. At the end of the avenue is a finely proportioned specimen of Sequoia gigantea, some 30 feet in height.

In reference to subjects grown in quantity in what are called "breaks" may be specially noted Cupressus Lawsoniana erecta viridis, an enormous and wonderfully even grown stock—in fact, enough of it cannot be grown, so great is the demand.

Of Aucubas and Hollies there are great numbers grown. Thiopsis borealis is also another good town shrub that is being grown in large numbers.

Taxus baccata fastigiata aurea (Standish), unlike other golden Yews with striped leaves, has entirely golden foliage—in fact, it may be said to be bathed in gold. It does not burn like some of the Yews

indeed, it receives an increased brilliancy when fully exposed.

A very thrifty lot of young *Araucaria imbricata* from English grown seed was very noticeable. It is important to know that English seed comes up so well, as hitherto it has been the custom to rely on other sources for our supply of this tree.

Rhododendrons are largely grown. Touching named sorts, the practice here is to layer the plants, this mode of procedure ensuring more "stocky" and bushy plants than when they are grafted. Newer sorts are of necessity grafted, to get up a stock quickly.

Regarding flowering shrubs, both for outdoors and forcing, Mr. Dixon considers the best three to be *Viburnum plicatum*, *Staphylea colchica*, and *Philadelphus aurea* var., the Mock Orange. Of this plant there is a very fine specimen in the avenue, which when in bloom was quite a floral picture.

The firm has long made hardy Heaths a great specialty—that old but still valuable variety, *Erica codonodes*, being grown in quantity. For winter bedding it is probably unsurpassed, its numerous white rose-tinted flowers producing a pretty effect. *Azalea altaclarensis*, a sterling and free-flowering sort, deserves passing notice, as one of the best forcers, equalling *A. mollis*, of which we observed great quantities. A remarkable stock of Golden and Silver Ives is grown—worked on the common Ivy—a great many of these plants were used with much effect at the "Inventions" Exhibition last year, and are none the worse for the "dusting," thus showing their adaptability to town-work.

A good dense hedge plant is *Ligustrum ovalifolium*, with leaves somewhat larger than those of the common Privet. One of the best of dwarf Box plants is *L. coriaceum*, with beautiful broad, dark, glossy leaves. Much more might well be said of this fine hardy plant nursery, from the "wee modest" innumerable examples 6 inches in the "breaks," to the magnificent and imposing specimens 30 feet in height in the avenue. Enough, however, has been written to show that this nursery contains subjects of no mean order and interest to planters at this season. The firm has lately secured another piece of land at Hounslow, which is stocked with Roses, fruit and forest trees, Rhododendrons, &c., containing some noteworthy features, to which we hope to refer in a future issue. B.

MINA LOBATA.

THIS is a Mexican annual climbing plant, figured in the *Botanical Register*, 1842, t. 24, but lost sight of since. By modern botanists it is included under *Ipomoea*, but the form of the flower is so very different from most of the *Ipomoeas*, that we think it more convenient to preserve the garden name. Messrs. Haage & Schmidt of Erfurt have the credit of re-introducing it. These gentlemen speak of the plant as really magnificent, and express surprise that so remarkable a climber should have been suffered to go out of cultivation.

The genus *Mina* (named after Don Francisco Xavier Mina, a Mexican Minister) is closely allied to *Ipomoea*, and resembles in growth and its three-lobed foliage the species of this genus, but the flowers are totally different as concerns their form and their lovely colours. The flowers appear on fork-like racemes projecting from the dense and luxuriant foliage, and present thus, with their bright colours, a striking aspect. The flower-buds are bright red, but the colour changes through orange-yellow to yellowish-white when in full bloom. Another interesting and most singular feature of this plant is, that it retains the first racemes developed during the whole flowering season, the buds growing successively at the tops of the racemes, while the lower flowers, after blooming for a considerable time, fade; so that the plant thus bears continually clusters of flowers from the bottom up to the top of the plant. The oldest racemes attained a length of 15 to 18 inches at the end of September, and had produced thirty to forty individual flowers on each fork-like raceme, of which there are six to ten in full bloom or in coloured buds at one time. The tube-like flowers are almost horizontal on the erect peduncles, and measure when fully developed three-quarters of an inch in length, while the uppermost coloured bud is only one-eighth of an inch long. This plant proved to be a very rapid-growing climber under cultivation; the seeds were sown in March, and the seedlings were cultivated in pots until the middle of May, when they were planted out in

the open ground, and at the beginning of August had formed pyramids of over 18 feet in height, well furnished with green luxuriant foliage, and profusely covered with flowers, as will be seen by the annexed illustrations (figs. 132, 133), which shows a part of one pyramid, reduced from a photograph. It thrives well on sunny situations, and is well suited for covering arbours, trellises, &c., on account of its rapid growth and great dimensions.

FORESTRY

WHAT IS THE PROPER SEASON TO PLANT?

THIS is a question which arises very often, and upon which there exists a very considerable diversity

absolute success be devoted to planting operations. This, therefore leaves nine months which may be devoted to planting, of one description or another. It is therefore obvious, that any arbitrary rule must necessarily be useless.

There are many conditions which must be taken into account in settling when to plant; permit me to mention a few—soil, exposure, description of plants to be used, size or age of plants used, the state of the weather, the dryness or dampness of the ground to be planted, &c. If the soil is dry and the plants used not more than from 18 inches to 2 feet high, I would recommend planting from October to December, provided the locality is not over-exposed; if, on the other hand, the ground to be planted is very much exposed, I should say that from February to April is the better season.

Should the plants selected be large coniferous plants, say from 2 to 3 feet high, I always recommend spring in preference to autumn planting, and my own experience is borne out by many competent authorities, such as Sang, Nicol, Brown, and others.

I have always found that hardwoods, such as Oak, Ash, Beech, and in fact all deciduous trees, are, as a rule, better planted in autumn; and again, all evergreens do better planted in spring. Again, this must be further qualified by the nature of the soil, both as to quality and comparative wetness or dryness. If dry, plant if possible all deciduous plants or small evergreens in autumn; if wet retentive soil, plant in spring.

There is also another circumstance, although not of a scientific nature, which must weigh with every one in settling this question, viz., the convenience at command to get the work done at a certain season, besides the possibility of unfavourable weather. These have all their effect in fixing the proper, or rather, under this head, the most convenient season for planting operations. My experience, therefore, is, plant deciduous plants in autumn, so as to give them time to establish their roots, and enable them to throw leaves in spring; plant evergreens in spring, so that the early approach of growth will prevent an undue check to the maintenance of their leaves, besides any prolonged interference with the permanent root-action which I believe must be going on with them, as opposed to deciduous plants. Under these circumstances, I think it will be easily understood, as I have said at the outset, that it is out of the question to prescribe any infallible rule on this subject.

I am much pleased that my friend Mr. Webster has adverted to this subject, and trust that he will receive in kindness this expression of my opinion on what is generally a very excellent contribution to our practical knowledge of forestry. C. S. F.

NOTES FROM THE LATE COLONIAL EXHIBITION.

(Continued from p. 692.)

Birchwood, particularly that of *Betula alba*, or the white Birch, is much used in this country for slate frames, bobbins, and spools, light furniture, and occasionally for toys. The wood is light, easily worked, and takes a very fine polish. It lasts well under water, for which reason sluices and floodgates are made from it, as well as ship bottoms, and piles from the older and harder trees. *Betula lenta*, the black or Cherry Birch, of which some notes appeared recently in your columns regarding timber produced in this country, is a valuable tree, the wood being hard, of a beautiful reddish tinge, almost like Mahogany, and extensively sought after for cabinet-making and indoor purposes generally. It is perfectly well adapted for culture in Britain, and being a handsome average-sized tree, and valuable as a timber producer, should, we think, be freely intermixed amongst our commonly planted hard woods.

MAPLES.

Other valuable woods, of which fine specimens were exhibited, were the various species of Maple (*Acer*), red Alder (*Alnus rubra*), Poplar, *Arbutus Menziesii*, of which a very peculiar growth was prominently exhibited; *Quercus Garryana*, prettily veined; American Lime, Elm, Ash, and various others. Two examples of Pine wood, a description of which was somewhat omitted at the proper place—*Picea sitchensis*, and *Pinus ponderosa*—were, I find from my notebook, particularly attractive, that of the latter tree having a pretty yellowish tinge, and labelled as hard, heavy, and durable. It is rendered of interest as being a tree that is not uncommon in this country.



FIG. 132.—MINA LOBATA: PORTION OF FLOWER-STALK. FLOWERS ORANGE TO RED, NAT. SIZE.

of opinion; it is therefore worth a little further inquiry. In the very excellent and instructive article in your issue of the 4th Mr. Webster adverts to the subject, and the teaching of his article seems to me to imply, that in every case autumn, or "fall planting," as it is called, is preferable to spring planting, and the reasons he assigns for this are thoroughly pertinent, and so far scientifically sound. While, therefore, conceding this, and further admitting that in many cases he is correct, I by no means admit that in all cases planting done in autumn is better than if done in spring.

It would be absolutely impossible to lay down any hard-and-fast rule on this subject, because there are so many circumstances which may alter the conditions necessary for successful planting. Planting may be done (according to an old accepted rule) in every month in the year in which the letter R appears, if executed with care, and under favourable conditions; even this rule may be so far stretched that in a late season the early part of the month of May can with

The wood of *Picea sitchensis*, from the example shown, is of a light clear colour, even and straight in the grain, and moderately hard. It is said to be valuable and much in request for various uses.

WOODS OF NEW BRUNSWICK.

With the arrangement of the New Brunswick wood trophy we were delighted beyond measure, for a simple glance at any particular wood had such connections as to remind one that they were actually standing beside a newly hewn down and quickly converted specimen of the tree. This trophy contained specimens of the woods commonly in use, these being arranged in panels, in three sections—first, Conifers; second and third hard woods, these latter being divided

panel, while at each corner of the frames were transverse sections showing the end grain and annual layers of woody matter.

As the whole design was unusually elaborate and artistically finished off, and every specimen accurately and legibly named, the collection was of great value to the practical woodman, for not only were the various timbers shown in every position, but the bark, fruit, and flowers were not, as is too often the case in such exhibits, made of secondary importance. Great credit is certainly due to the inventors or designers of such a practical as well as pleasing method of illustrating their various forest trees and the peculiarities of their timber. *A. D. Webster.*

(To be continued.)



FIG. 133.—MINLA LOBATA: PART OF A PLANT, FROM A PHOTOGRAPH (REDUCED). (SEE P. 684.)

into two kinds, hard and soft, and all together embracing about fifteen kinds.

Arranged perpendicularly at the base of these were 3-feet long logs of the same wood, with the bark intact, while sapling trees, likewise of the same kinds, formed the sides of the panels. Each wood had a twig of the foliage and flowers to which it belongs painted upon it, and so nearly did these approach Nature in appearance that we were at first quite deceived, taking them for the real foliage and flowers. Between the logs just described and the large panels was an inclined frame containing some thirty small panels of the lesser growing woods, and on each of these was, likewise painted the foliage or fruit, sometimes both. Each panel was artistically framed or mounted with a narrow strip containing the bark of the same wood as formed the

respect to-day. I would, with your permission, refer to about a score deserving of notice, and that are new and entirely distinct, and most of them likely to be largely grown in future—commencing with—

New Singles: Lady Churchill.—At first glance the florets form two distinct concentric belts; the inner tubular portion is pale yellow, while the expanded outer circle is of a bronzy-purple, both curiously contrasting with each other, and with the bright yellow disc cushion in the centre. *Crimson and Gold.*—The large triple circle of ray florets are intense crimson, rising out of a high central golden disc, probably the best of its class for cutting or decoration. It is of American origin, and must be useful for hybridising purposes. A fine contrast with America, single white-blush.

New Japanese Anemone: Cincinnati.—This is another for which we are indebted to our American cousins, and which promises to be an acquisition to a class that seems rapidly to increase. The outer fringe florets are long, flat; drooping, and of a pleasing rosy-blush fading to white. The short central petals are somewhat deeper tinged; the surface, unlike some others, being very even. If I recollect aright, Messrs. Cannell got a First-class Certificate for this at the Crystal Palace on the 6th inst. Mrs. Holmes.—Much of the same character, but I understand a freer bloomer, with the flowers always coming perfect, and with the important difference, that instead of drooping the ray florets stand firmly horizontal. Its stiffness is an advantage, and makes the blooms seem larger, though they are considerably smaller than the preceding. This has been raised by Messrs. Cannell.

Fimbriated: Croesus.—A welcome addition to a handsome but limited class. The colour, orange-red, tipped with gold, is very effective and telling. The size and density above the average, and has deservedly got a First-class Certificate. Much superior to *Arbre du Noel* of old varieties. *Scapin.*—A shade smaller, purple-flesh colour, and a fine contrast with the foregoing. Both are packed with petals, handsomely reflexed, forming half globular velvety cushions.

Reflexed: Elsie.—It is time to have some valuable additions to this class. If Cullingford was an undoubted acquisition, this will this year be as decidedly so; nor does it displace any favourite, being entirely different from any other. Wherever it has been shown it has received a First-class Certificate, and must enhance the reputation of Messrs. Cannell's firm. The colour is primrose or sulphur-white, the florets large and slightly fluted, and produced in immense numbers so as to give the blooms great depth, unusual with reflexed varieties. *Mons. Ulrich his.*—This is one of Delaux's newest introductions, but at present it is doubtful if it must not be described as a reflexed Japanese. The colour is very effective, deep, rich crimson with a tinge of orange, and having the broad flat petals tipped with gold. It shows a centre, but cultivation will remedy this.

Incurved: Bronze Queen of England.—Sport from Queen of England (Her Majesty) with all the good qualities of the well known Queen family; will evidently be very largely grown in future. *W. K. Harris.*—A new Japanese introduction. Inside of the florets crimson streaked, reverse nankeen-yellow, with a bronze shade. When well grown this forms perfect balls that at first look reminds one of fruit farming! It would seem to have some Japanese blood, and the same applies to another that will ultimately be placed in the incurved Japanese section, and that Messrs. Cannell have significantly named after the *Chrysanthemum* hero of the hour, Mr. E. Molyneux.—The colours of the last are intensified in this, the reverse petals golden. *L'Or du Japon.*—Unlike the two last named, this under no circumstances shows a centre; and another variety will probably be much sought for, as there is nothing in the incurved class similar. The florets are broad, deep yellow, with a dash or shade of bronze; and if well grown, the petals might not seem so loose, which at present gives it a Japanese character. If Pethers sent out no other, this would perpetuate his memory. *Frank Wilcox.*—Of smaller size, of bright bronzy-red, with marginal gold shading, splendid shape, and will become a valuable addition if it can be grown perfectly double. The extremities of the florets are slightly fringed or fimbriated. There are some other new things, but it is doubtful how to classify them.

Japanese: Gloriosum.—As usual the largest accensions are to this class, and the difficulty seems to be to sift out the best, as, *prima facie*, it is undesirable to certificate any inferior and similar to an older

Florists' Flowers.

NEW CHRYSANTHEMUMS AT THE "HOME FOR FLOWERS," SWANLEY.

I was greatly struck when visiting Mr. Cannell's famous florist establishment about the beginning of September with the vast numbers of *Chrysanthemums* undergoing their first trial. Many were, we understood, locally raised seedlings; but the greater number had been imported from Japan, America, France, Belgium, &c. I asked to be allowed to see blooms of some of the new kinds I noted when fully developed, and had a rare and varied treat in that

introduction. Of *Gloriosum* there can be no such doubt, and I may deservedly name it first, as it merits all the encomiums bestowed on it, as well as the certificates. The colour is bright lemon-yellow, florets unusually long, tubular, and slightly twisted—upright and very distinct. Alfred Chantier.—I place this next, as in character very similar, long, tubular, upright; florets of the Leon Brunel style—very showy. Colour faint rose-lilac, shading towards the tips to buff—one of Delaux's. Roi des Japonaises.—First-class Certificate. Broad drooping florets of a reddish-crimson colour, tipped gold, somewhat resembling Delaux's *Etoile du Midi*, but said to be different in many respects. Mrs. H. Cannell.—The whites of the Lady Selborne type in this receives a welcome addition, especially as it will commence blooming when that fine sport from James Salter is declining. The florets are broader and somewhat inclined to increase, and with good treatment may be expected to incur its petals. First-class Certificate. Don Quichotte.—In this *Reydellet*, the raiser, seems to have scored to win. The colour, not easily described, is new and very pleasing—a bright lilac suffused with rose magenta, fading lighter to the points, which are prettily recurved. I know of no softer or more tender winning shade of tinting. Minnie Miller.—Rose magenta, free growing and fine, with incurving florets. It remains, however, to be seen whether this will, or can be grown perfectly double; it takes always two or three years to decide this. Hemonah.—One of the new American Japanese, seemingly distinct in shape as well as colour from former introductions. The body colour is white, the outside of the semi-globe—for this is the shape—is pinkish and tinted with lavender-cream.

Although this pretty considerable list so early in the *Chrysanthemum* season may exhaust your space it does not exhaust those for which Messrs. Cannell have already received certificates, as I find I should have included two such fine things as *Elsie Durdan* and *Jane*—the latter a very effective white-rosy single. *W. J. Murphy, Clonmel.*

SUPPLEMENTARY LIST OF PERENNIAL ASTERS.

(Concluded from p. 659.)

ASTER TRICEPHALUS, C. B. Clarke.—Rootstock creeping; stems from 1 to 2½ feet long, erect, leafy, puberulous, bearing one to three large showy heads; radical leaves obovate spatulate, on long winged petioles; margins entire, undulated, glabrous or hairy; cauline leaves oblong, half amplexical; involucre half an inch high; bracts numerous, linear, outer ones longer than the inner; ligules forty to fifty, narrow, over half an inch long, purple; achenes slightly compressed, pubescent; pappus long, simple, silky-white.—Sikkim Himalayas, 10,000–14,000 feet elevation. This species is nearly allied to *A. himalaicus*, and was at first thought to be a more developed form only, but besides being taller and more robust, the involucre bracts are narrower, and the pappus stouter. It has been some years in cultivation, and promises to make a good garden plant. Flowers July and August.

ASTER PALUDOSUS, Ait. (SECTION HELEASTRUM.)

Stems from 1–2 feet long, sometimes branching, bearing few or several racemously or spicately disordered heads; leaves broadly or narrowly linear, 2–4 inches long, and about a quarter of an inch broad, light green; involucre about half an inch high, nearly hemispherical; bracts unequal, the outer very lax, lanceolate, subulate, the inner ones linear, spatulate, with herbaceous acute tips; rays short, handsome, deep violet. (*A. grandiflorus*, Nutt., non L.; *Heleastrum paludosum*, DC.; *Tripolium paludosum*, Nees.)—Flowers August to October. Native of wet fine barrens in the low country from North Carolina to Texas, Arkansas, and Missouri. A charming little species well adapted for culture in the vicinity of lakes or ponds, and promising to be a good garden plant.

ASTER TRINERVIUS, Roxb. (SECTION ORTHOMERIS.)

Stem 2–4 feet long, simple, grooved, hispid or sometimes almost glabrous, bearing a few large loose corymbose heads; leaves 1–4 inches long, lanceolate acute, the upper sometimes obtuse, coarsely serrate, rough on both surfaces, and reticulately veined; involucre bracts linear, imbricated, mostly acute, with

reddish tips; ligules 12–15, inclined to reflex, half an inch long, narrow, white or pale bluish; disc flowers yellow, prominent; achenes hairy; pappus reddish with a few shorter outer hairs. (*Aster scabridus*, Hook. fil. and Thon.; *A. Benthami*, Steetz; *A. asperimus*, Wall.; *Glatella asperima*, Nees; *Diplopappus lusus*, Benth.)—Widely distributed in Central and Western Himalayas, Sikkim, 5000–7000 feet, Khasia Mountains, 3000–6000 feet, extending also to China and Japan. It seems to be very variable, both in habit and leaves, the name unfortunately being far too rear *A. trinervius*, Desf., to be safe in gardens. A fairly showy species with larger flowers than the older *A. sikkimensis*. Flowers September and October.

ASTER SIKKIMENSIS, Hook. f. and Thon.

Stems 3–4 feet long, much branched from base, erect, smooth, obscurely grooved, leafy, and bearing numerous large loose corymbose heads; leaves lanceolate, acute or acuminate, 3–7 inches long, 1–1 inch broad, contracted towards base of petiole, and again widening into broad auricles, half amplexical; involucre half an inch high and as broad, not imbricated; bracts numerous, linear-acute, reddish-brown, slightly pubescent, and all about one length; ligules 30–40, very narrow, ½–¾ inch long, generally reflexed, purplish; achenes hispid, four-ribbed, half as long as the simple silky-white pappus.—Eastern Nepal and Sikkim, 6000–12,000 feet elevation. This species has been long cultivated in gardens, though much less showy than *trinervius*, perfectly hardy, and inclined to run by means of underground stems. Figured, *Bot. Mag.*, t. 4557. Flowers August to October. *D.* [By an oversight the first part of this article was attributed to Mr. Baker instead of Mr. Dewar. Ed.]

ORCHIDS AT MESSRS. HUGH LOW & CO'S.

The great attraction at the Clapton Nurseries at the present time is the large importation of *Angraecum sesquipedale* which recently arrived, and which is, doubtless, the most successful one of this plant ever made, both as regards the size of the specimens and their good condition. It is a novel sight to see such an array of tall leafy plants of this rare species; and from the sound appearance of the plants it is difficult to realise the fact that they have just passed through one of the most trying journeys an Orchid importer has to stand the risk of. With them, also lately arrived, are many sturdy plants of the true *Angraecum Ellisii* and *A. articulatum*, both of these being well furnished with flower-spikes ready to come away at once. These two plants are often confused with each other in gardens; but as varieties, if not as species, they are distinct in growth, and the flowers of *A. Ellisii* have cinnamon-coloured tints, while the long racemes of *A. articulatum* are wholly pure white. Other rare *Angraecums*, and some probably new ones, and the pretty *Acranthus Curnowiana* are also among this importation; and among those previously imported the pretty *A. hyaloides* and *A. fastuosum* are in flower; the latter have very curious fleshy leaves, and bunches of comparatively large snow-white flowers.

CATTLEYAS.

The Cattleya-houses contain a seemingly countless number of grand established specimens, leafy, clean, well-rooted and well-furnished with flower-stalks. To some of the leading kinds separate long span-roofed houses are devoted. The varieties of *C. Mossii*, including some good masses of *C. Wagneri* and *C. Reineckiana*, occupying one of them, the *Mendeliis* another, the *Trianes* a third, and so on. In the matter of present flower a charming and fragrant *C. Gaskelliana* was the best of any, some three hundred flowers having been furnished by it lately, and those which are now out and coming on bid fair to supply bloom until the rising buds in the *Triane* house open. One large specimen of *C. Gaskelliana* now in flower is equal to the true autumn-flowering *labiata*, and if cut flowers of it were sent to a competent judge it would probably be so named. Also in the Cattleya-houses are a fine lot of *Cattleya amethystyglossa*, nearly a houseful of *C. Eldorado* and *C. superba*, a large quantity of stout specimens of *Lælia purpurata*, and in bloom and making a fine show a quantity of *Lælia autumnalis atrovirens*, and, in bud, the most regularly flowered large batch of *Lælia peduncularis* we have ever seen. When its flowers, which always remind us of *Ixias*, are open,

it will be a pretty sight. *Cattleya aurea*, too, *C. guttata*, and various others are in bloom in the Cattleya-house, where also a unique specimen will be found in *C. resplendens*, which is probably a *C. Schilleriana* hybrid.

PHALÆNOPSIS.

The *Phalænopsis*-house is always of interest at Clapton, notwithstanding that most seasons many of the flowers fall victims to the fogs. This year the thousands of plants of all the best species in it are better furnished with spikes than usual—the whole are literally bristling with them; better than all, too, they are much more backward than usual, and it is believed that the flowers will escape damage this winter. If so, it goes without saying that Messrs. Low's house of *Phalænopsis* will later on present a show of these plants in bloom the like of which has never been seen here. *P. Stuartiana*, which is one of the prettiest and also the freest growing of the species, is looking very fine, and *P. Sanderiana*, which give noble flowers of a pleasing pink tint, and the neat little *P. rosea*, are in bloom in several varieties.

CYPRIPEDIUMS.

A large span-roofed structure is filled with *Cypripediums*, the leaves of many of which are handsome enough to warrant their being grown as foliage plants; but how doubly welcome are they on account of their quaint and pretty flowers. Some of the best species are grown by the thousand here, and notably the stately *C. Lawrenceanum*, whose handsomely marked plants send forth such grand flowers—some now open, and some coming on—and the snowy *C. niveum*, which is everybody's favourite. *C. ciliolare*, *C. Lowii*, *C. Parishii*, *C. Spicerianum*, and most of the other good sorts are here in quantity, a large lot of *C. Haynaldianum* being in bloom as well as sundry plants of *C. Crossianum*, *C. Spicerianum*, *C. Roelzii*, *C. Harrisianum*, and others.

COOL ORCHIDS.

These have received a very important addition in the large span-roofed structure near the entrance, which is now devoted to the large established specimens of *Odontoglossum Alexandrae*, of which the house contains a great quantity, and out of which interesting hybrids are frequently flowering. The strain there is of the best; and out of Messrs. Low's importations some superb varieties of the guttatum and fastuosum class have flowers which are scarcely surpassed by the famed *O. C. Veitchianum* itself. At present some very good forms are in flower, and the clean, stout, and actively rooting plants are sending up a liberal supply of spikes for flowers in the future.

The smaller plants and fresh importations are continued in many long, low spans, one being entirely filled with *O. Pescatorei*, and all in fine condition. Among the good things in bloom we noted *Masdevallia racemosa* Crossii, *Restrepia antennifera*, *R. elegans*, and a new one with the habit of *elegans*, but striped longitudinally, not spotted; *Ionopsis paniculata*, *Oncidium bicolor*, many *O. varicosum*, and varieties of *O. pretextum*; some pretty *Barkeria* elegans, and other *Barkerias*, which grow well here in a cool light house; many *Oncidium tigrinum*, *Maxillaria venusta*, *M. nigrescens*, and *M. lepidota*; *Pleione birmanica*, *P. Wallichiana*, and *P. maculata*; a great many distinct varieties of *Lycaste Skinneri*, *Dendrochilum uncatum*; a well budded batch of *Dendrobium Lowianum*; a large, well grown, and profusely flowered lot of *Odontoglossum Roelzii*; *O. ramossissimum*; *Masdevallia tovarensis*, a quantity of *Oncidium Kramerii* in bud, an equally good supply of *Coccygia ocellata* in full bloom, and sufficient other good things to prove that, notwithstanding the immense number of plants in stock, Messrs. Hugh Low & Co. cultivate them up to the best flowering capacity, a fact, however, which is proclaimed by the healthy, clean, and stout appearance of those not in bloom.

BUDDLEA CURVIFLORA FRUITING.—Judging from botanic gardens both in the Kew and Cambridge Specimens Gardens last summer, the fruiting of this species would seem to be as regular and plentiful as that of its more widely cultivated and better known congener *B. globosa* is scarce. The fruiting of the latter was recorded in the *Gardener's Chronicle*, p. 306 of the present volume. The infrequency of the two is widely distinct in general appearance, and if conspicuousness, or general showiness, had any influence in attracting insects to set the flowers, *B. globosa* should receive the first share of attention.

The Flower Garden.

SUBJECTS TO PLANT UNDER TREES.

THERE are few places where there are not spots bare of grass under trees. These might be made objects of interest if a few pieces of rock and old tree roots were available, and set on a few barrow-loads of leaf-mould and loam, to be planted with the commoner kinds of Ferns, winter Aconites, Snowdrops, and any other plants which flower early and mature their growth by the time the trees put forth their leaves. The following evergreen and flowering shrubs are suitable to plant under the drip and shade of trees:—Evergreens: Aucubas, Buxus, Taxus, Ephedra, Hypericum, Ilex, Ligustrum, Prunus, Ruscus. Deciduous: Corylus, Daphne Mezereum, Rubus, Sambucus, Hypericum, Spizæas, Symphoricarpos, and Euonymus.

PROTECTION.

The protection of tender shrubs, such as Laurustinus and the tenderer kinds of Conifers, will now need attention. The best sort of protection is that which affords only a partial shade, branches of Spruce Fir, for if the frosty winds be filtered through the Spruce branches which have shed their needles and only have a good furnishing of twiggy shoots, those are preferable to fresh cut boughs, the plants will come through the winter much better than if they had been protected with mats or other more dense materials. Upright poles driven into the ground at distances of 2 feet, and the branches woven around in basket fashion, is the quickest mode of protecting tender plants. Plants on walls, trellises, &c., may have a covering of the same description fastened over them, but not so as to exclude light from the shoots; dry bracken is also a good covering in such situations; I have used it with good effect on Tea Roses and others planted in beds. A little shaken over the Rose shoots in frosty weather is a capital means for warding off hoar frosts, and in low moist districts this good effect will be remarked in the vigour of the plants afterwards.

ROSES.

The following year, if not already done, Roses should receive a good mulching of manure. Where standard Roses are grown on grass, the turf should be removed 3½ to 4 feet in diameter, and the soil forked out amongst the roots of the plants. Sufficient new turfy loam should be in readiness, and a liberal quantity of Thomson's Vine and plant manure should be mixed with the new soil as the filling-in proceeds. I treated a whole house of Roses in this way last year, and the result was marvellous. Many of the flowers were over 6 inches in diameter in the month of March, and not a speck of mildew to be found in the house.

BEDDING PLANTS.

Frequently examine all stock of bedding plants, and remove all decaying foliage; stir the surface of the pots to keep the soil sweet; be careful with the watering of them, and choose a dry clear day for the operation, and let it be done early, at the same time admitting all the air possible to dry up the moisture before night. *W. M. Baillie, Luton Hoo.*

PLANTS AND THEIR CULTURE.

GREENHOUSE PLANTS.

To succeed Chrysanthemums, a good supply should now be available of such things as Epacris, Erica, Carnations, Primulas, zonal Pelargoniums—of doubles, Wonderful, Jewel, W. E. Gladstone, F. V. Raspaal, Attraction, Rosa Bonheur, Clara Pittzer, Sylvia, Rosa superba, candidissima plenum, Nympha, Mrs. Orton, Lovely, Carillon, &c., will be found the best to open their blooms and to suffer the least from damp. From the forcing-house will come Azaleas, of which Deutsche Perle, punctulata, and Étoile, will be very serviceable; Roman Hyacinths, Tuberoses, Calla æthiopica, Lilies, and Cytisus. The Cactus Epiphyllum in variety is unsurpassed for giving a glow of colour at this season. This plant should be worked on Pereskia aculeata if the plants are to be used in cool conservatories, &c. Camel-

lias which have done flowering should be put under growing conditions, so that they may make an early growth, and set their blooming buds early in the season. If the wood of the (Camellia) and other plants be well ripened, and the plants got under cover early in the autumn, there should be no difficulty in securing a good supply of early bloom. The time for the training of greenhouse twinders and climbers has now arrived, and with regard to hardwooded plants every specimen should be trained and staked anew annually, for, no matter how good the stakes may be, they will not last for two seasons. Be careful when removing them to get every part out of the soil, otherwise they may cause damage to the plants by the fungus engendered, and the new staker, which should be of the best red deal, can be inserted into the old holes. Do not use too many stakes, as one will be enough to support three or four shoots. Allow plenty of room in the ties, especially where thread is employed. There should be as much again room allowed as the size of the shoots. The largest specimen should be operated on first. This allows of the stakes to be repainted and used for the next size, and so on until the plants of the smallest size are finished. When commencing to tie a plant, whether it be of a low bush form, or of an upright or pyramidal shape, it should be from the first tied in so as to keep the bottom part well furnished with fresh young wood; for however vigorous and fresh the top of a plant may be, if the lower part consists of bare sticks and branches it must be quite unsightly. *A. Evans, Lythe Hill, Haslemere.*

THE ORCHID HOUSES.

MASDEVALLIAS.

PLANTS of the Chimæra section which are placed in a warmer house to winter, should be examined for thrips, and red spider. The latter is often overlooked, the dark colouring on the back of the old leaves being in some instances caused by spider. A safe dip for these can be made by taking one handful of tobacco paper, steeping it for a short time in hot water, then strain off the water and add soft water, making about one pintful. After the dipping, lay the plants on their sides and sponge the leaves with the solution, which may be allowed to dry on them, many species of Orchids taking no harm therefrom.

TEMPERATURE.

The following temperatures will be safe with fire-heat:—Cool-house, 48° to 55°; Cattleya-house, 58° to 65°; East Indian-house, 63° to 68°; Phalenopsis-house, 65° to 70°. During mild weather, the evening temperature may be kept a little above the lowest figures given, so as to guard against sudden changes in the weather during the night. With bright warm days the temperatures should rise several degrees above the average degree stated. Take advantage of mild weather to give a little to the various divisions, leaving the lower ventilators open until late in the evening should the temperature remain too high. *C. Woolford, Downside, Leatherhead.*

FRUITS UNDER GLASS.

CUCUMBERS.

THE favourable weather has been of benefit to the plants, consequently they will be showing fruit freely. They should not, however, be allowed to develop more fruit than is required for use, as the object should be, from the time the plants were set out in September, to get the trellis-work well furnished with firm, and short-jointed wood before unless cold December sets in, and to take only as few fruits as would meet the demand, in the interval before Christmas. They will be better able to yield satisfaction up till March if the forces of the plants are economised. The mid-winter months are the most critical period in the year in which to maintain a full supply of Cucumbers, for which there is always plenty of demand. Therefore remove all superfluous fruit as soon as they appear, leaving only a sufficient number in various stages of growth to keep up a regular supply. The fruits should be cut before they become too large, and be kept fresh in a cool room until wanted. Plants which bore fruit during the autumn will be benefited by

the loose surface soil being removed from the beds, replacing it with a mixture of friable loam and horse-droppings (about three parts of the former to one of the latter) and at the same temperature as that of the bed. Keep a night temperature of from 65° to 70°, according as the weather is cold or mild, and 5° higher by day with fire-heat, running it up 10° or 15° with sun-heat at closing time, which ought to be about 1 P.M., at which time, as well as in the morning, the plants and the house generally, should be damped with water at the same temperature as that of the house, and a bottom-heat of 85° should be aimed at. Put a little air on bottom and top of the house as soon as the thermometer registers 75° on bright sunny mornings; afterwards increasing and decreasing the quantity given between then and closing time, according to the rise and fall of the internal temperature, so as to induce the plants to make a sturdy growth. Vigorous growing plants having the bottom-heat supplied by hot-water pipes, will require copious root waterings of diluted tepid liquid manure at intervals. Stop the fires by 8 o'clock on bright mornings, by which time, solar heat alone will suffice. This should be done on bright mornings, even though the thermometer does not register the minimum degree of heat at the time, so as to prevent waste of fuel and over-heating. To obtain the most heat without loss and to render the air more genial to the Cucumbers, covering the house at night with mats or canvas is of great service. The shoots of the vine should be trained thinly rather than otherwise over the trellis, removing whenever it can be done, old shoots to make room for young ones, which should be stopped at a joint or two beyond the fruits that are required for use. This manipulation causes the rapid swelling of the fruit. Should apbides attack the plants, fumigate the house two or three evenings in succession, airing it somewhat freely the succeeding days, syringing the plants afterwards with tepid water. Should mildew appear, dust over the affected parts while damp with the flowers of sulphur, and afterwards maintain a warmer and less humid atmosphere. Plants having their roots confined in pots or boxes will require liberal and frequent supplies of tepid liquid manure at the roots; and those growing in hot beds in frames will require having the linings freshened up weekly, by the addition of fermenting material, and the frames should be covered at night with mats and a sufficient thickness of Fern, to maintain therein sufficient warmth to keep the plants moving. *H. W. Ward, Longford Castle.*

"FRUGES CONSUMERE NATI."

(A Vegetarian Restaurant has been opened in the Strand opposite the Royal Courts of Justice.)

I HAVE always loved a vegetable dinner, I delight in the Crécy soup or Condé on the menu of the night; The Potato needs no praises, there is rapture too I ween On the face of every gourmet at the mention of the Bean: And, like wise Sir Henry Thompson, I can feel my heart aglow At the thought of all the merits of the pleasant Haricot.

I am very fond of Cabbage, and the tender Spinach begs, Though it isn't quite *en règle*, to be served up with poached eggs; Then the Cauliflower is charming, and the Celery when viewed Fresh and crisp from out the garden, or artistically stewed. While surely on one esculent we're all unanimous, Is there aught that's more entrancing than thy taste—Asparagus!

All must love the lively Lettuce; we have reason too to bless Cruciferæ for sending us the piquant Watercress; Upon any list of salads let the true Tomato stand, With the Endive and the Beetroot as supporters on each hand; There the Cucumber awaits us, and we fain would keep alive Both the Tarragon and Chervil and insinuating Chive.

There is poetry in Mushrooms, and the Lentil too can please, And a thrill goes through my midriff at the thought of early Peas; I am grateful to the Turnip and the Parsnip looking pale; There's the Salsify seductive and the delicate Salsify; But the bard shrinks back from one task, for no mortal ever can Do full justice to the comfort that the Onion is to man.

Then we'll hasten to the Griffin, for a little way beyond Are the Vegetarian dining-rooms of Messrs. Spiers and Pond; And the Doctors too are with us, men of note in London town, Risdon Bennet, Milner Fothergill, and also Crichton-Browne; They have told us very plainly that of health we should be winners,

If we ate less meat, indulging in more vegetable dinners.
—*Punch, November 20.*

Appointments for the Ensuing Week.

SHOWS, &c.

WEDNESDAY,
DEC. 1. { Tadcaster Chrysanthemum Society.

SALES.

MONDAY,
NOV. 29. { Sale of Dutch Bulbs and 3000 Lillium auratum Bulbs, at Frotheroe & Morris' Rooms.
Sale of 1000 lots of Dutch Bulbs, at Stevens' Rooms.
Sale of Orchids in Flowers, at Frotheroe & Morris' Rooms.
TUESDAY,
NOV. 30. { Sale of Camellias, Roses, Azaleas, &c., at the City Auction Rooms, by Protheroe & Morris.
Sale of Plants, Roses, Bulbs, &c., at Frotheroe & Morris' Rooms.
Sale of Specimen Plants, from the Colonial Exhibition, and other Stock, at the Pine-apple Nursery, Edward Road, by Protheroe & Morris.
WEDNESDAY,
DEC. 1. { Sale of Dutch Bulbs, Roses, and other Plants, and 5000 Lillium auratum, from Japan, at Stevens' Rooms.
THURSDAY,
DEC. 2. { Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
FRIDAY,
DEC. 3. { Sale of Orchids, at Protheroe & Morris' Rooms.
SATURDAY,
DEC. 4. { Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
Sale of Dutch Bulbs, Plants, &c., at Stevens' Rooms.

A LETTER in another column from our respected correspondent, Mr. JAMES BACKHOUSE, raises once again the question whether the Silver Firs should be called Piceas and the Spruces Abies, or *vice versa*. The confusion that reigns now is truly lamentable. So far as the nurseryman and the amateur are concerned there is, as we take it, no particular principle involved, and hence they are quite at liberty to employ whichever they think right, safe in the assurance that whichever convention they follow they will have the sanction of some authority. In the instance of botanists and students of Conifers the case stands somewhat differently. They are not at liberty to adopt either convention indifferently, or at least they must be prepared to show their authority for what they do, and if they venture to depart from established usage, they must show adequate reason for so doing, or find that their lucubrations are ignored by their contemporaries and successors.

If we were writing a detailed monograph it would be incumbent on us to give a sketch of the whole history, or, at the very least, to give bibliographic references which should enable any student to find for himself the true state of the case. We are not here under that necessity, and our readers would not thank us for taking up their time with technical details of so dry a subject. Nevertheless, we may sketch the history of this Abies and Picea question in broad outline.

As a general rule the practice of botanists is to accept the names imposed by LINNÆUS until good reason is shown to do otherwise. They do so, not because LINNÆUS was always or necessarily right, but because he was the botanist who in the last century acted the part of registrar-general. He collected into orderly array and gave definite generic and specific names to what was then considered a vast number of plants and animals. By a useful convention, then, it became the practice to adopt the Linnean nomenclature, and not to interfere with it lightly or without reason. LINNÆUS, in most cases, adopted the names given by his predecessors when he could conveniently do so, but in this case of Abies and Picea it is stated that he made a mistake by confounding the Picea of PLINY with Abies. This point Mr. BACKHOUSE contests. The mistake, if mistake it were, was not primarily that of LINNÆUS, but that of DODDENS, *alias* DODO-

NEUS, whom LINNÆUS followed, instead of the other botanical authorities. Why LINNÆUS followed DODDENS, and why he violated the otherwise unbroken tradition, would be an interesting point to ascertain. At any rate DODDENS and LINNÆUS called the Silver Firs Picea, the Spruces Abies. LINNÆUS, indeed, and after him PARLATORE, included both under one genus Pinus.

Now, in accordance with the ordinary convention, the names as applied by LINNÆUS should be adopted. Classical purists, however, protested against this reversal of the practice of antiquity; and among botanists DUROI, went back to the original practice, and called the Silver Firs Abies, the Spruces Piceas. The example was followed by many, and in 1841 we find LINK, the Berlin Professor, adopting the same course. From a botanical point of view LINK's paper was very important, and of itself forms substantial authority; but LINK expressly tells us that he should not have reversed the Linnean practice if others had not done so before him; and, moreover, he gives his readers the option of adopting either plan at will. It is indifferent, he says, which plan you follow—"ut par sit ratio quos sequi velles." LINK's paper was founded on the examination of the plants cultivated in the Berlin Botanic Garden, and his views were generally adopted on the Continent. CARRIÈRE's monograph, followed by most French-speaking nations, is, in so far, arranged on Linkian principles. Unfortunately, in England, DON, and after him LOUDON and GORDON, refused to follow suit. And thus it has happened that while in Germany, France, and America, LINK's practice has been generally (but not universally) followed, nurserymen in this country have adopted the opposite practice. Whether there is any obscure feeling of antagonism to anything foreign in this we cannot say, but it looks like an illustration of that singular habit of one nation doing the exact opposite of what is done by its neighbour. We keep to the left in driving, a Frenchman as persistently goes to the right; and so on. In some cases this diversity of practice is of no moment at all, but in this particular instance the diversity of practice is a great nuisance.

Our own custom in these columns of late years, has been to observe the Linkian plan, even though this is against the usage of LOUDON and GORDON. Our reasons for so doing have been often stated, but as Mr. BACKHOUSE once more raises the question, we may again formulate them. The balance of botanical authority is decidedly in favour of the Linkian view. All or almost all modern botanists who have studied Conifers adopt Picea as the name for the Spruces, Abies for the Silvers. We need not stay to consider the practice of compilers, who work at second-hand, for however valuable their labours they do not constitute authority. It is quite another thing with such men as ENGELMANN or PARLATORE—the authors of elaborate monographs drawn up from personal research, alike in the history of the order and the conformation of its members. This brings us to the consummate authority of BENTHAM, so lately taken from us. The *Genera Plantarum* of BENTHAM and HOOKER is a work of standard authority—no mere compilation, but based, wherever practicable, upon original investigation of every item, historical and botanical. This book will doubtless form the standard book for the nomenclature of genera for many years to come. It will rank with the *Genera* of LINNÆUS or JUSSIEU, and above that of ENDLICHER. BENTHAM, who was responsible for the elaboration of the genera of Conifers, after full consideration of all the circumstances of the case, after consultation, as we happen to know, with those botanists, British and American, best entitled to give an opinion, adopted the Linkian plan.

For our own parts, then, we prefer to follow the standard as laid down by BENTHAM, not slavishly indeed—for if there were good or adequate reason to differ from his conclusions we should exercise our liberty of doing so—but as the *Genera Plantarum* represents the condensation and digestion of all the available knowledge of the day upon the points upon which it treats, so we hold ourselves bound to follow it, until some one shows adequate reason to the contrary.

We dare not dictate—we have no desire to do so—to others—we should be glad to see them following a uniform plan, but we fear such unity is unattainable; but in the hope of getting some approximation to it we may throw out a suggestion, that if catalogue-makers would cease to concern themselves about Abies or Picea, and simply range the species under the head of Silver Firs or Spruce Firs respectively, much of the difficulty might be obviated. The botanists might go their ways, and adopt Abies or Picea, one, both, or neither, as it pleased them. Nobilis, amabilis, grandis, are all Silvers; excelsa, nigra, Menziesii, are all Spruces; so they may say Larches, Cedars, Pines, Junipers, Cypresses, &c., without troubling themselves about the Latin equivalents. Very rarely does it happen that any confusion would arise in gardens from the use of the specific name alone.

The case is paralleled by that of "calomel" in drugs. From time immemorial calomel has been known, and the name is still in use, but the ordinary public may be forgiven for not remembering whether chemists call it a chloride, a bi-chloride, a sub-chloride, or a proto-chloride of mercury. It is well for them if they do not confound it with "corrosive sublimate," another combination of mercury and chlorine!

These are instances—very rare ones—where a popular name is distinctly preferable for popular usage to a scientific one. No confusion arises when Silver Firs and Spruces are talked about any more than when calomel and corrosive sublimate are mentioned. Hence, in this particular case and in catalogues for popular use it would seem to be wise to adopt the name that leads to least confusion and to allow the botanists to follow their own devices in accordance with their rules of nomenclature.

—ANDRÉ LEROY.—A recent number of the *Panthéon de l'Industrie* contained a portrait and an appreciative biographical sketch of the late ANDRÉ LEROY, the author of the incomparable *Dictionnaire de Pomologie*, and the founder of the celebrated nurseries at Angers. LEROY was born in 1801 on August 30, the day allotted in the Romish Calendar to the fête of St. Fiacre, the patron saint of gardeners—a happy prognostic truly. LEROY died in 1875, but the establishment has been carried on in its old lines by MM. BAPTISTE and HENRI DESPORTES. In the vast establishment near Angers are now grown 150 kinds of Plums, 475 kinds of Vines, 219 sorts of Rhododendrons, 600 varieties of Apples, and 900 Pears. Roses occupy an area of 5 hectares, and comprise 1500 sorts.

—PLANT DISEASES.—It is announced that a series of three lectures on the "Diseases of Plants, with special reference to Agriculture and Forestry," will be delivered before the Society of Arts by T. L. W. THUDICHUM, M.D., on the following days—January 24, 31, and February 7, 1887.

—MEETINGS OF THE ROYAL HORTICULTURAL SOCIETY IN 1887.—The Council, and the Scientific, Fruit, and Floral Committees will hold their meetings on the Tuesdays given below:—January 11, February 8, March 8 and 22, April 12 and 26, May 10 and 24, June 14 and 28, July 12 and 26, November 8, December 13. The Fruit and Floral Committees only meet on August 9 and 23, September 13 and 27, and October 11 and 25.

—THE BERLIN GARDEN.—The *Jahrbuch der K. Botanischen Gartens* has reached its fourth annual issue under the editorship of Drs. EICHLER, GARCKE,

and URBAN. It is an 8vo volume, containing little or no information as to the garden itself, but comprising several papers of scientific interest. Dr. FISCHER of

paper on the relation between insects and flowers as observed in the Botanic Gardens. Herr WENZIG publishes a monograph of Oaks. Herr SCHUMANN

— LINNEAN SOCIETY OF LONDON.—The next meeting will be held on Thursday, December 2, when the following papers will be read:—1, "On the Lock Leven Trout," by Dr. FRANCIS DAY; 2, "HERMANN'S Ceylon Herbarium and LINNÆUS' *Flora Zeylanica*," by Dr. H. TRIMEN; 3, "New Species of *Brachyonychus*, from Mergui," by Mr. HENRY W. BATES.

— CAMELLIA.—Now that the *Chrysanthemums* are on the wane we are beginning to look to another Chinese product, the *Camellia*. We hear occasionally people speak of *Camellia*, but the real name was *Camelli*, with *Camellus*, *Camel* or *Kamel* as *aliases*. He was born, according to a statement by Father PAQUE, at Brünn in Moravia, in 1661. He became a member of the Order of Jesuits, and passed a large part of his life as a missionary in the Philippine Islands, where he died on May 2, 1706. At Manila he established a free dispensary for the relief of the indigent and sick, and entered into communication with RAY and PETIVER. In the Philippines CAMELLI made rich collections and many drawings. These drawings are now in the possession of the Jesuit College of Louvain, to which they were presented by Count ALFRED LIMMINGHE, who bought them at the sale of A. L. DE JUSSEU. The eminent French botanist attached much value to these drawings of CAMELLI, and attached many notes and comments to them. The drawings of CAMELLI are said to be so beautifully executed as to resemble engravings rather than pen-and-ink sketches. The botanical plates amount to 257 in number. These plates were originally intended to illustrate an appendix to RAY'S *Historia Plantarum*, but which intention was not carried out for financial reasons.

— GYNERIUM JUBATUM.—An inquiry was recently made about this plant in our columns, which leads us to cite what M. ANDRÉ says about it in a recent number of the *Revue Horticole*. The plant was collected on Chimborazo by ROEHL, and sold under the name of *G. jubatum* by M. V. LERMOINE, of Nancy. M. ANDRÉ himself found *G. jubatum* wild on the high plateaux of Ecuador, 2800—3400 metres above the sea-level, where it formed loose tufts with flower-panicles 2–4 metres high, with slender reddish-grey panicles. Elsewhere it formed tufts of lofty stature and with inflorescence very different from that of *Pampas-grass*. Hence there are probably several varieties of it.

— DRUGS AND THEIR SOURCE.—The paper of Mr. E. M. HOLMES, read at a meeting of the Pharmaceutical Society, and reported in the last number of the excellent *Journal* of that Society, increases our regret that so little comparatively was done by the Royal Horticultural Society to avail itself of the opportunity offered by the late Colonial and Indian Exhibition. Surely the cultural interest of the Exhibition was in nowise inferior to the pharmaceutical, and yet, with the exception of the fortnightly shows, which were very good in their way, little or nothing was done to show the vastness of the interests bound up with plant-culture in the various Colonies. Regrets are now unavailing; but when we read Mr. HOLMES' paper, and the comments it elicited from Dr. WATT, Mr. BOBISTO, and other Colonial Commissioners, we cannot but feel that a great opportunity was only very partially utilised at the Horticultural Society.

— GRANADILLA AND TREE TOMATO.—In Covent Garden Market may now be seen fruits of the tree Tomato, *Cyphomandra betacea*, labelled as *Granadilla*, which is an error, as that name applies to the fruit of the Passion-flower. The fruit of the tree Tomato is cooked and made into a kind of jelly. It was highly recommended by Mr. MORRIS when in the West Indies, but it does not find so much favour in India. We believe the market is supplied from the Azores.

— MANCHESTER HORTICULTURAL IMPROVEMENT SOCIETY.—At a meeting of this Society on Wednesday, November 17, Mr. BRUCE FINDLAY, the President, being in the chair, a paper on the *Chrysanthemum* was read by Mr. WM. NIELL. The President, Messrs. LUNT, BERNETT, J. S. BUTTERWORTH, W. B. UPJOHN (Secretary), and WILLIAMS took part in the brief discussion which followed the reading of the paper. The syllabus of the work of the Society for this session was placed in the hands of the members. Mr. BOOTH will speak about



FIG. 134.—CLERODENDRON NUTANS: FLOWERS WHITE. (SEE P. 691.)

Berne contributes a monograph of the Phalloideæ, not so obnoxious in the pickle-bottles of the museum as they are in the garden. Dr. LOEW furnishes an elaborate

writes on the morphology of Byttneriaceæ; and other writers discuss various points of systematic and morphological botany.

Chicago, its parks and boulevards; Mr. ABRAHAM STANSFIELD will offer some suggestions as to the best town trees; Mr. PETCH will have something to say about fruit trees, their selection and culture; Mr. BIRKENHEAD will give a few thoughts on Ferns and their culture; Mr. FORRESTER and Mr. CASHELL will address the members on some of our common insects and garden aquatic plants respectively; Mr. E. G. HUGHES will speak about horticultural manures; and at the final meeting of the session Mr. BUTTERWORTH and Mr. HADFIELD with read papers on the "Fertilisation of Plants," and "Clay Soils and their Improvement," respectively.

— THE IMPERIAL INSTITUTE.—We glean from the *Times* of November 18 that as a result of the meetings which have been held of the Prince of WALES' Committee on the proposed Imperial Institute, of the Colonial representatives, and of the Exhibition Commissioners, though the QUEEN will lay the foundation stone of the Imperial Institute next June, it will probably not be opened for three years, as it will take at least that time to get the buildings ready. It has been decided that the Exhibition will not be re-opened next year in any form. Most of the Commissioners are rapidly dismantling their Courts and returning exhibits, as they could not be left in sheds for three years. If possible, the buildings lying between the new public offices in Whitehall and Great George Street, Westminster, which belong to Government, will be pulled down, and the Institute established there. It is suggested that the Colonies should occupy the ground-floor, and the mother country the floor above, the Agents-General also being located in various parts of the buildings, which will have an area of 400,000 square feet. In this case the City scheme will be united with the Prince's. If this ground cannot be obtained then a purely exhibitional arrangement will probably be made at South Kensington, and a commercial museum in the City. It is understood that none of the present Exhibition staff will be retained. The estimate of the cost of the building is £300,000.

— CHRYSANTHEMUMS AT EXETER.—A fine display of these plants is being exhibited at Messrs. LUCOMBE, PINE & CO.'s nursery, Aliphington Road. The plants, 500 in number, occupy a house to themselves, and are excellent specimens of good culture.

— TOMATOS.—A recent *Bulletin* of the Agricultural College of Michigan contains a comparative account of seventy-six varieties of Tomato grown in the College garden. Mr. BAILEY, the Professor of Horticulture, advertising to the necessity of determining the synonymy of these and other cultivated plants, says:—"None are so well qualified to undertake this work as many of our seedsmen, and it seems strange that they should be the very ones who make the work necessary. The time can certainly not be far distant when the most popular seedsmen will be those who exercise the most care in excluding novelties and unnecessary varieties."

— ODONTOGLOSSUM CRISPUM.—Messrs. VEITCH send us a flower of this plant with five sepals and five petals, while the lip and column present no unusual features. Probably the abnormality arises from the union at a very early stage of two flowers, and the consequent obliteration and non-development of some of the parts. The flower was grown in the garden of D. TOD, Esq., Eastwood Park, Glasgow.

— GARDENERS' ROYAL BENEVOLENT INSTITUTION.—At a meeting of the committee held on the 18th inst., HARRY J. VEITCH, Esq., of Chelsea, was unanimously elected Treasurer of this Institution, in the room of EDWARD TIDSWELL, Esq., who has resigned that office on account of serious ill-health. At the same meeting it was determined to make an addition of ten pensioners to the list, six of whom will be admitted without election under Rule 6, they or their husbands having been subscribers for fifteen clear years. An election will take place for four pensioners out of a body of seventeen selected and approved candidates. The voting-papers will be issued on or about December 16.

— WHITE TRUMPET DAFFODILS.—We have received the following notification from a well-known grower of the Narcissi, *quos noni de plume* is "Daffadowndilly":—"Being an enthusiastic lover

of White Trumpet Daffodils, and seeing such a quantity of notes on the subject lately in the garden literature of London, I am willing to offer a prize of five guineas at one of the April shows at South Kensington for the best stand of eighteen sorts, in quantities of not less than three of a sort—the competition to be confined to private growers."

— RATES AND TAXES.—American nurserymen, it is alleged, cannot understand why their British colleagues should complain about being over-rated. Americans are not quite so modest, but perhaps they do not realise that taxes follow on this sort of appreciation on this side of the Atlantic.

— MADAGASCAR.—Captain S. PASFIELD OLIVER's recently published work commences with a clear historical sketch of the principal events which have occurred in Madagascar since the time when the island first became known to Europeans. The geography and topography of the Malagasy dominion are fully treated of, both physically and politically; whilst the principal routes which have been traversed by explorers and missionaries are followed and described in detail, with all the procurable information of the localities and their resources. A large general map of the island, containing many hitherto unpublished details, has been specially constructed to illustrate this portion of the work. The climate, pathology, and natural history, including the agricultural and native produce of the country, occupy several chapters, together with notices of the geology and mineralogy of those areas which have been examined scientifically, including the lately discovered auriferous districts. The most accurate information is furnished of the population, the tribal divisions, and the inhabitants of various districts. The character, language, religion, and education of the people are also discussed. Other sections are devoted to the government of Madagascar under the Hova supremacy, the internal administration, and the civil, ecclesiastical, and military systems. The manufactures, arts, and native industries of the several provinces are described, accompanied by authentic statistics of trade from official documents. Authoritative notices of the currency, weights, and measures used in the island give our merchants valuable information.

— NATIONAL HORTICULTURAL SOCIETY OF FRANCE.—On Thursday last a meeting of the Society was held to distribute prizes to gardeners for long and faithful services; to the authors of various reports; to exhibitors at the Society's shows, and others.

— ISLE OF WIGHT CHRYSANTHEMUM SOCIETY.—The annual show of this Society, which was held in the Drill Hall, Newport, on Nov. 16 and 17, was a good exhibition, and appreciated greatly by the numerous visitors who attended. In the nurserymen's classes there was but a small competition, but the cut blooms and groups were very praiseworthy. Messrs. H. DROVER & SON, Ventnor, and Messrs. GOULD showed well in the nurserymen's and open cut bloom classes. Mr. GASK and Mr. PAY also took prizes in the leading classes. Messrs. DIMMICK & SONS staged a good collection of fine blooms (not for competition). Groups were best shown by Messrs. W. MORRIS, G. INGRAM, and E. PAY, who received prizes in the above order.

— "HERBIER GÉNÉRAL ANALYTIQUE."—We understand that under this title M. BUYSMAN, of Middelburg, Holland, is publishing at a low price an interesting herbarium, showing prominently those parts of the plant which are important in determining its species. Each species is represented by:—1st, analyses, on a sheet of herbarium paper, of the organs which are not destroyed by drying; 2d, sections, preserved in alcohol, of the fleshy and other organs, which may be examined by a hand magnifier or simple microscope, in the tube in which they are sent out; 3d, fruits and seeds. (Fleshy fruits are also preserved in alcohol.) M. BUYSMAN states that "economic" plants form the chief part of his herbarium, which is published in two divisions relating to tropical or non-tropical plants respectively; the tropical species are collected in their native habitats, the others also in their native regions or from M. BUYSMAN's garden. Subscribers may take, as they may wish, medicinal, economic, commercial, agricultural, or ornamental plants, or Ferns, &c.

— PUBLICATIONS RECEIVED.—*Holly Leaves, the Christmas number of the Illustrated Sporting and Dramatic News*, 1886. (London: 148, Strand, W.C.) —*Agricultural Returns of Great Britain, &c.*, 1886. (London: EYRE & SPOTTISWOODE.)—*Plant Food*. By EDMUND TONKS, B.C.L. (Birmingham: CORNISH BROTHERS, New Street).

— GARDENING APPOINTMENTS.—Mr. B. BOOKER, Foreman at Bicton, Devon, has been appointed as Head Gardener to Lady PROTHEROE SMITH, Tremowah, Cornwall.—Mr. THOS. VERE, Gardener to the late Miss EVANS, of Darby House, Derby, has been appointed to succeed Mr. MILFORD (deceased), as Head Gardener to T. W. EVANS, Esq., M.P., Allestree Hall, Derby.—Mr. WOODWARD has succeeded Mr. C. HAYCOCK as Gardener to ROGER LEIGH, Esq., Barham Court, Maidstone.

PLANT PORTRAITS.

ALOCASIA MARGARITE, *Illustration Horticole*, t. 611.—A Javan species, with heart-shaped bronzy leaves on long reddish-brown stalks.

ALYSUM MONTANUM, *Garden*, October 9.
ANGRÆCUM FUSCATUM, *Rchb. f., Gartenflora*, November, t. 1234.

BIGNONIA PURPUREA, *Garden*, October 23.
CALTHA LEPTOSEPALA, *Garden*, October 9.

CATTLEYA GASKELLIANA, *Illustration Horticole*, t. 613.—A form like C. Mossie, but differing in the flowering period and in the paler colour of the flower.
CYRTOPEDIPY CONCOLOR, C. GODEFROYE NIVEUM, *Revue de l'Horticulture Belge*, November.

LESCHENAUTIA BAXTERI MAJOR, *Revue Horticole*, October 16.

PANDANUS AUGUSTIANUS, *Illustration Horticole*, t. 612.—A species with long lanceolate serrulate leaves, but which at present affords few points by which it may be discriminated.

RHODODENDRON YODENSE, R. LEDIFOLIUM, *Gartenflora*, t. 1233.

Notices of Books.

Food Grains of India. By A. H. Church, M.A. Oxon, F.C.S., F.I.C. (Published for the Committee of Council on Education, by Chapman & Hall, London, 1886.)

"The present handbook," Professor Church says in his preface, "has been prepared mainly with the object of furnishing to Indian officials and to students of Indian agriculture, a compact account of the alimentary value of the chief food grains of our Eastern Empire." How well the task has been accomplished, will be proved by a careful study of the work. The mere mention, however, of Professor Church's name is a sufficient guarantee for the accuracy of the analyses contained in the book. We cannot, therefore, criticise a work that is excellent both in its arrangement as well as in the matter of which it is composed. A few extracts will, therefore, serve better to indicate to our readers what the nature of the book is, and what is its value, than any words of our own. We may perhaps say, however, that the title does not clearly indicate the scope of the work, for it is by no means confined to a consideration of food grains; the largest portion is, indeed, given up to cereals, but the pulses or leguminous seeds, and others, occupy much space. In the first part Professor Church treats of "the constituents and uses of Food." In part 2, "Dietsaries and Rations" are considered, and a great deal of valuable and interesting matter is here given upon the relative value, as food, of several well-known Indian grains and seeds. This is a matter, however, upon which space will not allow us to dwell, as it is the remaining parts of the book with which we are more especially concerned.

Referring to the presence of oil or fat in the cereals, Professor Church says, "Some of this, often a good proportion, resides in the coats of the grains, and in the embryos or 'chits.' When, therefore, Wheat grain is decorticated, and especially when, as in some modern processes of milling, the embryos are removed, the percentage of oil is much lowered. This will be obvious when we state that the embryos contain 14½ per cent. of oil and the different grades of bran from 2½ to 5, the whole Wheat grain not showing more than 2 per cent. Maize and Barley are rich in oil

Rice very poor. In actual dietaries this deficiency of oil or fat is made up in several ways. Where fish or flesh meat is employed a good deal of oil or fat is introduced therein, but the very common use in India of milk or of some preparation from it, effects something in the same direction; expressed fatty oils are also extensively employed."

By far the largest portion of the book is devoted to the consideration of the food-yielding plants, under three separate and distinct heads, the grasses naturally taking the lead, the genera being arranged in their proper tribes and in proper sequence. The plan adopted with each plant is similar to the following which is quoted as an example:—

"RAGI.

"*Eleusine coracana*, Gartin.

"Hind.—Natchni, Nachani, Nagli, Mandua, Maruya. "Beng.—Marua, Modua. Oudh.—Mindwa. Punjab.—Mandal, Chhalodia. *Punjab and Bengal Hills*.—Kodi, Kodom. *Himalaya*.—Koda. *Dacca and South India*.—Ragi. *Tamil*.—Kayur. *Telugu*.—Kawaru, Sodhi, Ponassa. *Sinhalese*.—Putatana, Kurakan, Samirit. —Rajika.

"This semi-erect to decumbent native grass belongs to the tribe Chloridee. It is a fairly productive rainy-weather crop for light soils; it may be grown almost upon stones and gravel. It yields from 1 to 5 maunds of grain per acre upon the hills, 12 to 14 maunds in the plains if carefully cultivated and weeded. It is the staple grain of the Mysore country; sometimes it is stored in pits and will keep good for years. It is frequently grown with summer Rice, ripening sooner, and thus affording earlier relief in times of scarcity; the straw is used as fodder. *Eleusine agyppica*, a closely-allied species found wild on the roadsides of the Punjab and North-West Provinces, and indeed throughout Upper India, yields a poor unpalatable grain, which in times of scarcity is occasionally collected and eaten. This species is common in the warmer parts of Ceylon.

Composition of Ragi.

	In 100 parts.		In 1 lb.	
	Husked.	Whole.	Oz. gr.	
Water	13.2	12.5	2	0
Albuminoids ..	7.3	5.9	0	4.3
Starch	73.2	74.6	11	40.3
Oil	1.5	0.8	0	36
Fibre	2.5	3.6	0	252
Ash	2.3	2.6	0	152

"The nutrient ratio is here 1.13, the nutrient value 84. The percentage of phosphoric acid in the whole grains is about 0.4.

"Generally, this Millet is sold at a cheaper rate than any other; in some places in ordinary seasons 130 to 140 lb. of it are procurable for about 2s., and it is looked upon as a famine food to which recourse is had only in times of drought or of deficient crops. Ragi is, however, commonly used in some districts, as by the poorer and lower classes of Patna division, also in Bhagpurl, Santas Parganas, Dinajpur, and Gorakhpur. It is more esteemed than Maize by the natives of Patna and Behar, but it is not, in general, a popular food, being considered difficult of digestion, productive of flatulence, and astringent. It is much less esteemed than Jowar and Bajra. In Tirhut cakes made of Ragi flour are largely eaten. In Darjiling a fermented liquor is prepared from the grain."

The book is well illustrated by excellent figures of the plants referred to, it is well printed on good paper, and the whole get up leaves nothing to be desired.

CLERODENDRON NUTANS.

At one of the recent meetings of the Floral Committee Mr. Head, the Director of the Gardens of the Crystal Palace, startled the visitors by the exhibit of a handsome stove plant, grown in a pot, and trained to a single stem, from the summit of which depended on all sides elegant racemes of white flowers delicately perfumed. There was no doubt what the verdict of the committee would be, for every one was struck with its distinctness and beauty, and hence a First-class Certificate was voted by acclamation, subject to the verification of the name. (See fig. 134, p. 639.)

This was soon accomplished, for a reference to the Lindley Library showed that the plant was introduced in 1825, and figured in the *Botanical Magazine*, t. 3049, though it is not mentioned in Loudon's *Encyclopædia*, nor in Nicholson's *Dictionary of Gardening*. Grown either in the form shown by Mr. Head, or allowed to run over the rafters of a stove,

it would form a most ornamental plant; and when stove and greenhouse plants resume their place on the exhibition table, this should form one of the most effective of them. It is a native of the Eastern Himalaya, Ava, and Chittagong. A full description of the plant is given by Mr. C. B. Clarke in Hook. *Flor. Brit. Ind.*, vol. iv., p. 591 (1885).

TRADE NOTICES.

GOOD NEWS FOR ENGLISH ROSE GROWERS.

THERE is a statement in an American exchange to the effect that English Roses can be sent to America, and that in spite of freight, customs' duties, and incidental expenses, the Roses cost the recipient less than is demanded for plants of the same description in the States, while no American dealer offered so choice and extensive a list from which to make a selection as the English one.

ICHTHEMIC GUANO.

Under this name, a soluble form of dry manure was exhibited at the Aquarium on the occasion of the late Chrysanthemum show. It has long been in use amongst farmers, and is stated to be suited for all kinds of vegetation. We can only repeat, that it appears to be very easily soluble, and has a strong smell, indicative of the presence of a considerable amount of ammonia. The following is the certificate of analysis:—

"We have carefully examined a sample of Ichthemic Guano, and find the result to be as follows:—Phosphoric acid, 5.11, (equal to) tribasic phosphate of lime, 11.17; nitrogen, 8.85, (equal to) ammonia, 10.76. (Signed) *CUNNING & VERNON, Analytical Laboratories, 18 and 19, Leadenhall Street, E.C., July 29, 1886.*"

AWARD AT THE LIVERPOOL EXHIBITION FOR METHODS OF VENTILATION.

Messrs. W. Richardson & Co., Darlington, inform us that they have been awarded a Silver Medal (the highest prize in this department) at the International Exhibition, Liverpool, for their patent system of ventilation for horticultural buildings, and the general excellence of their exhibits.

A CORYLUS GONE WRONG.

THE male flowers of this genus, to which the Hazel-bell belongs, are arranged in catkins. Each flower consists of two usually small bracteoles placed laterally one on either side of a group of eight stamens, the whole nestling within the axil of short concave bract. As a rule, only this latter is visible without the aid of needles and pocket lens, but in the specimen before us the two usually concealed bracteoles are present in a highly developed form as spreading more or less toothed leaves. When we first received the specimens from M. van Volxem we experienced a momentary feeling of keen expectation that we might have here, on the same catkin, male flowers and female, the baby appendages having much of the look of the involucre or "beard" of the Filbert. Any such expectations, however, were dispelled by the touch of the needle point, by which means the real nature was speedily made apparent. M. van Volxem thinks the overgrowth of these bractlets may have been due to insect puncture. Possibly, we too, suspected mites (Phytomyces), but we could not find any. (See fig. 135, p. 692.)

GARDENING IN DÜSSELDORF.

WE are authorised to publish the following extract from a Foreign Office report, forwarded to Kew, by Mr. T. R. Mulvany, on Westphalia, for the year 1885:—

The market (fruit and flower) gardeners, who represent a very considerable industry in this neighbourhood, have suffered much under the general depression of prices, and by the increased importation of such products from Holland, Belgium, France, and Italy, with which countries they find it difficult to compete, even on their own ground, partly in consequence of climate, partly from want of knowledge and experience, especially in the cultivation of fruit and flowers. However, during the last few years, in the latter respect, they have made considerable progress; some fruit and flower shows got up lately—quite a new institution—were rather successful, though it has been hinted that a large proportion of the flowers were imported.

DISEASE OF THE VINE AT DÜSSELDORF.

The disease of the Vine has not made any very dangerous progress; the rules and regulations to prevent the importation of diseased plants of any sort are very stringent, and rigidly adhered to. Plants of any sort can only be imported from those countries which are in the convention for preventing the spread of the disease, therefore all importation from Great Britain is excluded. I know a case in point: a valuable collection of plants and bulbs from Ireland, although tested in Holland, having been refused admission into Germany, had to be sold in Holland, although there was not a single Vine plant amongst the lot.

PRIMULA REIDI.

WHEN the Primrose Conference was first broached application was made to various botanists in India and elsewhere for seeds, &c. Among those who kindly responded was Mr. Duthie, of the Saharanpur Botanic Garden, who sent, among other things, seeds of the species discovered by him on his excursion to the mountains of Kumaun. An account of this excursion was given in the annual report of the Saharanpur Botanic Garden, where a new species called *Primula Reidi* is for the first time described. This description was transferred to our own columns February 6, 1886.

A short time since Mr. G. F. Wilson, Weybridge, brought up to the Floral Committee a plant of this species, which he had succeeded in flowering. The plant, though small and undeveloped was evidently such a gem that we immediately sought permission to engrave it even in its present state, in order to let Primrose growers know what is in store for them. Miss Wilson was kind enough to furnish us with the drawing, which tells its own tale (fig. 136). All that we need say is, that the flowers are ivory-white, and we look forward with eager expectation to the results of cultivation upon so lovely a plant.

HOME CORRESPONDENCE.

New Varieties of Hyacinths.—I do not wish to be misunderstood on this question, and beg to say that I have grown and know all the varieties named by Mr. Kerstein. I exhibited *Suvenir de J. H. Veen* in my 1st prize group last year. It is the very best of the new varieties; this opinion of it I have held from the first year it was grown in England, and the first impression has been abundantly confirmed every year. When I said it was too popular, I meant that the Dutch growers were likely to have too large a sale for it, and would send over the bulbs before they arrived at their most perfect development, and from the size of the bulbs of that particular variety, which are considerably smaller than they were last year, I greatly fear this is the case. I have grown *Sultan* and *Electra*, and have them again this year; but I fear the spikes are not long enough to place in a collection of twelve. I have rejected scores of new varieties because they do not come up to this standard; and it says much for the excellent qualities of J. H. Veen that we have adopted it to the exclusion of many promising varieties, which have been honoured with First-class Certificates. J. Douglas.

Conservatory Climbers.—Your esteemed correspondent, Mr. Earley, last week wrote of the ill effects of close pruning Abutilons. In the conservatory here *Abutilons* *Boule de Neige* and a yellow variety grow most vigorously planted out and cut back annually. Shoots from 8 to 10 feet long are produced which bloom profusely for several months up to Christmas, and form splendid pillar plants. *Laelia gratissima* is one of the very best plants for a pillar where fully exposed to the light. Cut back pretty freely in January it has now opened the first head of deliciously sweet-scented pink flowers, and for the next six weeks it will be very attractive. As a pillar or wall plant it has few rivals at this season of the year, but it is not valuable as a cut flower. *Solanum jasminoides*, grown on pillars 20 feet high, arched over a broad walk, with shoots 12 feet long, hanging down, thinly trained, have a singularly charming effect amongst other plants, such as *Fuchsias*, but not on the same pillar. The flowers are not so attractive in general, but as grown here, suspended high, they are interesting. *Ceanothus punicus* is another useful shrub—vigorous, and the foliage gives variety. It blooms during January and February, and is very attractive at that season. It is rather subject to red-spider, which we keep down by syringing. *Bougainvillea glabra*, if required for autumn use, may be

stopped twice, and will then bloom on to Christmas; but if grown in a stove it will flower more than half of the year. All the above plants are close pruned. *Bignonia Chirite*.—In August, 1885, I called at the Denbies Gardens, Dorking, and the gorgeous display of flowers produced in a pal of the above. I shall not soon forget. I would call special attention to this plant, as it is not so commonly known to it deserves to be. I am led to think that the plant does not bloom freely in a young state, but it is worth years waiting for. It requires a large space to grow them effectively. *Bomarea*.—I have had *Bomarea conferta* highly recommended as a pillar plant, but after two years' trial with vigorous growth it does not seem disposed to bloom freely, and the winding habit of the shoots and lack of branches up the stem bearing flowers disqualify it for furnishing pillars, where a general display is sought from top to bottom. This plant requires special treatment I presume—possibly a dry warm atmosphere to mature the shoots. *G. Harris, Almwick Castle Gardens.*

The Gardeners' Royal Benevolent Institution.—As there have been a great many collections in the churches of the country in aid of the Agricultural Benevolent Institution, I venture to express a hope that the clergymen of our churches will think of the Gardeners' Institution one day next year, say Easter Sunday, when the churches are all aglow with cut flowers and pot plants, the produce of the gardener's skill; and as gardeners have contributed many times to the Agricultural Benevolent Institution I believe the farmers, &c., will give their twin sister Institution a turn. *John Perkins, The Gardens, Thornham Hall, Suffolk.* [A good suggestion. Ed.]

Hautbois Strawberry ("P. F. B.," p. 631).—I shall be pleased to let the enquirer have some young plants of the above Strawberry if he will send me his name and address. *H. W. Ward, Longford Castle, Salisbury.*

Bellicide, or Daisy Eradicator.—This is an entirely new preparation, in consequence of distribution by Messrs. Hurst & Sons, wholesale seedsmen, of 152, Houndsditch, E. Up to this time Watson's Lawn Sand has been the most prominent of the agencies recommended for killing weeds on lawns, but the high price at which it is sold makes its use almost prohibitory. This new preparation, while equally efficacious, is much less expensive, and therefore it is better adapted for general use. It not only destroys Daisies, but other weeds, and the first application of it I saw was at Dunedin, Stratham Hill, the residence of N. Sherwood, Esq. Here it had been freely applied, with the result that hundreds of large weeds were destroyed. The Bellicide, being in the form of a dry powder, is applied by means of a small dredger, and is carefully distributed over the whole surface of the weed operated on, when it soon withers up. The preparation may extend to the grass around the weeds, and slightly burn it, but there is in its composition something that fertilises the grass also, and if the spot be watered, and the weather be dry—a rich growth of green verdure follows. The Bellicide has been largely used by Mr. J. Roberts on the lawn at Gunnersbury Park, Acton, during the summer; it was applied both in shady positions and those fully open to the action of the sun, and in every case the results proved highly satisfactory. It there destroyed the leaves and crowns of the Daisies and other weeds, doing it completely. It slightly affected the appearance of the grass, but was quickly followed by a luxuriant growth that Mr. Roberts describes as truly astonishing.

Mr. Robert Greenfield, of The Priory Gardens, Warwick, reports that he has tried it "at different times, and each time with the same successful results. It completely kills Daisies, Dandelions, Plantains, &c., while at the same time it acts as a manure to the grass, as the latter grows vigorously after its application. I find it most effectual when applied in moist weather." Mr. G. Bloxham, The Gardens, Brickhill Manor, Bletchley, who has also tried the Bellicide with the best results, reports as an important fact that "it gets rid of the moss which is almost as objectionable as the Daisies, &c.," and he forwarded for inspection "a small quantity of moss taken from a hard gravel walk in a damp and shady position, which was quite killed by applications of the Bellicide, leaving the walk bright and clean." Applications made on the lawn of the Imperial Hotel, Great Malvern; at the Plojlyerch Hotel, Colwyn Bay, and several others duly recorded, show equally satisfactory results. In the case of larger plants of weeds it is necessary to have the crowns cut off before the preparation is applied, which should be done direct to the stem; three or four dressings may be necessary to the very strongest, but in the end the weeds succumb. If applied during dry weather water should be given five or six days afterwards. The Bellicide can be used at any time between March and August, and there is nothing injurious about it; it does not harm

birds, nor anything except the weeds it is intended to exterminate; moreover, it has no objectionable smell, and will keep any length of time, but it is necessary to store it in a dry place, as some of the ingredients may absorb moisture, thus rendering it difficult to apply, besides interfering with its equal distribution. The preparation has been made with the greatest care, and there is no doubt it will be found a great boon to gardeners generally. *R. D.*

Orchid Pruning.—A note under this heading in the *Gardeners' Chronicle* of the 13th inst. seems intended as a "fling" at the advocates of the "pruning system." It is evident, however, that the writer has not read all that the advocates of the system have recommended in these pages, or he would have discovered special reasons for not pruning out the old growths of many species of *Dendrobiums*. So far as my humble opinion goes, and according to the rules I ventured to recommend, he is justified in retaining the old growths of the species he mentions until he is quite certain they are flowered out. My only reason for writing this, is to vindicate the system, for every year's experience proves to me that it is founded upon sound principles. *N. Blandford.*

Wasps and their Habits.—Wasps have frequently strange places where they select to build their nests to form their colony of young in. Perhaps one of the most common resorts is in the ground, by taking pos-

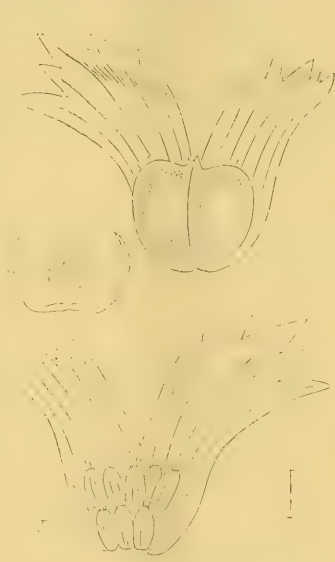


FIG. 135.—MALE FLOWER OF *CORYLUS COLURNA*, WITH LEAFY BRACKET, ENLARGED. (SEE P. 691.)

sion of a deserted mouse-hole, or something similar; but in Scotland, as I have seen them, they are attached to branches and spurs of wall trees, shrubs, and such-like, and occasionally upon branches of forest trees, even in exposed, airy places. Whether these are different kinds of wasps, or only vary in their resort, I am not able to decide, but the form and material of building their nests are precisely similar. It is worthy of remark that there are never any of these hanging nests seen in the South of England, where wasps are plentiful enough, and are invariably in the ground, or in places where their nests are not seen. We have here another kind by no means common, which is not only different in appearance to the common sort, by having broader bars across the back, and is somewhat darker and smaller in size; but the habitation selected is generally under hovels and under roofs of houses for nesting their young, and the paper-like casings of their nests is in stripes, and worked round like scallop shells, and is pretty in appearance. It is very interesting to watch them building their hanging nests, on the thin paper walls of which there is a number of sections or layers surrounding the outside walls; the material used being collected by the wasps from old pailings or decaying stumps of trees, and the process of building, which I have repeatedly watched, is done by placing themselves over the section they are increasing, and working rapidly backwards, exuding at the same time the gummy looking substance out of their mouth, and

squeezing it tightly with their flattened mandibles. This is rapidly repeated three or four times before taking flight for another supply. In warm favourable seasons for their increase, nests are often found from 6 to 8 inches in diameter; only a few were seen here this autumn, although they were in great numbers in the spring months. Two or three are the most I have seen, one being in the mouth of a dolphin, one of three supporting a basin of a fountain which was dry for some time early in the summer, when the mother wasp had taken possession. It was an amusing sight to see the young wasps flying in and out through the falling spray, and seemingly taking no more notice of it than if it was only a shower of rain falling; the sight being a novel one I did not have it destroyed. It is commonly understood that all the wasps seen early in the season are females, fertilised in the autumn before leaving the parent nest, and getting into their dormitory. If such is the case, and all that are seen were to become progenitors of a colony, it would, in a favourable season for their breeding literally be eaten up. From a number of years' observation, I now look upon the great numbers in spring as an indication of having few in autumn. I have also noticed the opposite, viz., they are most plentiful in the autumns succeeding springs when few are seen. I have paid for killing at the rate of 1s. per dozen in spring, and left it off a number of years ago, though never finding it made any difference, but I am an ardent advocate for destroying all nests in autumn before they get abroad to search for their winter lodgings. I have occasionally found them in winter concealed under thatch and under decayed bark of trees, &c.; cold in this stage does not affect them in the least provided they are kept dry. *J. Webster, Gordon Castle.*

Begonia socotrana Flowering from the Bulb.—Under ordinary circumstances bulbs, or what must be considered such from their construction, are formed around the neck of the plant, and generally close to the surface of the soil, or altogether exposed. These structures consist of a few comparatively large bract-like organs, that completely enclose a dense mass of smaller bulbs, closely packed on a central axis. All these must be looked upon as modified leaves, while the latter kind give the structure a cone-like appearance. Terminating the axis, at least of the larger ones, are some perfectly formed but of course very small flowers, which may, but more often do not become developed during the current year. A striking exception to this is seen in the *Begonia-house* at Kew, where some of these incipient inflorescences have emerged from their narrow confinement and become developed several inches in length, with every appearance of a healthy vigour that will enable the flowers to expand. The flowers in question are borne on a naked peduncle, without the accompaniment of the ordinary petiole leaves, and leafless, save for the numerous bract-like organs around the base of the now elongated axis. *J. F.*

Helianthus tuberosus Flowering.—In a villa garden at Kew quite recently, or before being destroyed by frost, might have been seen a row of Jerusalem Artichokes with stems ranging from 6 to 8 feet high. Most of them, or at least all taller ones, terminated in a flower-bud which ultimately became fully expanded. The fishing-rod-like stems, each bearing a solitary, pigmy yellow flower, seemed remarkably odd, and shows how little, long-cultivated tuber-bearing plants depend upon the production of flowers and seed for their preservation and continuance. A few years ago the same species might have been seen flowering on the Middlesex side of the river. *J. F.*

Adiantum Farleyense.—Have any of your readers ever known *Adiantum Farleyense* to bear spores? I was speaking with a gardener the other day, who has a plant that he asserts sprang from a spore; it came up amongst a number of other varieties, as *A. macrophyllum*, *A. scutum*, &c., and was the only one in the batch. I was mentioning this to a gardener who grows several large plants, and he seemed to think *Farleyense* was a fertile variety; but on examining his plants no frond could be found bearing spores. If it does not spore, how is the first man's seedling to be accounted for? I have always been under the impression it was a barren sort. *W. G.*

Convolvulus mauritanicus.—In the notice of this plant by Mr. Earley, at p. 661, he speaks of it as a pot plant, to be wintered in a greenhouse, even if planted out in summer. For many years I have grown it on a rockery, and it has stood the winters unprotected, including some of the most severe seasons, without the slightest injury, increasing in size until it has grown into a plant a couple of yards across, bearing hundreds of blooms. It is readily raised from seed, sown under glass in early spring. I am surprised it is not more generally grown. *E. Harvey, Aigburth, Liverpool.*

Reports of Societies.

EDINBURGH BOTANICAL: November 11.

(Concluded from p. 664.)

REPORT ON VEGETATION AT THE ROYAL BOTANIC GARDEN, EDINBURGH.—The month of July was rather cold and wet for the season of the year. Rain fell more or less on sixteen days. A few really warm dry days occurred during the first week, after which showers and dull weather occurred frequently till the end of the month. The lowest night temperature was 38°, which occurred on the 27th, and the highest 52°, on the 2d. Herbaceous plants and annuals flowered remarkably well. Roses were also good during the last week of the month. On the rock garden 282 species and varieties of plants came into flower during July, amongst which the following were conspicuous:—*Heuchera sanguinea*, *Cyananthus lobatus*, *Saponaria cespitosa*, *Callia alpina*, *Myosotis capitata*, *Tropeolum polyphyllum*, *Meconopsis Wallichii*, *Phyteuma comosum*, *Pentstemon speciosus*, *Epilobium obcordatum*, *Chrysosomum virginianum*, *Aristolochia rotunda*, *Spiraea distichoides*, *S. bullata*, *Lilium Krameri*, *Galium rubrum*, *Calochortus pulchellus*, *Micromeria piperella*, *Veronica amplexicaulis*, &c.

During August the weather was fairly good; there

were species of Maple, Oak, and Liriodendron, while many others were scarcely coloured at all, the leaves having fallen or been blown off in an immature condition. The brown tints which many Conifers assume at this season are as yet absent. Want of heat and sunshine during the growing season, causing insufficient ripening, appears to have brought about this result, and from the same cause Rhododendrons, Azaleas and other Ericaceous plants are but poorly set with flower-buds for next year. Fruit bearing trees and shrubs have, as a rule, produced moderate crops: the best are Hollies, Cotoneasters, Roses, and *Prunus lusitana*—the latter is unusually abundant this season.

The lowest readings of the thermometer occurred on the 9th, 34°; 11th, 33°; 13th, 37°; 22d, 35°; 23d, 32°. The highest morning readings were—on the 1st, 59°; 2d, 56°; 6th, 53°; 7th, 56°; 8th, 56°. Rain fell on eighteen days, and there were severe thunderstorms and violent gales at the middle of the month.

On the rock garden a large number of plants were in flower. Only sixteen, however, opened their first flowers during October, the best of which were *Armeria canescens*, *Aster longifolius*, *Crocus medius*, *asturicus*, *byzantinus*, *Schmidtii*, and *pulchellus*; *Dianthus arenarius*, *Helleborus alifolius*, *Tricyrtis hirta*. From January 1 till the end of October 1161 species and varieties have flowered on the rock garden; at the same date last year 1168 had flowered.

September was, on an average, favourable. The weather was dry, but rather cold. The first frost

light, and the weather generally conducive to a fine and continuous floral display.

The thermometer was below the freezing point once only during the month, 3° of frost having been registered on the morning of the 16th; the next lowest readings were 33° on the mornings of the 17th and 23d respectively. The mean temperature has been slightly above the average. The prolonged dry and fine weather experienced during the middle of the month proved of great benefit in maturing crops of all kinds, and reduced the effects of what was previously considered a backward season. Seeds are generally well developed, and if the coming month should prove propitious a good seed harvest may be expected. Fruit of all kinds has been over-abundant and cheap, except Apples (in some districts).

Of outdoor flowering plants there are still a number of late-sown hardy annuals in bloom. Dahlias are at their best, having escaped the frost of the 16th, which put an end to the blooming season of *Pelargoniums*, and considerably injured such plants as *Ageratums*, *Heliotropis*, &c.

The lowest temperature registered during the month was 29° during the nights of the 21st and 22d respectively. The next lowest reading was 36°, during the night of the 23d, the highest 51°, during the nights of the 4th and 5th; the mean day temperature was correspondingly high.

On several days during the middle of the month rainy and stormy weather prevailed, but during the last ten days it has been fine and seasonable.

As was anticipated last month, a considerable number of seeds have been gathered. Dahlias are still in bloom, but owing to the advanced season the flowers are not well developed.

The blooming season of both annuals and perennials is a prolonged one, the following being still in bloom:—*Anemone japonica*, *Pyrethrum uliginosum*, *Colchicum autumnale*, various *Asters*, *Calendulas*, and *Godekias*. *Rhododendrons* (especially hybrids) are well set with bloom-buds. *R. Bullen*, *Curator*.



FIG. 136.—PRIMULA REIDI. (SEE P. 691.)

were nineteen dry days, and the wind was westerly throughout.

Several low night temperatures were registered. The lowest were—on the 1st, 40°; 3d, 36°; 4th, 37°; 5th, 38°; 15th, 39°. The highest morning readings were—on the 6th, 67°; 20th, 68°; 28th, 63°; 29th, 70°; 30th, 66°. Eighty-six species of plants came into flower on the rock garden during August, amongst which were the following, viz.:—*Campanula isophylla* alba, *Hypericum chinense*, *Umbilicus sempervivum*, *Erica ramulosa*, *Calluna vulgaris* fl.-pl., *Olearia Haastii*, *Potentilla Leschenaultii*, *Cyclamen hederifolium*, *Centaurea alpina*, *Saxifraga fimbriata*, *Statice minima*, *Digitalis ferruginea*, *Scabiosa graminifolia*, &c.

The rock garden was very gay during this month, a large number of the plants which begun to flower in July continued longer than usual, in consequence of there being no great heat. Artificial watering was also at no time required.

The past month of October has been remarkable for the absence of frost, only once did the thermometer reach the freezing point, viz., on the 23d, while in October, 1885, frost was registered on four nights, indicating 20° in all. In consequence of the mildness of the season, a large number of autumn flowers are still in fairly good condition—Dahlias, *Pelargoniums*, *Lobelias*, *Calceolarias*, and other tender plants are in flower in the open ground up to the present date, but they are somewhat battered by the severe storms of wind and rain they have undergone. Autumnal tints on deciduous trees and shrubs have been less interesting than usual. Very few have coloured well, the best

this season occurred on the morning of the 15th, when the thermometer fell to 29°, and on the following morning it registered 32°. Dahlias, and a few other tender plants were injured, but not altogether destroyed. Potatoes were also blackened in some districts. No more frost occurred during this month, the lowest readings being 35° on the 19th, and 36° on the 23d. The highest morning readings were—on the 1st, 65°; 6th, 65°; 8th, 62°; 9th, 60°; 30th, 62°.

The season has been favourable for transplanting and outdoor operations have had but little interruption throughout the month. On the rock garden twenty-four species of plants came into bloom, amongst which were *Hypericum patulum*, *Morina Coulteri*, *Tricyrtis australis*, *Polygonum capitatum*, *Colchicum maximum*, *Gladiolus Saundersii*, *G. purpureo auratus*, *Oxalis lobata*, *Polemonium flavum*, *Kniphofia MacOwani*, *Colchicum autumnale* album, fl.-pl., *Lilium tigrinum*, *Oenothera rivalaris*. *R. Lindsay*.

REPORT OF THE GLASGOW BOTANIC GARDEN.

The weather has again been variable, and generally cold, particularly at night, the last few days, however, having been warm and summer-like; the thermometer in the sun having registered 105° on the 28th, and 109° on the 29th, the latter being the highest record this year. On the same dates the thermometer in the shade registered 70° and 69° respectively.

The lowest temperatures were registered during the first week, 35° on the morning of the 3d being the lowest reading here, while a few miles away the temperature varied from 32° to 28°, or 4° of frost, many half-hardy plants being injured, and the foliage of Potatoes in many districts discoloured. Lower night readings have not been recorded for many years. The rainfall in this district has been comparatively

DEVON AND EXETER HORTICULTURAL SOCIETY: CHRYSANTHEMUM AND FRUIT EXHIBITION: Nov. 12.

THE above exhibition was held in the Victoria Hall, Exeter, and from every point of view was a great success. The quality of the flowers staged in the groups was very superior to former years, and soon we may hope to see perfection in the style of growth, quality of bloom, and arrangement. There was room for more plants, which no doubt the committee was not slow to note; and if some change in the modes of arranging exhibits could be effected it would add greatly to the appearance of the show as a whole. The cut flowers, both Japanese and incurved varieties, were shown in much greater numbers than usual, and of far superior quality. *Anemone*, reflexed and pompon classes, showed more entries than before, but there was much room for improvement. The fruit classes for Apples and Pears formed also a great feature, the colour showing to much greater perfection than at the earlier fruit show, and naturally seen at home in conjunction with the Chrysanthemums.

PLANTS.

Chrysanthemums in pots, not less than eighteen varieties, arranged for effect in a semicircle with an external radius of 6 feet. Ferns may be used for the front.—Four competitors. 1st, Mr. Rowland, gr. to Wm. Brock, Esq., Parker's Well House, Exeter; this was an excellent collection, including all the best varieties of Japanese and incurved, the individual flowers all being of first quality, and well merited the award. 2d, Mr. Counter, gr. to Mark Farrant, Esq., Exeter, who had lesser varieties, but larger plants, with capital blooms. Mr. Bartlett, gr. to Lady Hotham, Knightleys, Exeter, staged a set in this class which was very effective, but very small blooms.

Collection of Chrysanthemums arranged in a semicircle with an external radius of 6 feet.—1st, Mr. Mollon, gr. to Mrs. Pongel, who had very tall plants and fine bloom; 2d, Mr. Rowland, whose plants were much more dwarf, but lacking in size of bloom were in the outer rows. Maidenhair Ferns were used in many of the collections, which served to hide the pots of the Chrysanthemums, and to give a finish to the appearance of the several groups.

CUT BLOOMS (CHRYSANTHEMUMS).

Thirty-six Japanese, in not less than twenty-four distinct varieties.—1st, Mr. Geeson, with a grand lot of fresh blooms of leading varieties; 2d, Mr. Rowland, also with a very beautiful lot of bloom.

Thirty-six incurved, in not less than twenty-four distinct varieties.—Here again Mr. Geeson took the lead with splendid blooms of the best kinds, of good substance and fresh.

Twenty-four Japanese, distinct.—1st, Mr. Geeson, whose blooms were equal in merit to those in his first lot.

Eighteen Japanese, distinct.—1st, Mr. F. Delve, gr. to F. W. Grant, Esq., Lymington, with a very nice lot indeed.

Twelve Japanese, distinct.—1st, Mr. Dolling, who had a very fine stand of blooms.

Six Japanese, one variety.—1st, Mr. Apin, with Madame C. Audiguer, very good; 2d, Mr. F. Delve, with Fair Maid of Guernsey, very fine.

Twenty-four incurved, distinct.—1st, Mr. Geeson, also in good form.

Eighteen incurved, distinct.—1st, Mr. Rowland, with a capital stand of blooms.

Twelve incurved, distinct.—1st, Mr. Dolling.

Six incurved, one variety.—1st, Mr. Apin, with fine blooms of Queen of England; 2d, Mr. Dolling, with Jeanne d'Arc.

Six reflexed, distinct.—1st, Mr. Dolling, with Golden and Pink Christine, King of Crimsoms, Mr. Forsyth, Cullingford, and Cloth of Gold.

Six Anemones, distinct.—1st, Mr. Apin, with good blooms of Fabian de Medina, Mr. Cabrol, Acquisition, Lady Margaret, Gluck, and Madame Doramy.

FRUIT.

Three bunches Black Alicante Grapes.—1st, Mr. Igoulden, with splendid bunches, averaging 3 lb. each, good berries, well coloured, and perfectly symmetrical; 2d, Mr. R. Pike, gr. to Rev. H. Clerk, Exmouth, with capital bunches, very fine in berry.

Three bunches Gros Colmar Grapes.—1st, Mr. Igoulden, with fine bunches, and well coloured.

Three bunches Lady Downe's Grapes.—1st, Mr. Langworthy, gr. to E. P. de la more, Cabrol, Exmouth. Three bunches Maréchal of Alexandria Grapes.—2d, Mr. Teed, gr. to Mrs. Ensor.

One Pine-apple.—1st, Mr. Lock, with a splendid Smooth Cayenne.

Dishes of Apples and Pears in large and small quantities were numerous shown by exhibitors hailing from Devon and the neighbouring counties.

Messrs. Veitch & Son, of Exeter, contributed several stands of Chrysanthemum blooms of good quality, and Apples and Pears in great variety.

Messrs. Lacombe, Pince & Co. showed a fine lot of Chrysanthemum plants in bloom, of excellent quality; immediately in front was a large collection of Apples and Pears in great variety. C. D. P.

DEVIZES CHRYSANTHEMUM :

November 16.

If any exhibition deserves to be a success this does, for it is an effort of the Benevolent Society of Devizes, and it is made the means (in conjunction with the annual Bazaar) of bringing in a large sum, which is devoted to the relief of the distressed during the winter months. As is usual, the exhibition was arranged by Mr. Thomas King, of Devizes Castle Gardens, who discharged the duties of manager in an admirable manner.

PLANTS.

In the Corn Exchange were to be seen some of the best plants of trained Chrysanthemums we have been privileged to look upon this season. They were large, finely grown, and well bloomed; the best six, grown by Mr. Hall, gr. to C. N. May, Esq., The Elms, Devizes, would have held their own at the Royal Aquarium Exhibition. Mr. H. Clark, gr. to C. E. Colston, Esq., Roundway Park, Devizes, was 2d, with admirable specimens also.

In the class for four plants, Mr. George Tucker, gr. to Major W. P. Clarke, Trowbridge, was 1st with capital plants; 2d, Mr. J. Webb, gr. to W. Stancomb, Esq., Blounts Court, Devizes. Mr. May had the three best specimens of Mrs. George Rundle, Mrs. Dixon, and George Glenny, highly praiseworthy in every respect.

Specimen Japanese were good also. Mr. C. N. May was again to the fore with six excellent plants in good contrasting varieties, equal in size, finely grown and flowered. 2d, Mr. C. E. Colston, with very good plants. Mr. G. Tucker had the best four.

In the class for six pompons there was a spirited competition with fine kinds, Mr. May again coming in 1st with excellent plants. 2d, Mr. Colston, close up.

Mr. G. Tucker had the best four plants grown as pyramids; 2d, Mr. Burgess, gr. to the Rev. C. E. Barnwell, Southborne Vicarage, Devizes.

CUT BLOOMS.

There was a keen competition for the Silver Cup given by the late Mayor, Mr. E. H. Mead, for twenty-four blooms of Chrysanthemums, twelve incurved and twelve Japanese. This was won by Mr. W. Wildsmith, gr. to Lord Eversley, Heckfield, Winchester, with a very good lot; 2d, Mr. G. Tucker, with some remarkably good flowers, which, though nice and fresh, were wanting in size.

Mr. Wildsmith also had the best twelve cut blooms

in four distinct varieties, having fine blooms of Princess of Wales, Baron Beust, Jeanne d'Arc, and Golden Empress; 2d, Mr. F. Tagart, Old Sneyd Park (E. Miller, gr.).

In the class for twelve incurved blooms, distinct, Mr. C. N. May was 1st, with an excellent lot; 2d, Mr. W. Wildsmith, with good blooms.

Mr. May was also 1st in the class for twelve cut blooms, shown with 4 inches of stem and foliage, distinct, having excellent blooms; 2d, Mr. W. Wildsmith.

Japanese blooms were well shown, Mr. W. Pethwick having the best twelve, fine and well developed; 2d, Mr. W. Wildsmith.

There was an excellent competition also in the class for Anemone-flowered in four varieties, and here Mr. W. Pethwick was 1st, with finely developed blooms; 2d, Mr. G. Tucker, with flowers of much merit.

A very fine stand of reflexed Chrysanthemums, not for competition, was staged by Mr. Wildsmith, and Highly Commended.

The increasing popularity of the Chrysanthemum show was proved by the fact that the admission money exceeded by £ to the amount taken last year.

WEST KENT CHRYSANTHEMUM :

Nov. 16 and 17.

THIS Society held its ninth annual exhibition in the Public Hall, Bexley Heath, on the above dates. The show was a decided success, both as regards extent, the fine quality of the plants and cut flowers, for which competition was invited, and which included Grapes, Apples, Pears, Potatoes, and collections of vegetables, which collectively were very well shown.

GROUPS.

As usual now at these autumn displays, the groups of Chrysanthemums in pots constituted an important feature, consisting as they did of wet flowered plants arranged closely together. Yet, imposing as the groups are, when massed together in the way now seen at exhibitions, would not the effect be much enhanced if the mass of flowers were relieved by the introduction of Palms and other suitable fine-leaved subjects amongst them? Of this there can scarcely be two opinions, and we throw out the hint for the consideration of those who have to compile the schedules, if it would not be worth their while to stipulate that the groups for which they offer prizes should include plants of the character named.

In the open class for groups occupying a space of 60 superficial feet, the competition was very close between Mr. F. Moore, gr. to W. C. Pickersgill, Esq., Mr. Tomalin, gr. to S. White, Esq., and Mr. Mitchell, gr. to Mrs. Arbuthnot, who took the prizes in the order of their names; Mr. Moore's plants, in addition to being well bloomed, were good in foliage also—a fact which is not always so much taken into account as it deserves to be. Mr. Tomalin likewise had a very good group, whilst Mr. Mitchell's plants were remarkable for the size and development of their flowers.

Standards, which for general usefulness in arranging in conservatories, halls, or elsewhere, are preferable to the flat trellised specimen, were well shown: Mr. Moore being 1st with well grown and finely flowered examples; Mr. Mitchell, who was 2d, also had a well bloomed half-dozen.

Mr. Mitchell was 1st for single standards, with a large specimen of Madame Berlie Rendatler, splendidly flowered; 2d, Mr. Mitchell, with Elaine, very well done.

Four standard pompons.—1st, Mr. Mitchell, with well flowered examples.

In the amateur class the 1st prize for a group was taken by Mr. Blackstone, with a good set of plants, nicely flowered.

CUT BLOOMS.

These were in great number, most of the classes being well filled. Few flowers of indifferent quality were present even in the stands that were not successful. With twenty-four incurved flowers, not fewer than eighteen varieties, Mr. Moore had 1st honours, with excellent flowers of well known kinds; 2d, Mr. Mitchell, whose flowers consisted of the same or similar kinds.

Twelve blooms of incurved varieties.—1st, Mr. Mitchell, with a fine stand.

Twelve blooms, reflexed varieties.—1st, Mr. Moore, with a meritorious stand.

Twenty-four Japanese, not less than eighteen varieties.—Here again Mr. Moore took the lead, putting up an excellent stand; Mr. Mitchell, whose stand contained fine flowers, being 2d; 3d, Mr. Tomalin, who had a good lot of blooms.

Twelve blooms, large Anemone-flowered, not less than six varieties.—Mr. Moore, who here again took 1st prize, staged fine flowers.

In the class for twelve pompon Anemones Mr. Mitchell took the 1st prize.

In the second division of the show, with twelve incurved blooms, Mr. Adams took the lead, having

an excellent stand; Mr. Winter, who was 2d, also had a good stand.

Twelve Japanese.—In a close run 1st honours went to Mr. Adams, for an even set of blooms; 2d, Mr. Winter.

Six Japanese.—1st, Mr. Winter; 2d, Mr. Adams, both showing well.

Twelve pompons.—1st, Mr. Blackstone, gr. to F. Liddle, Esq.

Six table plants.—1st, Mr. Moore, with clean well grown examples.

FRUIT.

Black Grapes, three bunches.—1st, Mr. Moore, with Black Alicante, medium sized bunches, very well coloured; 2d, Mr. Tomalin, whose bunches were composed of large berries, but a shade deficient in colour.

White Grapes, three bunches.—1st, Mr. Moore, with moderate sized bunches of Muscat of Alexandria, well coloured.

Pears were well shown. With six varieties Mr. Southcott took 1st, Mr. Mitchell being 2d.

Apples, six dishes.—1st, Mr. E. Fuller, who had beautiful fruit; 2d, Mr. Southcott, whose examples were little behind those of his opponent.

VEGETABLES.

Collection of not more than twelve sorts.—1st, Mr. Tomalin.

Collection of Potatoes.—1st, Mr. Faller.

COTTAGERS' PRODUCTIONS.

In the shape of Chrysanthemums in pots, and also cut flowers, with collections of vegetables, &c., occupied a large space, and very well shown, especially the more useful kinds, such as Potatoes, Cabbages, Onions, and Turnips.

LINCOLN CHRYSANTHEMUM.

THE fourth annual exhibition of this prosperous Society was held in the Exchange on Tuesday and Wednesday, Nov. 16 and 17—the best yet held both as to number of entries, and excellence of quality. Mr. Wipf, gr. to C. Clayton, Esq., East Cliff House, arranged a grand group of plants in the centre of the room, comprising well variegated Crotons, Orchids, Pitcher-plants, &c., which proved the centre of attraction. Messrs. R. Pennell & Son, nurserymen, Lincoln, had also a large bank of Chrysanthemum plants, intermixed with Palms and foliage plants, besides Ericas, zonal Pelargoniums, &c. Mr. Ilman, nurseryman, Nettleham Road, also showed Bouvardias, cut blooms, &c.

The best group of blooming and other plants, arranged for effect, was from Mr. Foster, gr. to H. Gresham, Esq. The following exhibitors won prizes for collections:—Mr. Brown, gr. to S. Lowe, Esq., and Mr. Brailsford.

CUT BLOOMS: OPEN CLASSES.

With thirty-six blooms, eighteen Japanese and eighteen incurved, Mr. E. Thornton, gr. to C. E. Muddett, Esq., was 1st, showing fine blooms of Baron Beust, Lord Wolsley, and Soleil Levant; Mr. Bagg, gr. to W. Ashley, Esq., was a good 2d.

For twenty-four incurved Mr. Bagg was again 1st, and also for twenty four Japanese.

In class 4, for eighteen blooms, consisting of equal numbers of incurved, reflexed, and Japanese, Mr. Gill, gr. to —Oldham, Esq., won 1st prize, having amongst the latter a grand bloom of Madame C. Audiguer.

Mr. Browne, gr. to T. C. Bourne, Esq., was 1st for twelve blooms incurved, and also for twelve blooms Japanese. Other prizes were taken by Messrs. Bagg, Mitchell, Elder, and Brailsford.

TABLE DECORATIONS.

The display of epergnes, dinner-table decorations, &c., was exceptionally good. For best arranged epergne Miss Pennell was 1st, and Miss M. Hamilton Holmes a good 2d; and for best arranged dinner-table decoration the same ladies won prizes in the same order.

Mr. Ulman was 1st for bouquets.

MISCELLANEOUS SUBJECTS.

Mr. Mitchell exhibited the best three dishes of dessert Pears; and for six heaviest Pears Mr. W. Hare, gr. to C. Neville, Esq., was a good 2d in the former class.

Mr. Hare also had the best black Grapes, and white Grapes, justly receiving the 1st prize in each instance; and also for the collection of Grapes, which was won by Mr. Crawford, gr. to Colonel Thorpe, was a good 2d.

Dr. G. M. Lowe, Castle Hill was 1st, for best collection of Ferns, and also for best basket Fern, both being excellent exhibits.

For three Orchids in bloom, F. M. Burton, Esq., was the best exhibitor; he showed fine examples of Vanda cœrulea, small, but well flowered.

Many minor classes must be omitted, as well as those which included prizes for Tree Ferns, Cy-cads, &c.

WINCHESTER: Nov. 16 and 17.

THE Guildhall was filled on the above named dates with the exhibits at the Chrysanthemum Society's fourth annual exhibition. It was the best of the series, and a great improvement has taken place since last year's show in the specimen plants and groups of plants. Grapes were staged in capital condition and large numbers, so were Apples, Pears, and vegetables. Cut blooms were staged in large numbers and of fine quality.

PLANTS IN POTS.

The best collection of Chrysanthemums grown in pots occupied a space of 8 by 6 feet, was staged by Mr. A. Prouting, gr. to Miss Butler, Winchester—the plants, both Japanese and incurved, having large flowers, the arrangement, too, was very good; 21, F. C. Birch, Esq., Winchester.

The six plants of Chrysanthemums were staged by Mr. Joy, nurseryman, Shirley, Southampton, who had large well trained specimens, 5 to 6 feet in diameter, and freely flowered. Mr. Wills, gr. to Mrs. Pearce, Bassett, Southampton, was 2d, with good plants.

Mr. Wills was 1st for six Japanese, staging fine plants of the leading varieties; 2d, Mr. Astride.

Mr. Joy had the best single specimens of both incurved and Japanese, with fine plants of Mrs. Dixon and Madame Bon Rendall; and was closely followed by Mr. Wills.

Fifteen competitors staged plants in the class for six Chrysanthemums (grown within five miles of Winchester). Mr. J. Wareham, gr. to Mrs. T. Gunner, Winchester, was 1st, with capital plants.

For the best group of miscellaneous plants arranged for effect, Mr. Axford, gr. to C. M. Shipley, E. q., Twyford Moors, Winchester, received the highest award, for a very tastefully arranged group, characterised by extreme lightness. Mr. W. Neville, gr. to F. W. Flight, Esq., Cornstiles, Twyford, Winchester, was a close 21; while Mr. T. Munt was a good 31.

Mr. Molyneux, gr. to W. H. Myers, Esq., Swanmore Park, Bishops Walkham, had the best plants for table decoration.

CUT BLOOMS

formed the chief feature of the show, being very numerous and good in quality. The principal class was one for twenty-four distinct, eight to be Japanese, and the remainder incurved or reflexed. Mr. Molyneux was a very good 1st, and his blooms were large-sized, and of good substance and colour; Mr. Neville was 2d, with smaller but neat flowers.

Class 9 was for twenty-four blooms in not less than eighteen varieties. Mr. Molyneux was here again ahead; Mr. B. Wernham, gr. to C. Hoare, Esq., Ickwood Park, Basingstoke, was 2d, having capital specimens of leading sorts.

For twelve incurved, Mr. Molyneux again led the way with even neat specimens of the leading varieties; and was followed by Mr. L. Jennings, gr. to J. Freeman, Esq., Fount Lodge, Farnborough, with crested flowers.

Mr. Molyneux followed up his previous success by taking 1st honours in each of the classes for twelve Japanese blooms; twelve reflexed, in eight varieties; and for twelve Anemone varieties.

In the class for twelve blooms in eight varieties, open to those not competing in the former classes, there were seven competitors, Mr. G. Trinder, gr. to Sir H. Mildmay, Dogmersfield, Winchester, showed best; and 2d, Mr. Jennings.

Mr. Neville staged by far the best stand of pom-poms.

Miss Flight was awarded the 1st prize for the most tastefully arranged table of Chrysanthemums and foliage, with a charming combination of single varieties.

FRUIT.

Mr. T. Weaver, gr. to W. W. B. Beach, Esq., M.P., Oakley Park, Basingstoke, was 1st for three bunches of Grapes, distinct varieties, staging Muscat of Alexandria in capital condition, Alicante, fine in bunch and berry, and well finished; Lady Downe's was the other variety. Mr. Molyneux, who was very close, staging fine samples of Barbarossa, Alicante, and Trebbiano; 3d, Mr. C. Warden, gr. to Sir F. Bathurst, Bart., Clarendon Park, Salisbury.

For two bunches of black Grapes, Mr. Molyneux was an easy 1st, staging large, shapely bunches, well coloured, of Barbarossa; 2d, Mr. Bowerman, with Alicante. Seven competitors staged in this class.

The best two bunches of white Grapes were staged by Mr. Bowerman, who depended upon Muscat of Alexandria; Mr. Weaver was a close 2d.

Mr. Trinder had the best three dishes of dessert and also of kitchen Apples; also the finest three dishes of Pears, all being good in quality.

Vegetables were extra fine, from Mr. Dauncey, Mr. Lye, and Mr. Kneller, gr. to W. Portal, Esq., Basingstoke.

PEMBROKESHIRE CHRYSANTHEMUM: Nov. 17.

THIS Society held its show in the Assembly Rooms, Pembroke, on the date above given. The weather, which threatened to be most unfavourable in the morning, fortunately cleared by mid-day, enabling the lovers of flowers to visit the show, which was well patronised throughout the day. The classes for pot plants were not so well filled as was anticipated, but those for cut blooms were more spiritedly contested.

The class for a group in a space 8 feet by 9 feet—prize given by Earl of Cawdor—only brought out two exhibitors, Mr. French, gr. to Colonel Saurin, winning 1st honours with an even, well grown lot of plants. This collection was closely followed by one from Mr. Fisher, gr. to the Earl of Cawdor, who exhibited a great variety of the most popular sorts taken from the Sackpool conservatories, and shown without any special preparation. This collection, being beautifully flowered and arranged was deservedly admired.

For six incurved or reflexed, Colonel Saurin was again 1st, staging good plants. The same exhibitor also showed the best Japanese, in a plant of Soleil Levant.

The cut flowers attracted much attention. In the class for twenty-four blooms, Mr. Dumble, gr. to Major Phillips, Picton Castle, was 1st, his stand consisting of good blooms of the finest varieties; Colonel Lympton taking the 2d prize, with blooms of considerable merit.

For twelve blooms, Major Phillips was again in the front; 2d, Colonel Lympton.

A splendid collection of fruits, vegetables, and flowers, not for competition, came from the Earl of Cawdor, and was much admired.

The amateurs' and cottagers' classes were well contested, and some high creditable exhibits of both plants and cut blooms were shown.

Great credit is due to the hon. secretary, Mr. R. H. Treweek, Pembroke, for the admirable manner in which the arrangements were carried out.

ASCOT AND SUNNINGHILL:

Nov. 17 and 18.

THIS buildings which the Jockey Club possess at Ascot are utilised for one great racing ceremony only during the year, but being kindly granted to the committee of the local Chrysanthemum Society for their annual exhibition, are thus utilised for quite another and to many a more pleasing purpose. The show was greeted with a very wet morning on the first day, but later it became very pleasant.

The entrance corridor were placed five large groups of the customary pattern, containing some really superb flowers of incurved varieties and some fine Japanese kinds came from Mr. Hughes, gr. to D. F. de Palavicini, E. q., Ascot, while Mr. Lane, gr. to Miss Dering Smith, had the best grown plants, dwarf, finely foliated and flowered, but rather past their best. Other good groups came from Mr. Mead, gr. to A. Magniac, E. q., and from Mr. Savage, gr. to Baron Huddleston. In this place a fine group of Chrysanthemums effectively fronted with small foliage plants, Heathy, Ferns, &c., was arranged by Messrs. John Standish & Sons, Ascot; and from Messrs. Sutton & Sons, Reading, came a large collection of Potatoes, including many fine and handsome seedlings, backed by a selection of Kales, the dwarf green and purple kinds being specially prominent.

The trained plants were generally very good, the best six coming from Mr. Lane, and were about 31. Hiver Fleur, Middle Lacroix, Prince of Wales, Golden Christine, and Mrs. Dixon. Mr. Savage was 2d, with plants of half pyramidal form, while Mr. Hughes was 3d, having semi-standard plants well bloomed.

Mr. Lane came 1st with three fine standards of Mrs. Dixon, and Golden and White Christine.

The best six pom-poms, large and fairly well bloomed, included good Aurora Borealis, Salomon, and Queen of Anemones. Decorative groups of plants were excellent, the best, which included many beautiful Calanthes, Oncidiums, Dendrobiums, and other good Orchids, elegantly arranged in a setting of Ferns, came from Mr. Paul, gr. to J. D. Bowring, Esq., Windsor Forest. Chinese Primulas, Solanums, and table plants were numerous and good.

CUT FLOWERS.

A class for eighteen Japanese and same number of incurved blooms brought six competitors, the best being from Mr. Tomline, gr. to T. Ashby, Esq., Sunninghill; Mr. Page, gr. to A. Southard, Esq., being 2d. There were many first-rate blooms in these stands.

The open class for sixteen incurved flowers was also a good one, Mr. Strong, Wellington College Gardens, having the best blooms. Mr. Hughes had in his stand, which came 2d, many fine blooms.

Mr. Lane had the best twelve blooms; Mr. Tomline and Mr. Hibbard, gr. to General Thurnhill, were placed equal 2d, having very good blooms.

In the competition for six of one kind, the finest were from Mr. Cole. Mr. Tomline had the best twelve reflexed flowers. Japanese were first-rate, Mr. Page having a very strong sixteen; Mr. Cole was 2d with really very fine flowers. Mr. Lane stood 1st with twelve blooms, also very fine.

The class for six blooms was well contested, whilst that for six of one kind brought beautiful Belle Pauline, fine Japonaise, and superb J. Delais, prizes going in this order. Mr. Tomline had the finest Anemones.

FRUIT.

also was excellent. Mr. Lane having the best black Grapes in fine Alicante; and Mr. Wells was 2d with beautiful Cooper's Black. The white kinds were all fairly good Muscats. Kitchen and dessert Apples, and beautiful lots of Pears, as also vegetables, formed an interesting portion of the show.

HULL AND EAST RIDING CHRYSANTHEMUM.

THE annual exhibition, lasting two days, of the Hull and East Riding Chrysanthemum Society was opened with much *clat* in the Artillery Barracks, Park Street, November 13. The inaugural ceremony was performed by the Mayor, and brought together a large and influential gathering. The Society has reason to feel proud of the show, which reflects no small credit upon the town at large. A finer collection could hardly be seen in any part of the country. The extensions which the Society has made each year will, if continued, eventually make it difficult for the committee to find adequate accommodation. But notwithstanding some drawback in this respect, the scene presented in the Artillery Barracks was one of great beauty. The large hall contained a floral array of equal interest and variety to the horticultural displays in midsummer. In the gun-room the fruit and vegetable exhibits, and the remarkably handsome assortment of bouquets, ladies' shoulder sprays, and fancy floral designs offered charming contrasts upon which the eye rested with pleasure. The repository room was filled with Chrysanthemums in pots, several of these plants being of unusual proportions and colouring. The southern annex was occupied with the table decorations, which, shown by gaslight, looked extremely elegant. The great attraction of the large hall, and indeed of the show, was the display of cut blooms. These were laid out upon two long tables, which extended nearly the entire length of the room. They were as conspicuous for variety as for superiority of culture in size, quality, and colour.

In the class for forty-eight cut blooms the exhibit of Mr. William Mease, 1st, and Sir T. Edwards-Moss, Bart., 2d, claimed attention. The Challenge Vase, offered by the Chairman of the Society (Mr. George Bohn), was taken by the former gentleman, but the competition was very close. Mr. F. W. Jameson, of Estella, was another of the most successful competitors, two 1st and two 2d prizes falling to his share in this section. Mr. Bohn also secured two 2d prizes and one 3d. A 1st premium also fell to Mr. Arthur Wilson for twenty-four blooms of several varieties, including twelve Japanese. The same gentleman secured 2d honours for a group of Chrysanthemums, in which the competition was very strong. Mr. George Lawson, Newland Grove, was the winner of the 1st prize in the latter, and with it a Silver Challenge Cup.

In the open classes for plants in pots, L'eu'-Colonel Brooshooff (gr. Mr. A. W. Stanley) had the most success, carrying off three 1st prizes for a group of Chrysanthemums, for six ditto, and for three trained specimens. In this department Mr. R. Stamper, Thornghubald, would have taken a higher position with a very magnificent plant, containing no fewer than 200 blooms, but for the fact that the exhibit had suffered in transit.

To Miss E. M. Jameson the 1st prize fell for table decorations, and this, considering the keen competition, and the number of entries, made the success of that lady all the more notable. It should be added that a piece of Challenge Plate, presented by the Chairman of the Society, accompanied this 1st prize.

The amateur class for cut blooms was marked by good competition, and a very creditable display was made. The leading exhibitor was Mr. A. W. Stanley, of Hull, who took no fewer than nine 1st prizes, as also one or two 2ds. Mr. E. Goddard, Hull, was the winner of the largest number of the 2d prize in the same section.

In addition to the prizes already mentioned a special 1st prize was given to Mr. George Cottam, jun., of Cottingham, for an exhibit of three plants for table decoration. A First-class Certificate was awarded to Mr. Thomas Winkworth, Childwall Hall Gardens, Liverpool, for the Japanese Chrysanthemum Mr. Ralph Brocklebank, a sport from Meg Merrilies. A

Marguerite Cloth of Gold, shown by Mr. Robert Owen, Floral Nurseries, Maidenhead, was Highly Commended.

The following presented special prizes for competition:—Mr. N. Davis, Camberwell, London; Mr. T. B. Morton, Darlington; Mr. R. Owen, Maidenhead; Mr. E. P. Dixon, Hull; Messrs. King & Co., Hull; Mr. Young, Newland Potteries, Hull; Mr. D. Toyn, Bridge Street, Hull; Mr. E. Wordsall, Salt-house Lane, Hull; Mr. W. E. Martin, Market Place, Hull; Messrs. Barnett & Scott, Whitefriar Gate, Hull; Mr. R. Sumner, St. John Street, Hull; Mr. W. Benny, Salt-house Lane, Hull; Mr. G. Norris, Seaton Street, Hull; Messrs. T. Kirk & Co., Whitefriar Gate, Hull; Messrs. Barnby & Rust, Market Place, Hull.

The show was opened by the Mayor of Hull, who in a brief speech alluded to the beauty of the show and to the sound financial position of the Society. Several ladies acted as judges—an innovation that might more frequently be adopted with advantage at horticultural shows.

A First-class Certificate awarded to:—Mr. Thos. Winkworth, Childwall Hall Gardens, Liverpool, for Japanese Chrysanthemum Mr. Ralph Brocklebank, a sport from Meg Merrieles.

The prize list, which Mr. Falconer James forwarded, is omitted, owing to our want of space.

CHISWICK HORTICULTURAL.

The second autumn exhibition of this Society took place in the Vestry Hall on the 18th inst., and was in every way a success. The display of Chrysanthemums, although somewhat late for the exhibitors, was very good.

GROUPS.

In the class for a group of Chrysanthemums, arranged in a space not exceeding 60 square feet, Messrs. W. Fromow & Sons, Sutton Court Nurseries, Chiswick, easily took 1st honours with a very even wellbloomed lot, arranged lightly and elegantly, the plants themselves showing great vigour and strength. Mr. A. Wright, gr. to E. H. Watts, Esq., Devonhurst, Chiswick, was 2d, most of the popular varieties being shown well.

CUT BLOOMS.

In the principal class—that for twelve incurved, and twelve Japanese—there was a keen competition, seven competing, the 1st prize being awarded to Mr. C. J. Waite, gr. to Col. W. P. Talbot, Glenhurst, Esher. His Japanese blooms were very fine and especially so Mad. C. Audigier, Grandiflora, Comte de Gerniny, Triomphe de la Rue de Châlets; incurved—Lady Talfourd, Barbara, Isabella Bott. Equal 2d prizes were awarded to Mr. H. Collyer, gr. to Mrs. Murrell, The Elms, Ealing, and Mr. Long, gr. to E. B. Ridges, Esq., Orchard Dene, Ealing. Amongst Mr. Collyer's best we noted Mons. J. Laing, Baron de Prailly, Mdle. Lacroix, Lord Alcester, John Salter, and Jeanne d'Arc. Lord Long showed good blooms of Soleil Levant, Rosa Bonheur, Mons. Astorg, Venus, Golden Eagle, and Guernsey Nugget. 3d, Mr. E. Chadwick, gr. to E. M. Nelson, Esq., Hanger Hill House, Ealing, with a uniformly good stand.

Mr. Collyer was 1st for six reflexed, and also for pompons; Mr. Long was 2d in the former class. These two exhibitors also took several other prizes.

Special prizes for amateurs were offered by Mrs. Lee for twelve Japanese and twelve incurved, the 1st prize in each class being awarded to Mr. W. S. Larcobm, stationmaster, Turnham Green, for most creditable flowers.

DINNER-TABLE PLANTS.

These with similar subjects were largely shown. Mr. A. Wright and Mr. Waite showed well here, receiving prizes as their names stand.

FRUIT AND VEGETABLES.

There was a fine display: Mr. Hudson, gr. to H. J. Atkinson, Gunnersbury House, Acton, taking the chief prizes for Grapes and Apples, showing in the former good bunches of Black Alicante and Muscat of Alexandria. Other prize-winners were Messrs. Waite (1st for Pears), E. Chadwick, A. Wright, R. Woods, and J. Coomber.

The Royal Horticultural Society staged a large collection of Apples and Pears and also of Grapes, consisting of well-known kinds.

Vegetables were well shown by Mr. C. J. Waite, his six kinds in competition for prizes offered by Messrs. Sutton & Sons.

Prizes were offered for Chrysanthemums, vegetables, &c., for competition amongst cottagers, which brought out a very creditable display.

MISCELLANEOUS.

Splendid competitive groups of Chrysanthemums were shown by Mr. May, gr. to the Marquis of

Bute, Chiswick House; and Mr. Roberts, gr. to the Messrs. Rothschild, Gunnersbury Park. Good selections of foliage plants were contributed by Messrs. W. Fromow & Sons and Messrs. Hooper & Co., Twickenham, all adding much to the general effect. Floral devices were shown by Messrs. Martin & Co., Kensington; and Mr. W. Gardiner, Bayswater; Mrs. Mott, Kensington, showing wreaths, &c.

CHORLEY CHRYSANTHEMUM: Nov. 19 and 20.

THIS Society's third annual show of Chrysanthemums, plants, fruit, and vegetables, on the above dates, proved a remarkable success. The spacious Town Hall was well filled with highly meritorious exhibits, the open and gentlemen's classes bringing exhibitors from a considerable distance, and the amateur well filled classes proved their interest and skill in Chrysanthemum growing.

GROUPS.

was a leading feature in the open class. For a group of Chrysanthemums, arranged for effect, Mr. J. Molison, gr. to J. Ekersley, Esq., Burnt House, Adlington, was conspicuously to the fore; 2d and 3d places were taken by Mr. G. Smith, gr., Ellerbeck Hall, and Mr. G. Park, gr. to Lieut.-Col. Farington, of Wigan, respectively, with fine banks.

Group of Ferns arranged for effect.—1st, Mr. Drinkwater, gr. to Mrs. Baines, Prospect House, Whetstone; 2d, Mr. J. Smith, gr. to R. Shackleton, Esq., Willnell House, whose plants were decidedly better than the 1st; 3d also were those placed 3d (Mr. Molison's), but more closely and flatly arranged.

Groups of miscellaneous plants, arranged for effect, brought out but two competitors, Mr. G. Park being 1st with a tastefully arranged group, which included well grown Crotons, Dracænas, Pandanus—all brightly coloured; a well flowered plant of Clerodendron, Balfourianum, &c. Mr. J. Harrison, nurseryman, Chorley, was 2d, with a nice group of mostly small decorative stuff.

Messrs. Morley & Co. of Preston, were 1st, with Carnations and Bourdins.

Mr. Molison, 1st, with Primulas; Messrs. G. Smith and G. Park, 2d and 3d.

Mr. G. Smith had the best six Cinerarias.

Roman Hyacinths, six pots.—1st, Mr. G. Park.

Mr. J. Harrison had 1st for six pots of Cyclamen.

Table plants were numerous and good. Mr. C. Jones, gr. to Mrs. Shaw, Bolton, took 1st, being followed closely by Messrs. Molison and E. Thrupp, gr. to J. Walmesley, Esq., Wigan.

POT PLANTS.

Competition was very keen. For six plants, three incurved and three Japanese, Mr. Chapple was 1st, the best being Queen of England, Countess of Granville, La Nymbe and R. Ballantine; 2d, Mr. G. Smith, with Lord Wolseley, Princess of Wales, Comte de Gerniny, Jardin des Plantes, L'Incomparable, and F. A. Davis; 3d, Mr. Dickinson, gr. to J. B. Cardwell, Esq., Whittle Springs, who had F. A. Davis and Guernsey Nugget, very good.

For three plants, Japanese, reflexed and incurved, Mr. G. Smith came 1st, with Comte de Gerniny, Cullingford, and Mrs. G. Rundle; 2d, Mr. Chapple with plants exceedingly good.

Three pompons.—Mr. Chapple 1st, with Cedo Nulli, white and lilac, and Golden Mdle. Martha; Mr. G. Smith 2d, and Mr. Dickinson, whose plants were very stiffly trained, 3d.

For single specimen, pompons excluded.—Mr. Chapple was a capital 1st, with a magnificent plant of La Nymbe; Mr. G. Smith 2d, with Mrs. Forsyth.

Specimen pompon.—1st, Mr. Molison, with a fine specimen of Sœur Melaine; 2d, Mr. G. Smith, with Rosinante, very good.

CUT BLOOMS.

This was exceedingly good and the entries numerous. Mr. Chapple was awarded 1st for eighteen, nine Japanese and nine incurved; Mr. Jones being a very close 2d, with several splendid blooms.

Mr. Jones took 1st for twelve, having very fine blooms.

For six, Messrs. Chapple, Dickinson, and Molison were successful.

FRUIT.

though not abundant, was very fine. Two excellent bunches of Black Alicante won for Mr. Molison 1st honours; Mr. Park coming 2d; and for scarcely less meritorious examples, Mr. W. Smith, gr., Duxbury Hall, was awarded a special.

Mr. W. Smith was well 1st for white Grapes, with two capital bunches of Muscat of Alexandria; and Mr. Thrupp followed with Golden Queen; and Mr. Parks 3d, with smaller bunches of Muscat of Alexandria.

VEGETABLES.

Capital trays of these were shown, honours for which fell to Messrs. W. Smith, Molison, and Drinkwater. The former two competed well in a special class provided for them.

A very fine Lemon tree, among other plants, not for competition, was noteworthy, being laden with its golden fruit. This was sent by Mr. G. Parkinson, gr. to H. Rawcliffe, Esq., Gillibrand Hall. T. L.

NATIONAL CHRYSANTHEMUM: Nov. 24.

A MEETING of the Floral Committee took place on the above date, when a considerable number of flowers were sent for inspection and certificates. At the outset of the proceedings it was unanimously resolved that for the future when any new variety of Chrysanthemum is shown by more than one exhibitor, the Certificate, if awarded, shall be given to the one producing the new variety in its best form.

Mr. Martin, of Darford, sent blooms of Japanese Chrysanthemum Syriacs, pale pink, incurved, large and full flower (Commended).

From Mr. Winkworth, Liverpool, came a fine golden sport from Meg Merrieles, named Mr. R. Brocklebank, large, full, and fine, and regarded as one of the best sports of the year (First-class Certificate).

From Mr. Sullivan, gr. to D. B. Chapman, Esq., Roehampton, came a seedling Japanese named D. B. Chapman, magenta, regarded as a very fine late variety, large and full (First-class Certificate).

From Mr. T. S. Ware, Tottenham, came Charles Halle, a hybrid large flowered variety, clear pink in colour, tubular petals; Commended as likely to prove a good decorative variety. Also Iona, an incurved variety of a deep amber-brown colour, with frimbriated petals, and Commended as a frimbriated variety. From Mr. W. E. Boyce, nurseryman, Holloway, came pompon Rubra Perfecta, rich orange-crimson, like a small Cullingford—the shade of colour between that and Julia Lagravere (First-class Certificate); also Japanese Citron, bright yellow, promising, but only one flower was shown.

From Mr. Mizen, of Mitcham, came a pale golden incurved flower, said to be a sport from Jeanne d'Arc, the flower of excellent build, and regarded as a valuable late variety (First-class Certificate).

Messrs. J. Laing & Co., nurserymen, Forest Hill, sent several new Chrysanthemums, but as single blooms only were produced, they could not be dealt with.

From Mr. R. Owen, nurseryman, Maidenhead, came pompon Osiris, dark amber flushed with rose at the base; a very pleasing well formed flower (First-class Certificate); Petro Diaz, bright reddish-chestnut, large, full, and finely reflexed (First-class Certificate as a Japanese variety); Japanese Dr. Crevaux, rosy-carmine, shading to white, white reverse, distinct in colour, but said to be a tall grower. Chrysanthemum coronarium, Cloth of Gold, single (Commended for its form and colour).

From Messrs. H. Cannell & Sons, nurserymen, Swanley, came a large number of new varieties, the most striking of which were incurved La Gracieuse, silvery pale pink, very promising, but one flower only shown; single Japanese, Marigold, bright red, with streaks of white, and yellow centre, very pretty and distinct (First-class Certificate); large-flowered Anemone, Mrs. W. Holmes, delicate blush, not so deep in colour as Prince of Anemones, very pretty and good (First-class Certificate); Japanese L'Or du Japon, crimson and gold, pale centre, good substance and petal (First-class Certificate).

From Mr. Kendall, Roehampton, came Japanese Moonlight, with large incurved white flowers of the character of those of Madame C. Audigier (First-class Certificate).

RECENT CHRYSANTHEMUM SHOWS.

BRIGHTON AND HOVE.—The exhibition of the Brighton and Hove Society took place on November 16—17, and was said by competent persons to have been the best yet seen in the Pavilion. The plants fell under two categories—groups and trained. In the former class Mr. J. Miles, of the Bristol Nurseries, Kemp Town, secured the 1st place, and a gardener, Mr. Bunney, of Denny Park, the 2d. In the latter class Mr. Hill, gr. to M. Wallis, Esq., Willideane, was the winner of the highest prize. In cut blooms Mr. Gore, gr. to Captain Taylor, Glenleigh, Hastings, took the premier prize in the 2d's. Mr. Russell, gr. to Dr. Lewis, took the 1st prize for the twenty-four incurved flowers. A considerable amount of plants which may be classed as miscellaneous were shown, consisting of the usual subjects found at these autumn exhibitions—all nice, but nothing novel. Messrs. Balchin & Sons, and Mr. G. Miles added much to the attractiveness of the saloons by the liberal use of plants and flowers in various positions. Fruit and vegetables were shown in capital style, the prizes chiefly falling to the local

gardeners. Mrs. J. Binns showed her pretty framed bouquets of flowers, Ferns, &c., receiving a Certificate and Commendation.

EASTBOURNE: NOV. 22, 23.

This Society has been this year inspired with new life by the efforts of Mr. W. Jupp, Torfield Old Town who, assisted by an energetic committee and guarantee fund, subscribed by gentlemen of the town and vicinity, was enabled to offer a very enticing schedule to growers. The result was an excellent show, and, as the weather was fair during the days it was open, the returns were all that reasonable people could desire. Groups were a telling feature, and were full and pleasing, without being formal. Mr. E. Hemsley, gr. to A. Dore, Esq., Arundel, taking the 1st prize. Mr. Gore, of Glenleigh, Hastings, took the lion's share of the prizes in the bigger classes. Fruit, vegetables, Potatoes, and Tea Roses from Mr. Jupp's garden formed the other items of interest.

YORK ANCIENT FLORISTS: NOV. 17, 18, 19.

This was the seventh annual meeting of the Society, and owing to the manner in which the Chrysanthemum growers responded to the invitation given, it proved a very successful one. Cut flowers, especially the incurved section, showed much improvement over former years, and moreover the working-man amateurs came to the front in an admirable manner.

What is of equal importance with anything mentioned above, the attendance was large, for we all know that when gate money is abundant the duties of officials are considerably lightened, and competitors put on the smile of satisfaction.

Mr. McIntosh, gr. to J. T. Huyton, Esq., Clifton House, York, took the highest honours in the group class, and also in the mixed Chrysanthemum group, where foliage plants are allowed; a more common-sense method of showing the beauties of the flower than the commoner one seen at almost all other shows. The Silver Cup given by the Lord Mayor of York accompanied the latter prize. In a smaller group Mr. Everard, gr. to Mr. Gutch, Holgate, York, took 1st prize, as also in the class for nine incurved and reflexed plants. In the class for six plants of Japanese varieties, Mr. T. Smith won 1st honours with splendidly bloomed specimens. In the cut-bloom classes the highest award for thirty-six fell to Mr. Falcord, gr. to W. B. Richardson, Esq., The Mount, York, who took likewise the 1st in the class for twelve incurved flowers, and Mr. Short, gr. to A. Pease, Esq., Darlington, took 1st for an equal number of reflexed kinds.

A collection of 130 varieties was shown by Mr. Morton, nurseryman, of Darlington, the prize awarded for which was a tea-service. Stove and greenhouse added further attractiveness to the show; and fruit and vegetables were well and plentifully shown, competitors being stimulated by the hope of securing the different special prizes of value offered by the committee.

C. E. BROOME.

IN our last number we briefly alluded to the death of this amiable and accomplished botanist. His retiring disposition made him averse from publicity, and consequently, save by his immediate friends, little is known of his career. We believe that his name first occurred as an author in conjunction with that of the Rev. M. J. Berkeley, in the *Annals of Natural History* for October, 1848. Previously to that he had communicated to Mr. Berkeley descriptions or specimens of many underground fungi allied to Truffles, which Mr. Berkeley commented on in the *Annals of Natural History* for May, 1844. In this publication many species of Truffles are recorded for the first time as British. Mr. Broome's connection with Mr. Berkeley as an illustrator of fungi began systematically in 1850 in the publication just named, and was continued up to 1881, since which time similar contributions by both authors have been made to *Grevillea*.

Mr. Broome's devotion to fungi took origin from having seen a fungus protruding from the ground. The specimen was collected and sent to Mr. Berkeley for identification, and if we are correct in our recollection the species proved to be either entirely new to science, or at any rate new to Britain. Stimulated by this lucky find, Mr. Broome continued his researches, and by careful "raking" succeeded in adding to the list nearly all the species of Truffle and allied plants now known to be members of our Flora. Mr. Broome's researches were not confined to the fungi of this country, but embraced those of other countries, the results being almost invariably published conjointly with Mr. Berkeley. Mr. Broome also undertook much of the tedious and irksome

measurements of the spores on which so much stress is laid. To the Bath Natural History Society Mr. Broome contributed an excellent list, with critical notes on the species of fungi found in the neighbourhood of that city. Of late years Mr. Broome made visits in November to Epping Forest, often in company with Mr. W. G. Smith, and provided with a short-handled rake and other tools for disintering fungi.

Mr. Broome took great interest in the "resting-spore" question of the Potato fungus, and for two years supported Mr. Worthington Smith's views as to the resting-spore of *Phytophthora infestans*. He preserved the decaying foliage and kept it under frequent observation, specimens being mounted by the Rev. J. E. Vize. His experiments and observations led him to agree in the views taken by Mr. W. G. Smith, and to question the deductions of De Bary. Mr. Broome had previously detected the resting-spores of an allied fungus attacking Turnips (*Peronospora parasitica*), as mentioned by Mr. Berkeley in these columns, 1854, p. 724. Mr. Broome had, in addition to a special knowledge of fungi, a good general knowledge of plants both wild and cultivated, and his tastes were those of a man of culture and refinement, his conduct that of a high-minded, albeit too diffident, gentleman.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON.
FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 24, 1886.

MONTH AND DAY	BAROMETER		TEMPERATURE OF THE AIR				HYGROMETRICAL DEDUCTIONS FROM GLAISHER'S TABLE, 2nd Edition.		WIND	RAINFALL
	Mean Reading for 24 Hours.	State of Sky.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Normal for 50 Years.	Dew Point.		
Nov. 18	29.84	o	13.0	5.1	7.9	12.4	+0.2	37.4	N.W.	0.00
19	31.00	o	20.4	20.0	0.4	20.3	-2.0	39.1	Var.	0.00
20	30.30	o	50.54	0.31	0.23	0.44	9	32.3	S.W.	0.01
21	31.18	o	40.40	6.15	0	6.47	5	34.1	N.W.	0.02
22	30.34	o	6.65	4.32	2.33	6.38	9	28.35	9	1.00
23	31.44	o	20.41	5.38	15.03	12.63	3	38.4	9	1.00
24	31.55	o	40.83	30.57	10.26	33.5	-8.1	32.2	N.E.	1.00
Mean	30.24	o	29.54	47.32	17.78	14.70	-0.7	37.1	N.E.	0.13

- Nov. 18.—Fine and bright; dry throughout.
19.—Thin mist at 9 A.M.; fine, but dull afterwards.
20.—Bright in morning; dull afternoon; fine night.
21.—Slight showers in morning, frequently very dark; dull and overcast afternoon.
22.—Thick fog in morning; fine and bright afternoon.
23.—Dense cold fog till 1 P.M.; temperature at 1 P.M., 33°; at 2 P.M., 41°; 5, the maximum of the day; fog again at night.
24.—Dense cold fog till 12 A.M.; fine and bright at 1 P.M.; fog again in afternoon.

LONDON: Atmospheric Pressure.—During the week ending November 20, the reading of the barometer at the level of the sea increased from 29.48 inches at the beginning of the week, to 29.61 inches by the afternoon of the 14th, decreased to 29.49 inches by the afternoon of the 15th, increased to 29.71 inches by 4 P.M. on the 16th, decreased to 29.38 inches by the morning of the 17th, increased to 30.39 by the morning of the 20th, and was 30.36 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.84 inches, being 0.33 inch higher than last week, and 0.09 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 54° on the 15th and 20th; the highest on the 18th was 47° 2". The mean of the seven high day temperatures was 51° 1".

The lowest in the week was 29° 2" on the 19th; the lowest on the 16th was 46°. The mean of the seven low night temperatures was 37° 9".

The greatest range of temperature in one day was 23° on the 20th; the smallest on the 16th was 2° 5". The mean of the seven daily ranges was 13° 2".

The mean daily temperatures were 46° 3 on the

14th, 48° 6 on the 15th, 46° 7 on the 16th, 47° on the 17th, 42° 1 on the 18th, 39° 8 on the 19th, and 44° 9 on the 20th. These were all above their averages with the exception of the 19th, which was 2° below, by 3° 8, 6° 3, 4° 5, 5° 0, 0° 2 and 3° 2 respectively.

The mean temperature of the week was 45° 1, being 3° 2 higher than last week, and 3° above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 83° on the 17th. The mean of the seven readings was 69°.

Rain.—Rain fell on four days to the amount of 0.45 inch.

ENGLAND: Temperature.—During the week ending November 20, the highest temperatures were 57° at Truro, 56° 5 at Cambridge, and 56° at Newcastle; the highest at Sunderland was 50°, at Wolverhampton 52° 1, and at Preston 53°. The general mean was 54° 4.

The lowest in the week were at Blackheath, 29° 2, at Hull 3° 5, and at Cambridge, 30° 1; the lowest at Truro was 40°, at Liverpool 39° 1, and at Bradford and Preston 38°. The general mean was 34° 5.

The greatest ranges of temperature were at Cambridge, 26° 4, at Blackheath 24° 8 and at Hull 24° 1; the least ranges were 15° at Preston, 15° 1 at Bradford, and 16° at Sunderland. The general mean was 19° 9.

The mean of the seven high day temperatures was highest at Truro 55° 6, at Plymouth 54° 1, and at Bristol 52° 7; and lowest at Sunderland, 47° 1, at Wolverhampton 48° 3, and at Preston 48° 4. The general mean was 50° 8.

The mean of the seven low night temperatures was highest at Truro, 45° 7, at Plymouth, 43° 6, and at Liverpool, 42° 2; and was lowest at Hull 36° 4, at Sunderland, 36° 8, and at Wolverhampton, 37°. The general mean was 40° 1.

The mean daily range was greatest at Blackheath and Newcastle 13° 2, and at Cambridge 12° 8; and least at Preston, 6° 7, at Bradford 7° 1, and at Liverpool 8° 8. The general mean was 10° 7.

The mean temperature was highest at Truro, 50° 2, at Plymouth 48° 5, and at Bristol 46° 5; and lowest at Sunderland, 41° 6, at Wolverhampton 42° 2, and at Hull 42° 4. The general mean was 45° 1.

Rain.—The largest falls were 1.20 inch at Brighton, 0.86 inch at Truro, and 0.65 inch at Plymouth; the smallest falls were 0.09 inch at Sunderland, and 0.14 inch at Bradford and Newcastle. The general mean fall was 0.40 inch.

SCOTLAND: Temperature.—During the week ending November 20, the highest temperature was 57° 5 at Glasgow; the highest at Dundee was 53° 3. The general mean was 55° 4.

The lowest temperature was 29° 4 at Glasgow; the lowest at Leith was 37° 3. The general mean was 33°.

The mean temperature was highest at Paisley, 45° 7; and lowest at Perth, 41° 2. The general mean was 43° 4.

Rain.—The largest fall was 2.02 inches at Greenock; the smallest fall was 0.31 inch at Edinburgh. The general mean fall was 0.82 inch.

JAMES GLAISHER, F.R.S.

Obituary.

AUGUSTE VAN GEERT.—We greatly regret to have to announce the death of one of the famous horticulturists of Ghent, Auguste van Geert, who died, somewhat suddenly, on November 24, at the age of 68. M. van Geert was one of the founders of Ghent horticulture. He was the son of Jean van Geert, the associate of Verschaffel and Van Houtte. Auguste van Geert at the early age of twelve years entered the establishment of Messrs. Knight & Perry at Chelsea, the predecessors of the Messrs. Veitch, and soon entered into relations with the Loddiges, the Rollissons, the Lows, and other famous English horticulturists of the day. Scarcely more than a fortnight since Auguste van Geert took part, in apparently good health, in the jubilee festival of his son-in-law, Edouard Pynaert. M. Auguste van Geert had been ailing for some years, but his sudden death has come as a surprise and a profound grief to his friends. Of late years M. van Geert took great interest in the culture of Orchids, of which

he had a large private collection. M. van Geert occupied a foremost place in Belgian horticulture, and received many testimonies from his friends and from the Government which evinced the esteem in which he was held. We were ourselves witnesses, on one occasion, of a touching scene, in which his daughter, Madame Pynaert van Geert, offered her congratulations to her father on an occasion when her father was the recipient of some state honour, and which made a great impression on us at the time, as being so very un-English, and yet so thoroughly appropriate on both sides.

Enquiries.

"He that questioneth much shall learn much."—BACON.

TOMATOS.—Has any grower, or firm of growers, in England produced 1000 tons of Tomatos in a single year? *Septice.*

Answers to Correspondents.

TO THE TRADE.—Members of the Trade will oblige by sending notes of matters of Trade interest, Cultural or Commercial. Short notes of daily experience are what are most useful.

ANTS IN HOTHOUSES; L. Use carbolic acid or paraffine, or trap them with treacle.

BEE ORCHIS; A. T. *Ophrys apifera.*

BRITISH PLANTS ILLUSTRATED; J. G. *Handbook of the British Flora*, by G. Benthall (L. Reeve & Co., 5, Henrietta Street, London), price 12s.; *Illustrations of the British Flora*, by W. H. Fitch and W. G. Smith, a companion to the above, published at same office as the first given.

CHRYSANTHEMUM; A. R. We cannot undertake to name florists' flowers. Send to a grower of these plants.

CLOCHES; J. W. You would probably get them from J. B. Robinson, 14, Moor Lane, Cripplegate, E.C., or Deane & Co., 45, King William Street, London Bridge, E.C. The firm you mention may have ceased to exist.

DATURA; J. S. C. We strongly advise you not to use this for your picks.

DEWAR'S RED BEET; R. D. In our article on Messrs. J. Wrench's trial grounds last week it was stated that the above-named Beet is identical with Nutting's; but this, we are informed, is not so—it differs in size, colour, and flavour.

FUNGUS; G. P., York. *Zylaria hypoxylon*, not uncommon about stumps.

GRAFTING-WAX; X. Try a mixture of four parts of resin, three of bees-wax, and three of lard, melted and mixed.

INSECTS; W. B. Your Primulas and Taxifragas are attacked by the larvae of the weevil (*Orythynchus* sp.). Repot and sift the earth (which should be baked). It destroys the grubs, easily seen; water with strong solution of ammoniacal liquor and common salt. A handful of fresh gas-lime may be mixed with the earth. *I. O. W.*

JUNIPER; G. D. The needle-like foliage occurs on all young Junipers, and sometimes occurs also on the older branches. It is a natural phenomenon, and has nothing to do with grafting.

MOSS ROSES FOR MARKET; C. F. The common Moss, the prolific Moss, Mossy Meaux, white White Bath. The National Rose Society issue the *Rosarian's Year Book*, edited by the Rev. H. H. D'Ombra, Hon. Secretary (London: Bennet & Sons, Old Bailey, and Derby). One of the best works on Roses is the *Rose Garden*, by W. Paul (Kent & Co., 23, Paternoster Row).

NAMES OF FRUITS; Errata—G. H. B. For "Naknon," read "not known."—*James Hopkins.* For "Regnier," read "Kymmer."—*Deaton.* Doyen du Comice.—*A. R. L.* Napoleon.—*C. F. B.* Beurrier Die.—*F. & A. D. & Sons.* 1, Beauty of Kent; 2, Golden Noble.—*Old Subscriber.* 5, Cox's Orange Pippin; 6, Ord's Apple; 8, Scarlet Nonpareil; 9, Golden Pearmain; 10, French Crab.—*H. M. H.* Nelson's Glory is a synonym of Warner's King. Lord Derby is true. Cox's Orange is King of the Pippins. The others are not recognised; 4 and 6, most probably cider fruits.

NAMES OF PLANTS; W. S. C. P. 1, next week; 2, *Salvia coccinea*; 3, *S. leucantha*; 4, *S. Grahami* var.; 5, *S. Grahami purpurea*.—*M. Y.* Your cones are, we believe, from a variety of *Pinaster* which sometimes produces solitary cones. Can it be the variety *Lemoniana*? If so, the habit would be distinct.—*Old Subscriber.* Should know better than to pack his specimens in cotton wool, and to omit affixing numbers to them. One with berries is the Cockspur Thorn, *Crataegus crus-galli*; another is a variety of the common Elm, *Ulmus campestris*, while the oblong entire, green leaves are those of the Wig plant, *Rhus cotinus*.—*R. M.* Probably one of the forms of *Pinus Latio.* The *Vaccinium*-like plant seems to be *Andromeda calyculata*.

THE LARGEST ORCHARD IN ENGLAND OCCUPIED BY ANY ONE TENANT; Enquirer. Lord Sudely, at

Toddington, in Gloucestershire, is believed to have the largest fruit farm in England.

TOBACCO CULTURE IN THE SOUTH PACIFIC; J. H. Warford Look on the *Culture of Tobacco*, and Semann's great work—*Flora Vitiensis*. There is no small *Flora* of Fiji that we know of.

* All communications intended for publication should be addressed to the "Editor." Such communications should be written on one side only of the paper and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

FOREIGN SUBSCRIBERS sending Post-Office Orders are requested to send them to the Publisher of this journal, 41, Wellington Street, Covent Garden, and to make them payable to William Richards, at the Post-Office, Drury Lane, London, W.C.

CATALOGUES RECEIVED.

DICKSONS & Co., 1, Waterloo Place, Edinburgh, N.B.—Forest Trees, Shrubs, &c.
WOOD & INGRAM, Huntingdon and St. Neots—Nursery Stock, Trees, &c.
GARLICK MITCHELL, Stranraer, N.B.—Forest and Ornamental Trees, Shrubs, &c.
F. C. HEINEMANN, Erfurt, Germany—Novelties for 1886-87.
E. G. HENDERSON & SON, Maida Vale, London, W.—Fruits, Roses, Trees, &c.
MARTIN GRASSHOFF, Quedlinburg—Extract from Wholesale Trade List.
D. S. THOMSON & SONS, Wimbledon—Roses, Fruit Trees, &c.
ROBERT OWEN, Castle Hill, Maidstone—Chrysanthemums.

COMMUNICATIONS RECEIVED:—Count Kerchove de Denterghem, 31, J. W. W. G. S. E.—E. W. D. H. C. von—E. Lunk.—A. Bleu, Paris.—J. G. B. A. M. C. D. R. Sorauer, Prokau.—Prof. Sargent, Boston, U.S.—Lucien Linden, Ghent.—C. Naudin, Antwerp.—J. T. E. A. J. S. W. (acknowledged with thanks).—J. T. L. P. C. Young and J. R. Box (next week).—A. O.—G. E. F.—L. T.—A. H.—T. S. G.—S. W. B.—J. G. B.—J. G. B.—W. C. W. T. & Sons.—J. F.—A. H.—J. R. Ross.—Florence.—G. F. W.—J. A.—J. S.—E. J. Chemist and Druggist.

Markets.

COVENT GARDEN, November 25.

No alterations to quote. Business quiet. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per lb.	1 6-3 6	Pears, per dozen	1 0-1 6
Grapes, per lb.	0 6-3 6	Pine-apples, Eng. lb.	1 6-2 0
Kent Cobs, per lb.	0 6-3 6	St. Michaels, each	1 6-2 0
Lemons, per case	12 0-21 0	Plums, 3½-lb.	0 9-2 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, per doz.	4 0-4 6	Mushrooms, punnet	6 0-2 6
Beans, Kidney, lb.	0 6-1 0	Mustard and Cress,	
Beet, red, per dozen	1 0-2 0	punnet	1 0-4 6
Brussels Sprouts, lb.	0 4-1 0	Onions, per bushel	3 0-5 0
Carrots, per bunch	0 4-1 0	Parsley, dozen bunch	3 0-5 0
Cauliflowers, per doz.	3 0-4 0	Potatoes, per cwt.	4 0-5 0
Celery, per bundle	1 6-2 0	" kidney, per cwt	4 0-5 0
Cucumbers, each	0 6-1 0	Spinach, per pound	0 2-3 0
Endive, per dozen	1 0-2 0	Spinach, per bushel	5 0-6 0
Herbs, per bunch	0 4-1 0	Tomatoes, per lb.	1 0-1 6
Leeks, per bunch	0 3-1 0	Turnips, bunch	0 4-1 0
Lettuce, per dozen	1 0-1 6		

POTATOS.—Kent Regents, 80s. to 100s.; Schoolmasters, 70s.; Beauty of Hebron, 100s.; Magnum, 60s. to 80s. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Analia Sieboldi, doz.	6 0-12 0	Evergreens, in var.,	
Begonias, per dozen	6 0-12 0	per dozen	5 0-24 0
Bouvardias, doz.	0 10-12 0	Ficus elastica, each	1 6-7 0
Chrysanth., per doz.	0 10-12 0	Ferns, in var., dozen	4 0-18 0
Cypripedium, per dozen	4 0-12 0	Foliage plants, vari-	
Dracena terminalis,		ous, each	2 0-10 0
per dozen	3 0-6 0	Marguerite Daisy,	
" viridis, per doz.	12 0-18 0	per dozen	6 0-12 0
Epiphyllum, dozen	18 0-30 0	Mignonette, per doz.	4 0-12 0
Erythraea, doz.	0 10-12 0	Myrtles, per dozen	6 0-12 0
" hirsuta, doz.	0 10-12 0	" red, per dozen	1 0-2 0
" regina, doz.	0 10-12 0	Pelargoniums, scar-	
" various, dozen	0 10-12 0	let, per doz.	3 0-6 0
Eucynthus, in var.,		Prima sinensis, doz.	0 10-12 0
per dozen	6 0-12 0	Solanums, per dozen	0 10-12 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, 12 blms.	4 0-6 0	Pelargoniums, in	
Analis, 12 sprays	0 10-12 0	trusses	0 10-12 0
Bouvardias, per bun.	6 0-1 0	" scarlet, 12 trusses	3 0-6 0
Camellias, 12 blooms	0 10-12 0	Primulas, single,	
Carnations, 12 blms.	1 0-2 0	" bunches	4 0-6 0
Chrysanth., 12 blms.	4 0-6 0	Pyrethrums, 12 bun.	2 0-4 0
" 12 bunches	10 0-14 0	Roses, Tea, per doz.	1 0-3 0
Eucalyptus, per dozen	0 10-12 0	" red, per dozen	1 0-3 0
Gardeas, 12 blooms	4 0-6 0	" red, French, doz.	1 6-2 0
Heliotrope, 12 spr.	0 6-1 0	" Saffron, Fr. doz.	0 6-2 0
Isamine, white, bunch	0 6-1 0	Stemless, 12 spr.	4 0-6 0
Lagarotis, 12 blms.	0 10-12 0	Tropaeolums, 12 bun.	1 0-2 0
" white, 12 blooms	0 4-10 0	Tuberose, 12 blms.	1 0-1 6
Lilium longiflorum,		" bunches	1 0-1 6
" 12 blooms	4 0-6 0	" variegated	
Marguerites, per 12		" bunch	3 0-4 0
bunches	3 0-6 0	" Carr. Fr., bunch	3 0-1 6
Mignonette, 12 bun.	1 0-3 0		

SEEDS.

LONDON: Nov. 24.—Messrs. John Shaw & Sons, Seed Merchants, of 37, Mark Lane, E.C., state that there is more business passing in Trefoils; choice qualities being exceedingly scarce are fully 2s. 6d. per cwt. higher. Foreign seeds generally remain quiet but firm. Foreign Canary seed well sustains the rise previously noted, home-grown lots, however, exhibit no advance. Hemp and Rape seed are without quotable change; extremely low values now prevail. For blue boiling Peas there is a better demand, owing to the colder weather. Haricots are more in favour; quotations moderate. Spring Tares are lower than in previous time. No business passing in other articles.

CORN.

MARK LANE: Nov. 22.—In Wheat there was more disposition to buy, and at 6d. per quarter advance upon the rates of Monday last a good all-round business was concluded. For English red Wheats, and also for Indian and Russian, 1s. advance was asked, and in some instances obtained, but not currently. Flour followed Wheat with an advance of 6d. per sack, of which sales of fair extent were effected. Malt barley was exceedingly firm, with a fair demand. Grinding description were unaltered in value, and taken off slowly. Malt sales fully supported. Large arrivals of Oats weakened the market for the commoner qualities, which were 3d. per quarter lower on the week, and very quiet.

Nov. 24.—The small sales of Wheat effected were at firm rates, for both English and foreign. Flour, whilst quiet, was fully supported. For malt barley the trade continued firm, but grinding sorts met a slow sale, and prices barely so strong. Beans and Peas were taken off in retail quantities at full prices. Maize was firm from scanty supply. Oats with good arrivals sold slowly, with rates of the commoner grades tending in favour of buyers.

Average prices of corn for the week ending Nov. 20:—Wheat, 3s. 1d.; Barley, 2s. 1d.; Oats, 1s. 1d. For the corresponding period last year:—Wheat, 3s. 10d.; Barley, 2s. 1d.; Oats, 1s. 1d.

FRUIT AND VEGETABLES.

COLUMBIA (East London): Nov. 24.—A good supply but trade rather languid, at prices as follow:—Horse Radish, 1s. to 1s. 2d. per bundle; Parsnips, 8d. to 1s. per score; Carrots, 1s. to 1s. 2d. per 100; Brussels Sprouts, 1s. 6d. to 2s. per sieve; Greens, 1s. to 1s. 4d. per dozen bunches; Parsley, 1s. to 1s. 6d. doz.; Beetroots, 1s. to 2s. doz.; Celery, 6d. to 10d. per bundle; Onions, 3s. 6d. to 4s. per cwt.; Carrots, 1s. to 2s. per ton; Mangels, 1s. to 1s. 8d. doz.; Turnips, 1s. to 1s. per dozen bunches; Carrots, 1s. 6d. to 2s. doz.

STRAFORD: Nov. 23.—There was a good supply and a brisk trade at the undermentioned quotations:—Savoy, 4s. to 5s. per tray; Greens, 1s. per dozen bunches; Turnips, 1s. 6d. to 2s. doz.; Carrots, 1s. to 1s. 2d.; Mangels, 1s. to 1s. 2d.; Swedes, 1s. to 2s. doz.; Watercress, 6d. to 1s. per bunch; Apples, 3s. 6d. to 4s. per bushel; doz. 2s. per half-bushel.

POTATOS.

BOROUGH AND SPITALFIELDS: Nov. 23.—Rather larger supplies and demand, prices under material change, as follows:—Kent Regents, 70s. to 100s.; Magnum Bonum, 65s. to 90s.; Victoria, 70s. to 100s.; Champions, 50s. to 70s.; Hebrons, 80s. to 100s. per ton. COLUMBIA (East London): Nov. 24.—Quotations:—York and Lincoln Magnums, 55s. to 70s.; Regents, 60s. to 75s.; Cambridgeshire Regents, 60s. to 70s.; Magnum Bonum, 55s. to 75s.; Essex Regents, 70s. to 80s. per ton.

STRAFORD: Nov. 23.—Quotations:—Best Magnums, 60s. to 80s.; second doz. 55s. to 60s.; Champions, 55s. to 68s.; and Regents, 70s. to 90s. per ton. Imports.—The imports into London last week consisted of 3943 bags from Hamburg, 600 Bremen, 24 Amsterdam, 41 packages Honfleur, 12 sacks Bordeaux, and 6 baskets from Rotterdam.

HAY.

WHITECHAPEL: Nov. 23.—Good supplies and slow trade, checked partly by the fog. Prices unaltered. Quotations:—Clover, best, 84s. to 100s.; inferior, 70s. to 84s.; hay, prime, 70s. to 90s.; inferior, 30s. to 65s.; and straw, 28s. to 35s. per load.

Nov. 25.—There was a fair supply on offer. The trade was dull, except for straw, prices for which were dearer.

CUMBERLAND (REGENT'S PARK): Nov. 23.—A good supply of Clover and meadow hay, with trade in favour of buyer. A fair supply of straw, with trade firm. Quotations:—Clover, best, 84s. to 100s.; second, 70s. to 80s.; hay, prime, 75s. to 85s.; second, 50s. to 70s.; and straw, 28s. to 35s. per load.

STRAFORD: Nov. 23.—Quotations:—Hay, 75s. to 80s.; Clover, 70s. to 90s.; and straw, 28s. to 35s. per load.

Government Stock.—Consols closed on Monday at 102 to 102½ for delivery, and 102½ to 102½ for the account. Tuesday's closing quotations were 102½ to 102½ for delivery, and 102½ to 102½ for the account. Wednesday's final figures were 102½ to 102½ for delivery, and 102½ to 102½ for the account. Thursday's closing record was 102 to 102½ for both transactions.

SPECIAL NOTICE.

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ALMANAC MOUNTED ON OAK ROLLERS,

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ATWOOD, Grower, 51, Shillington Street, Battersea, S.W.

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COCOA-NUT FIBRE REFUSE.

4s. per bushel; 100 for 25s.; truck (loose, about a ton),
100s.; 4-bushel bags, 4s. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack;
5 sacks 25s.; sacks, 4d. each.
BLACK FIBROUS PEAT, 5s. per sack; 5 sacks 22s.; sacks,
4d. each.
COARSE SILVER SAND, 12. 6d. per bushel; 12s. per half
ton, 26s. per ton in 2-bushel bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-
MOULD, 12s. per bushel.
SPHAGNUM MOSS, 5s. 6d. per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TO-
BACCO CLOTH, RUSSIA MATS, &c. Write for
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Newly made. Truckload (2 tons) £1; 40 bags, 25s. Free
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K E L P — K E L P — K E L P —

This powerful and stimulating Ash, made from the sun-
dried plants of Laminaria digitata and other selected seaweeds,
is especially rich in Potash, and Phosphoric Acid. Mixed with
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Tomato Plants, and nearly all Pot. Plants, is marked and ben-
eficial, while no better dressing exists for Potatoes, Peas, Sea-
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Cheap through rates via Southampton or Weymouth.

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and then at some distance from the mainland, the supply is
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Our London Agent is Mr. **GEORGE, 10, Victoria Road,**
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BEESON'S MANURE is the best for all
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PEAT and SAND.—Light Brown PEAT for

Nursery and Greenhouse Work, in four ton trucks of 10
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Rhododendron and American Plant Beds, at 15s. per ton.
Orchid Peat, 25s. per ton. **SPHAGNUM MOSS**, 10s. 6d. per
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WALKER AND CO., Farnboro' Station, Hants.

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THE PRIZE MEDALS.

Quality, THE BEST in the Market. (All sacks included.)
PEAT, best brown fibrous .. 5s. per sack; 5 sacks for 25s. 6d.
PEAT, best black fibrous .. 4s. 6d. .. 5 sacks for 20s.
PEAT extra selected, Orchid, 6s. 6d. .. 5 sacks for 25s.
LOAM, best yellow fibrous ..
PREPARED COMPOST, best .. 12s. per bush; 3s. per sack.
LEAF MOULD, best only .. (sacks included).
PEAT MOULD, ..
SILVER SAND, coarse, 12. 6d. per bush; 12s. half ton, 24s. ton.
RAFFIA FIBRE, only .. 12s. per sack.
TOBACCO CLOTH, finest imported .. 8d. lb., 20 lb. 18s.
TOBACCO PAPER .. (Specialist) 8d. lb., 20 lb. 18s.
MUSHROOM SPAWN, finest Muller's .. 5s. per bushel.
SPHAGNUM MOSS, all selected, 22s. per bush; 6d. per sack.
CHUBB'S "PERFECT" FERTILISER, the Best Food for
all kinds of Plants, Flowers, Fruits, Vegetables, &c. Tins, 12s. 6d.
Bags—1 lb., 3s.; 14 lb., 25s.; 28 lb., 50s.; 56 lb., 100s., free on rail, 25s.
VIRGIN CORK, best quality only—24 lb., 3s.; 28 lb., 5s. 6d.;
56 lb., 10s. 6d.; 1 cwt., 17s. .. per bushel.
HORTICULTURAL CARBOAL, best quality only, 22s. 6d.
COCOA-NUT FIBRE REFUSE (by Chubb's special process),
sacks, 12s. each; to sacks, 9s.; 75 sacks, 13s.; 10 sacks, 17s.;
30 sacks, 25s.; 40 sacks, 30s. Truckload, 1000s., free on rail,
25s. Limited quantities of C., special quality, granulated, in
sacks only, 2s. each. Terms, strictly Cash with order.

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GISHURSTINE keeps Boats dry and soft on
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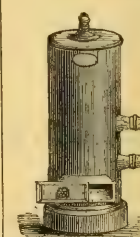
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A large stock of similar current sizes of 15-02. glass in
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Complete Apparatus from £3 15s. 6d.



Champion Boiler.

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100 squares of 15-02 glass in each case for as follows

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s. d.	s. d.	s. d.	s. d.
13 1/2	8 inches for 9 6	15 x 8 inches for 12 0	
12	9 0	10 x 8	12 0
12	10 0	15 x 12	17 6
12	12 0	10 x 12	20 0
13 1/2	12 0	20 x 12	21 0
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For the price of 32 0s. reckon half as much more.

Roller Plate, 1/4 in., same as 21-02.

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PROTECT YOUR PLANTS "FRIGIDUS" REGISTERED TRADE MARK

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J. Archangel MATS lower than any other house in the
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RUSSIA MATS,

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THE LARGEST ASSORTED STOCK IN LONDON.

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HEATING STOVES, fitted with 200 feet of 4-inch Pipe
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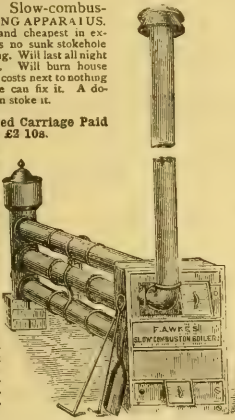
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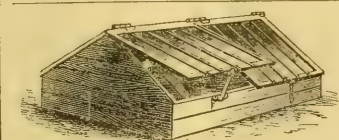
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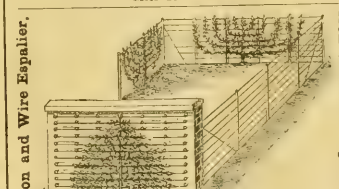
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The glass is nailed and puttied in.

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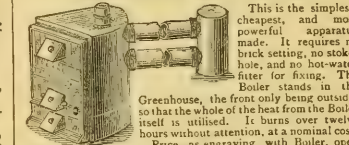
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LIVE-LONG CANDY,
THE BEST DIGESTIVE.



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Palatable
Stimulant
so highly
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great Duke
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small piece
taken after
a meal is an
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Purifica-
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GESTION,
Heaviness or Burning in the Chest and Fulness after Meals; or,
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when exposed to damp and cold, WARMS the CHEST, and pre-
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This is the simplest,
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powerful apparatus
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Boiler stands in the
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A Handy Manual for the Improved Cultivation of
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9 " "	0	5	6	20 " "	0	11	0
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11 " "	0	6	6	22 " "	0	12	0
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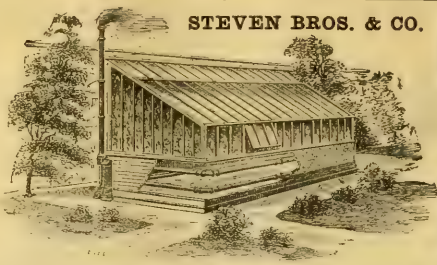
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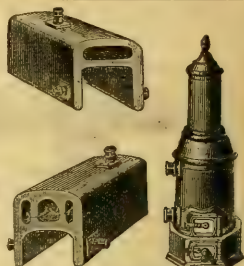
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Town Hall, Hove.—November 18, 1886.
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Advertisers are requested when Remitting to give their Names and Addresses, and also a Reference to the Advertisement which they wish Replied.

SCOTCH GARDENERS.
—JOHN DOWIE, Seedsman, 144, Princes Street, Edinburgh, has at present on his List a number of SCOTCH GARDENERS, waiting re-engagement, who will be glad to furnish particulars to any lady, Nobleman, or Gentleman requiring a trustworthy and competent Gardener.

Gardeners.

THOMAS KENNEDY AND CO. have on their Register a number of first-class GARDENERS, FOREMEN, &c., who will be glad to furnish particulars to any one in want of same.—THOMAS KENNEDY AND CO., 108, High Street, Dumfries, N.B.

Gardeners. Under Gardeners, Bailiffs, &c.

WM. CUTBUSH AND SON have at the present time on their List Men whose characters will bear strict investigation, and such as from their personal knowledge can be recommended as to abilities, &c.—Ladies and Gentlemen requiring either of the above can be suited with reliable, first-class men by applying to Wm. Cutbush & Son, Highgate Nurseries, London, N.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners, seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

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On and after Jan. 1, 1887,
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JOURNEYMAN (FIRST), in a good establishment.—Age 23; eight years' experience in good places. Good character.—J. R. BAILEY, The Gardens, Franks Hall, Darford, Kent.

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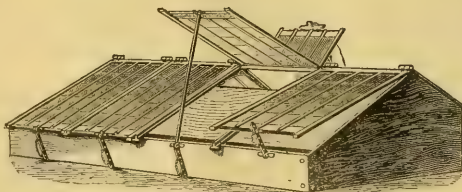
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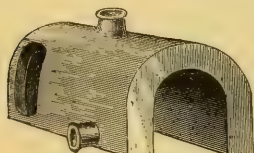
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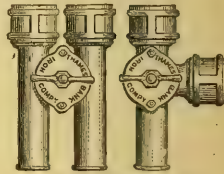
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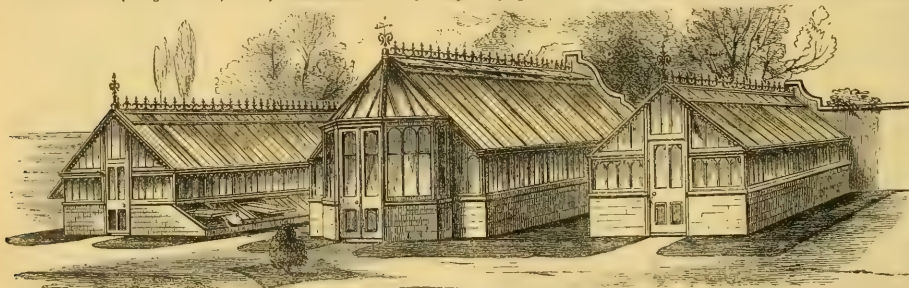
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Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, November 27, 1886. Agent for Manchester—JOHN HAYWOOD.

GARDENERS' CHRONICLE.

Established 1841.

No. 675.—VOL. XXVI. { NEW SERIES. } SATURDAY, DECEMBER 4, 1886.

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{ Post-office as a Newspaper. } POST-FREE, 5d.

SPECIAL NOTICE.—On and after January 1, 1887, the Price of the "Gardeners' Chronicle" will be REDUCED TO THREE PENCE.

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GARDENERS' CHRONICLE OFFICE

TELEGRAMS.

NOTICE to Correspondents, Advertisers, Subscribers, and Others. The Registered Address for Foreign and Inland Telegrams is "GARDCHRON, LONDON."

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THE GARDENERS' CHRONICLE who experience any difficulty in obtaining their Copies regularly, are particularly requested to communicate with the Publisher, **W. RICHARDS, 41, Wellington Street, Strand, W.C.**

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THE GARDENERS' CHRONICLE, Volume XXV, JANUARY to JUNE, 1886, W. RICHARDS, 41, Wellington Street, Strand, W.C.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.

NOTICE!—COMMITTEE MEETINGS: Scientific, at 12.30, in the Lindley Library; Fruit and Florist, at 11 a.m. in the East Crush-room, Royal Albert Hall, on TUESDAY NEXT, December 7.

KINGSTON AND SURBITON CHRYSANTHEMUM SOCIETY.

THE ELEVENTH ANNUAL EXHIBITION will be held on TUESDAY and WEDNESDAY, November 8 and 9, 1887. Schedules are in course of preparation, and will be forwarded when ready on application to T. JACKSON, Hon. Sec.

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The Tunbridge Wells Nurseries, Kent.

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MESSRS. THOMAS CRIPPS AND SON hereby give notice that Mr. WILLIAM CHAPMAN is their only authorised TRAVELLER and REPRESENTATIVE in the United Kingdom.

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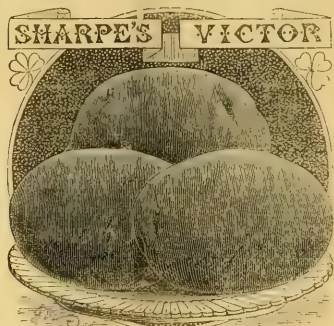
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The consignment has arrived in the very best condition, and the plants have the appearance of having been gathered but a few days, being particularly fresh and healthy. Many of the lots will consist of extraordinary masses with from 90 to 100 red buds full of leaves.

This extremely beautiful Cattleya is described in the *Gardeners' Chronicle*, March 14, 1885, p. 338; March 21, pp. 374 and 375; and August 8, pp. 168 and 169 of the same year.

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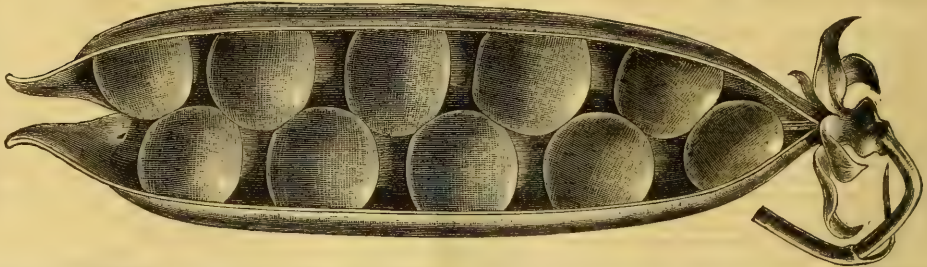
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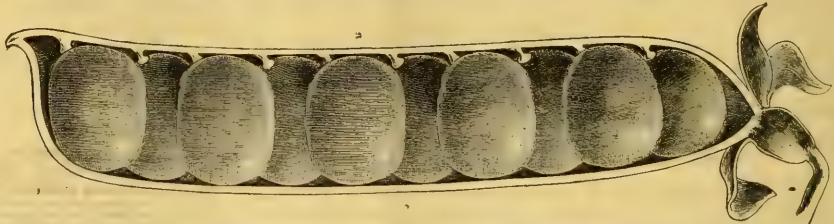


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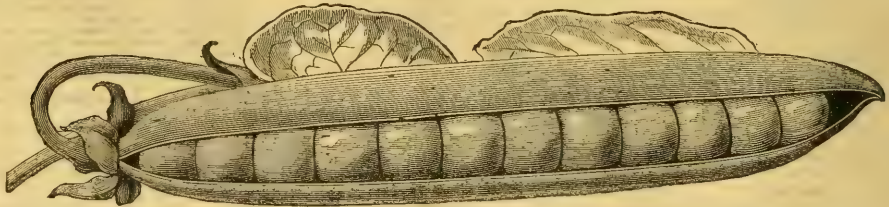


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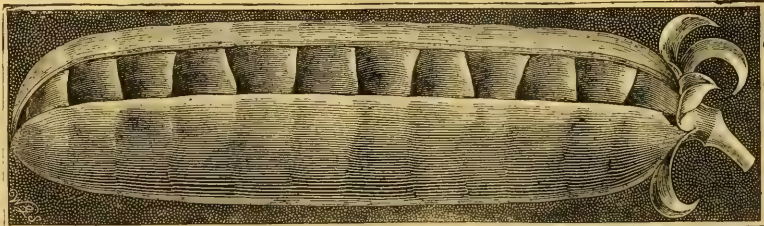


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TRIUMPH is a Blue Wrinkled Marrow, of exquisite flavour; the pods are large, well filled with large Peas. The habit is dense and bushy; height 2 to 3 feet. In constitution it is robust and hardy, and is the perfection of Peas either for exhibition or for ordinary use. Sixty-nine pods have been counted on one plant of Triumph—each pod containing nine to eleven large Peas.

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that affect the chalky soils of this and other countries. This is at present only an "idea," in course of development. The upper part of the mounds are covered with plants in colonies, consisting of *Tritomas*, *Veronicas*, *Rhodiendron praeox*, so useful a plant in the spring; *Euphorbia capitata*, a pretty subject for carpeting a surface with grey-green foliage—it is prostrate and close-growing; *Polygonum vacciniifolium*, an autumn flowerer, pink; *Thymus asoricus*, very dwarf; *Acena adurgens*, a New Zealand plant of the order Rosaceae; *Helleborus niger*; and *H. n. majus*, a splendid variety which bears flowers of an immense size, and with colour equal to that of the type; *Hutchinsia gracilis*, a compact growing form from Bavaria, more tufted than *H. alpina*, the flowers white and produced in spring; *Hypericum reptans*, a fine subject especially when seen from beneath, the habit is creeping, and the plant is very adverse to direct sunlight; *Omphalodes Luciliae*, pale blue, rare, is another desirable carpet plant, especially as it is very dwarf; *Artemisia echinoides* is almost a constant flowerer on the rocky. For a loose crumbling wall in a warm place, *Artemisia sericea*, is a useful plant, the foliage is grey and it is very dwarf. A group of rare Saxifragas were accommodated in a little colony all to themselves, such tiny plants admitting of no neighbours. The species composing this exclusive set were:—*S. aretoides*, *S. a. pumila*, *S. cæsia* minor, of which there was a large patch; *S. marginata*, *S. Bursleriana*, *S. Fredrici* Auguste, *S. squarrosa*, *S. Rudolfiana*, *S. Tombeana*, *S. Kotschy*, and *S. patens*. Considering that most of these are from the border-line of perpetual snow, their growth at Broxbourne is very satisfactory. *Alyssum saxatile* variegatum in a clump was very telling. Fancy any gardener lining out this, or, indeed, any of these alpine, with line and rule, to fit them in a carpet or any other bed! The autumn-flowering *Erica Mawiana*, rosy-flowered and dense of habit, was in full bloom at the time of our visit. *Tunica saxifraga*, an immense flowerer, of pale lilac colour, does well here. *Veronica rupestris* was for the second time in flower; it is only 2 inches high as to foliage, but the flower-spike reaches to the height of 4 inches. *Genista pilosa* must not be passed over, it is similar in habit to *G. prostrata*, and flowers in spring; *Silene maritima rosea* is a capital fast-spreading species, well fitted to cover ground set with bulbs. It does not root at the nodes, and dies away in the winter, starting into active growth late in the spring.

Campanula Hosti alba is better than *C. pulla alba*, having bigger bells; another bell-flower was seen in *C. peltiformis*, one of M. Froebel's hybrids, with pale blue flowers, and the whole plant lowly in habit. Where a beautiful foliage is sought, *Potentilla verna* should be obtained; *Erigeron mucronatus*, with a leaf like that of the common Daisy, but sharp pointed; a very late flowering *Aster* is found in *A. grandiflorus*, the flowers come not in umbels, but singly, and are of a fine blue colour. Every one should possess *Plumbago Larpetæ*, the dark blue flowers coming in great quantity; it loves a sunny dry place best.

In the intersecting chasm spoken of previously we found planted, the north or sunless side Saxifragas, Silenes, and Thymes; on the sunny slope were *Cypripedium calceolus*, *Lithospermum prostratum*, *Zauschneria californica*, bright and varied; *Rubus phœniculatus*, (illustrated in our Number for Sept. 18, 1886, p. 365) a strong rampant plant, well in fruit, hung over the central chasm, being planted on the northern side. The south slope of the rockery is of Kentish rag, the crumbling of which under weather influences furnishes a fine soil for many species of alpine, and seedlings springing up in it with no trouble whatever. A visit paid to this nursery in spring or early summer would disclose other alpine gems which at the time of our visit were out of flower, or had disappeared for the season.

New Garden Plants.

ODONTOGLOSSUM LUCIANIANUM, nov. hybr. nat.*

THIS is a very fine new *Odontoglossum*—a recent discovery of Mr. Bungeoth, one of the Lindenian collectors, in Venezuela. It may be a hybrid between *Odontoglossum nevium* and *O. odoratum*. It is quite distinct from *Odontoglossum Dornianum*, *præstans*, *erodipterum*, which with *odoratum*, *nevium*, and *cirrhosum* (not *cirrosus*, as is so often written by mistake) form one group. I learn that the bulbs are like those of *Odontoglossum odoratum*, but more slender and longer, and without any trace of those impressions which are so characteristic in *Odontoglossum nevium*. The flowers are racemose. The sepals and petals are lanceo-cuspidate, like those of *O. odoratum*, whitish with a flush of lightest sulphur, and with fine dark purple-brown spots and stripes. The basilar part of the lip is very short, very low; the anterior blade is large, oblong, cuspidate, crenulate, wavy, velvety on the surface, white, with a large transverse sepia-brown blotch in front of the callus, consisting of two lamellæ, each with two blunt teeth. Column more slender than in *Odontoglossum nevium*, and plumper than in *O. odoratum*, white, with some brown markings under the stigmatic hollow, and a few red lines outside, near the anterior angles. Wings very narrow, linear aristate. This novelty is dedicated with pleasure to Mons. Lucien Linden, who most kindly sent me numerous satisfactory materials which came into his hand. *H. G. Rehb. f.*

[Our Latin dictionaries have *cirrus*, *cirratus*, not *cirrus*. The Greek *κίρρος*, according to similar authority, means tawny, yellow. Ed.]

LELIA PUMILA (Rehb. f.) CURLEANA, nov. var.

This belongs to the variety spectabilis (see *Florist*, iii., 92, *fid.* Lindl. *Pact.*, *Fl. G.*, i., 44). Dr. Lindley called that "a finely blown specimen of *Cattleya pumila*." For my own part I venture to state that I have always found in this speciatilis the mid-keel extended to the anterior disc in so deep rounded and short a keel, such as I never saw it in the genuine *Lelia pumila*. We may see it proposed afresh as a new species "on spec."

Now the novelty at hand is, in brief, a *Cattleya Massangeana*, or nearly *Nalderiana* translated into *Lelia pumila*. It is quite coloured on the same principles. Sepals with few dark streaks. Petals on both margins with numerous similar oblique radiating parallel lines. Side lacinia of the lip outside with similar dark lines, but inside nearly free of them.

This curious plant is in the hands of Mr. Curle, of Melrose, a keen amateur and the possessor of a very nice collection of Orchids, as is stated by the kind senders, Messrs. W. Thomson & Sons, Tweed Vineyard, Clovenford, Galashiels, N.B. *H. G. Rehb. f.*

ODONTOGLOSSUM BLANDUM ROSSIANUM, nov. var.

A delightful new variety. It has brown spots on the sepals and petals. The basilar part of the lip is fine yellow, with red spots. The calli are also yellow. The blade of the lip has light purple spots and streaks. It was kindly sent me by Mr. H. F. Ross, of Castagnuolo supra Firenze. *H. G. Rehb. f.*

ZYGOPETALUM LEOPARDINUM, × Rehb. f., hybr.

Angl. ex hort. Veitch, 1886; *supra*, Aug. 14, p. 199.

A fresh seedling from this lovely artificial hybrid has just flowered with Messrs. James Veitch & Sons. The documents are at hand, thanks to Mr. Harry Veitch. They prove once more what variety there is in these hybrids. The flower at my side, Mr. Seden's last pride, has the anterior blade of the lip with some white, partly lobed dashes, which look wonderful on the blue ground. It is only comparable to what may be seen in some china, scarcely in any picture in water or in oil colours. The spots of the sepals and petals are more numerous, and smaller. *H. G. Rehb. f.*

* *Odontoglossum Lucianianum*.—*Pseudobulbii* pyriformibus, attenuatis, levibus; floribus racemosis; sepalis tepalibus lanceo- acuminatis, labelli hypophylli valvis subquadratis humilibus, epichilo oblongo-gulato cuspidato, marginibus crenulatis, callis geminis parallelis atrisque obtuse unidentatis, superficie labelli velutina; columnæ alis angustissimis linear-aristatis. Ex Venezuela, miss. egr. viator Bungeoth. Accepti ab. exc. Luciano Linden, cui cum magno gaudio dictum. *H. G. Rehb. f.*

CRASSULA RHOMBOIDEA, N. E. Brown, n. sp.

A dwarf species of neat habit, but of no great horticultural merit, sent to Kew in 1885 by Mr. Dunn, from the Transvaal.

Perennial, 2½–3 inches high (perhaps growing somewhat taller), quite glabrous, but glaucous on the young stems, leaves, bracts, and calyx. Leaves opposite, glaucous-green, punctate-dotted, rhomboidal in outline, acutish, hunched just above the middle, by the apex being deflexed at an obtuse angle at that point, which is the thickest part of the leaf; the upper surface is convexly flattened, the under surface roundedly keeled; some leaves on the older imported part of the plant are an inch long, three-quarters of an inch broad, and half an inch thick at the thickest place; but those on the portion of the plant grown at Kew are much smaller, being 9–11 lines long, 4–5 lines broad, and 2½–3 lines thick. Peduncle terminal, half an inch long, divided into a small, few-flowered, flat-topped cyme, three-quarters to 1 inch across. Bracts minute, half to 1 line long, narrow, glaucous. Branches of the cyme and pedicels each about a quarter of an inch long, reddish. Calyx very broad and obtuse at the base in proportion to its size, about one-eighth of an inch in diameter, the ovate, obtuse, bluntly keeled lobes three-quarters of an inch long. Corolla 2 lines long, 2½ lines in diameter, campanulate, with the tips of the petals spreading; petals oblong-lanceolate acutish, pale flesh-coloured with a pink dorsal middle line. Stamens a little shorter than the petals; filaments white, anthers pale yellow, pollen bright yellow. Hypogynous glands transverse, three times broader than long, truncate, yellow. Carpels erect, pale green with pink tips. A native of the Transvaal. *N. E. Brown.*

CRASSULA IMPRESSA (N. E. Br.)—SCHMIDT, Regel.

The plant figured in the *Gartenflora* of this year, at t. 1225, as *C. Schmidtii*, is the same as that which I described in 1879 in these columns (vol. xii., p. 328), under the name of *S. impressa*. It is a very pretty, neat growing species of dwarf habit, with linear-lanceolate acute, thick fleshy leaves, retorsely ciliate on the margins, green or purplish in colour and impressed-punctate above; and having terminal cymes of deep pink flowers. *N. E. Brown.*

AUSTRALIAN AND NEW ZEALAND TREES IN ARRAN.

(Concluded from p. 683.)

GUM TREES (continued).—The *Giant Gum tree* (*Eucalyptus amygdalina*: New South Wales, Victoria, Tasmania).—The *Peppermint tree* of Tasmania; the *Stringy-bark* and *Gippsland Box* of New South Wales; the *Red Gum* and also the *Mountain Ash* of Victoria, where in Gipps land (south-east of Australia—the part of Australia which, in climate and productions most resembles Britain) this tree is most conspicuous. This is the tallest, and in weight of timber, the greatest tree in the world. Baron Mueller mentions one of 471 feet in height, and another 69 feet in circumference at the ground and 15 feet in circumference at the height of 210 feet. This is the species from which the *Eucalypt* oil of commerce, now so much imported, is mainly obtained, for though its leaves, from the hardness of their cuticle, do not diffuse so much of the odour of this oil as do those of the *Blue Gum*—in which, when the plant is young the cuticle is thin and soft—yet it contains more than four and a half times the quantity of oil. There are two varieties of this species, the "one grows in the open plains of Australia, and has small narrow leaves and a rough brownish bark;" the other grows "in sheltered, well-watered forest glens, and has a smooth stem and broad leaves." The great monarchs of the Australian forest are of the second of these varieties, which Baron Mueller proposes to call *E. amygdalina* var. *regans*. Those growing in Arran were from a packet of seed which produced both varieties. Four were planted in Arran, two of each; but both of the ordinary variety were killed by the frost of 1880–81, and one of the *regans* variety was blown over by the wind. One only remains, but fortunately it is the giant (*regans*) variety. I conclude that it is this variety, because, when young, the leaves were roundish in shape, alternate, and provided with a short stalk, while those of the other were longish, sessile, and opposite. The variety that survives also grew with more rapidity than the other. I may add,

that seed sent me by Baron Mueller, and marked simply *E. amygdalina*, produced the common variety—the kind which had been killed in Arran. Had it been the giant species he would almost certainly have named it as such. I conclude, therefore, that Arran has the honour of growing the grand monarch of the Australian forest. It is in an admirable situation in the garden at Cromla, where it is sheltered on the north and east by a wood. It was sown in 1871, and is now 28 feet in height and 14½ inches in girth, and adds annually 2 feet to its height and 1½ inch to its girth. Its leaves are 8½ inches long and three-quarters of an inch in breadth. I am happy to add that this year it has bloomed, being the first time, I believe, that it has bloomed in the open air in Britain. It began to bloom toward the end of August. (This was a late season. In an ordinary season it would bloom at the middle of the month.) At the same time a large standard Myrtle near to it also began to bloom. The Myrtle and Gumgenera are very closely related, and the bloom

named the "Weeping or the Drooping Gum." Having so many names, it is no doubt a very distinguished Gum. I hope, and also expect, that in Arran it will prove worthy of its many names, and be very graceful, and also contrast well in colour with Gums of lighter hue. Two have been planted this year in Arran—a very small one at Captain Brown's, Lamlash; and a larger one at Cromla, Corrie.

The Red Box Gum (*Eucalyptus polyanthema*, syn. *Lignum-vitæ*: South-Eastern Australia).—It is named Box from the shape of the leaf; *Lignum-vitæ*, from the hardness of its wood. "It attains a height of 150 feet, furnishes an extremely hard lasting timber, and for fuel it is unsurpassed." (Mueller.) One was planted this year at Cromla, Corrie. It is about 4 feet in height.

The Urn-bearing Gum (*Eucalyptus cordata* var. *unigera*: Southern Tasmania).—"The variety *unigera* is particularly hardy, and may become of sanitary importance to colder countries in malarial regions, the foliage being much imbued with antiseptic oil;

It was wholly unprotected, yet not a leaf was even browned. It is now 21 feet in height and 9½ inches in girth, and is growing yearly on an average 3½ feet in height and 2½ inches in girth. Here is encouragement to plant! Sown at one's birth, should one reach the age of seventy, it would then be a tree 230 feet high with a trunk 14½ feet in girth. The specimen at Lamlash grows near the highway facing the sea, and is fully seen from both. It is very handsome, and has begun to assume a weeping habit. When young, though the leaves are different yet in general habit it much resembles a vigorous Weeping Birch. The leaves are half a foot in length and 1 inch in breadth (2½ inches shorter, but half an inch broader than those of the Giant Gum, *E. amygdalina*), and are attached by a short stalk. It is named "the White Gum" from the whiteness of its trunk, specially after its bark is newly shed, when it approaches the colour of the Silver Birch; the "Weeping Gum" from its weeping habit; the "Flooded or Swamp Gum" from the nature of the ground in which

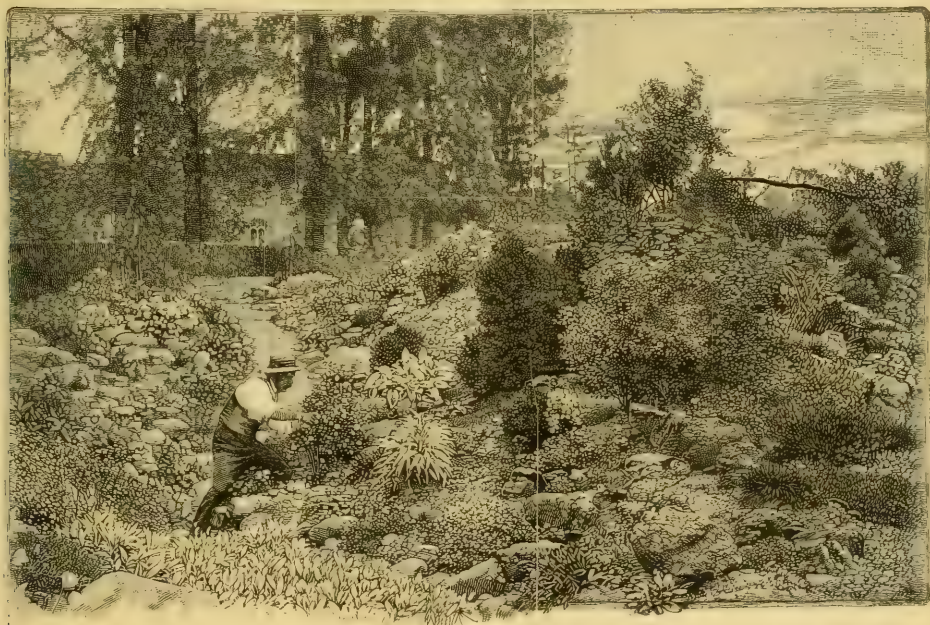


FIG 137.—VIEW IN MESSES, PAUL'S GARDEN AT BROXBORNE. (SEE P. 712.)

of the two is similar in size and in appearance. The tree can be seen from the highway, and when it rises above the surrounding trees, which it will soon do, it will be well seen also from the sea. Will it become a giant? Time will show. Certainly it will not grow to the height of 471 feet.

The Manna Gum (*Eucalyptus viminalis*: South-Eastern Australia, syn. the Weeping Gum, the Blue Gum, the White Gum, the Wand Gum).—"On poor soil only, a moderate-sized tree, generally known as the 'Manna Gum,' this being the only species that yields copiously the crumb-like, mellitose Manna; but in the rich soil of the mountain forests it attains gigantic proportions, rising to a height of rather more than 300 feet, with a stem occasionally 45 feet in circumference. Here it has a cream-coloured, smooth bark, and is locally known as the 'White Gum.' In other districts it is named the 'Blue Gum,' from the colour of its leaves." (Mueller.) We would rather call it the "Purple Gum," as the colour is purplish-blue, while that of the true Blue Gum (*E. globulus*) is blue-white. From the slenderness of its branches it is named the "Twiggy or Wand Gum" (*E. viminalis*), and from their pendant habit it is

greatest height 150 feet; stem circumference, 18 feet." (Mueller.) This is a beautiful tree, the habit being spreading and drooping; the foliage dark green and glaucous. A plant about 3 feet in height grows at Strabane, Brodick.

The White Gum (*Eucalyptus pauciflora*, syn. *coriacea*; the Weeping Gum, the White Peppermint tree, the Flooded or Swamp Gum: New South Wales, Victoria, Tasmania).—"A tree of handsome appearance, with a smooth white bark and generally drooping foliage; it attains considerable dimensions, grows best in moist ground, ascends to alpine heights, and shows a preference for basaltic soil. Horses, cattle, and sheep browse readily on the foliage, and it is locally a 'stand-by' in bad pastoral seasons. Its timber is used for ordinary building and fencing purposes." (Mueller.) In the spring of 1879 I received the seed of this species gathered on the Blue Mountains, New South Wales, and kindly sent me by Mr. Bailey, Government Botanist, Queensland. I sowed it at once. The following year, when only about 9 inches in height, it was planted at Captain Brown's, Lamlash. The severest winter followed that we have had for a quarter of a century,

it frequently grows; and the Peppermint tree" from its perfume.

Summary.—Already nine species of *Eucalyptus* are growing in Arran. These include the greater number of the most interesting species. In Arran they do not in general grow with the wonderful rapidity of Gums in Australia, though, as has been mentioned, the Blue Gum adds 4 feet yearly to its height, and the White Gum 2½ inches to its girth; yet in consequence of the moist, mild, and comparatively uniform temperature of this island, and also the influence which sea air is known to exert in adding to substance and size in foliage, it is believed that they are as luxuriant (the alpine Gum much more luxuriant) as those of Australia.

They are all evergreens, and many of them, especially when the plants are young, begin in mild winters to send forth young leaves as early as February, when their fresh reddish-green tints are very refreshing to the eye. They also continue to grow and look fresh till winter; and now that they have begun also to bloom, these natives or the antipodes cannot fail speedily to become among the most conspicuous forest ornaments of this wonderful island.

A MOST BEAUTIFUL ARAUCARIA.

It may be mentioned that a most beautiful and most perfect Araucaria (*A. imbricata*) adorns the height in front of the house alongside of Captain Brown's, at Lamash. It is most prominent, as it is immediately above the head of the new pier. It is of the richest green, and luxuriantly furnished with branches to the very ground.

ACACIAS.

The Blackwood tree (*Acacia melanoxylon*: South-eastern Australia).—This is one of the most valuable of Australian trees, the wood being very beautiful, almost equal to Walnut. It grows to the height of 80 feet, with a stem several feet in diameter. When a seedling the leaves are most beautifully pinnatifid, but in a few years the leaf-stalk becomes the leaf, when the tree assumes much the appearance of a Gum. It has proved quite healthy in Arran where there were two plants; but they grew so luxuriantly that both of them were overthrown by the wind. I have this year sown seeds, to renew the experiment.

The Golden Blackwood (*Acacia pennaervis*: Victoria, New South Wales and Queensland).—"A tree, 40 feet in height, the young shoots minutely golden-pubescent. It is so hardy as to occupy sub-alpine localities." (Mueller.) This grows slowly, but it is very beautiful. A plant grew at Captain Brown's, Lamash, but it was eaten badly by a sheep and did not recover.

The Black Wattle (*Acacia decurrens*: East of South Australia).—"This *Acacia* is perhaps the most important of all the tannin-yielding trees of the warm temperate zones, and its bark is three times more powerful in tanning property than British Oak bark. It grows to the height of 60 feet, and adds 3 inches to its growth yearly." (Mueller.) It is a most lovely plant, by much the most beautiful evergreen, growing in the open air in Arran, indeed in Britain. Its Australian name "Feather-leaf," is most descriptive of its form and texture, while its colour is a beautiful shade of green. At Captain Brown's, Lamash, a plant grows in the greatest perfection, though, as yet, it has not bloomed. It is 9 feet 4 inches in height, and 5½ inches in girth at 10 inches from the ground, and grows at the rate of 2½ feet in the year. It is stated by Mueller that it is harder than the Blue Gum. In Arran this holds good in the sense that it is more tenacious of life, as frost that would destroy the Blue Gum does not kill it. But it is not harder than the Blue Gum in the sense that it is less liable to receive injury from frost, as it and the Blue Gum grow alongside at Captain Brown's, the Blue Gum being slightly more exposed, yet the frost of last winter did not injure the Blue Gum in the slightest while the Feather-leaf lost much of the growth of the previous year.

The Silver Wattle (*Acacia dealbata*: South-eastern Australia and Tasmania).—"This tree grows to the height of 150 feet, and is distinguished from *A. decurrens* by the silvery or rather ashy hue of its young foliage and by flowering early in spring while the other flower in the beginning of summer." (Mueller.) There was a tree in Arran, but it died. It was neither so beautiful nor so hardy as *A. decurrens*.

The Golden Wattle (*Acacia pycnantha*: Victoria and South-eastern Australia).—"This Wattle grew for several winters at Captain Brown's, Lamash; but was killed by the frost of last winter. It never thrives, and was in appearance altogether inferior to the Blackwood (*Acacia melanoxylon*), to which it has considerable resemblance.

PALM LILIES.

The Palm Lilies (*Cordylines*) are most interesting, and give a tropical character to a garden. At Cromla, Corrie, three species have grown for several years, and not even the cold of 1880-81 affected them in the slightest. They are—

The Undivided Palm-Lily (*Cordylina indivisa*: New Zealand).—"The stem of this thick and rigid-leaved Palm-like species rises to a height of 20 feet, and remains undivided, hence its name. Leaves 5 inches broad, yield the tea fibre. Panicle at first erect, berries white." (Mueller.) Avenues are formed of this species in Australia, as at the Botanic Gardens, Ballarat. It is better adapted for avenues than the other species, as, unlike to them, it does not throw up suckers. It is interesting to know that there is at least one such avenue in Britain—at Rosehill, near Plymouth. [Also at

Menabily, and at Tresco, Scilly]. One might be formed in Arran, where a plant which I sowed in 1873 is now, including leaves, 16 feet in height and is 1 foot 4 inches in girth.

The Lofly Palm-Lily (*Cordylina australis*: New Zealand).—"The stem of this noble Palm-Lily attains a height of 40 feet, and is branched; the berries are blue. When in bloom it diffuses a delightful odour." (Mueller.) It grows in perfection at Cromla, but its stem is not yet divided, nor has it bloomed.

Veitch's Palm-Lily (*Cordylina Veitchii*).—This seems to be only a variety of *C. superbiana*. It grows well at Corrie.

TREE FERNS.

Dicksonia Billardieri (syn. antarctica: South-eastern Australia, New Zealand).—*D. Billardieri* is the older name of this Fern, and not *D. antarctica*. It is more appropriate, "as nowhere is it antarctic." (Mueller.) This stately Fern grows to the height of 40 feet. Sown in 1865, and planted by me at Cromla, Corrie, in 1867, it has now a stem 2 feet 5 inches in girth, and 2 feet 4 inches in height; sends out annually nearly twenty fronds about 6 feet long and 2 inches in breadth, which bear spores abundantly. It adds two and a quarter inches to its height yearly. It lost most of its fronds in 1880-81. This is a magnificent plant.

D. squarrosa.—This has a stem 11 inches in height and 10 inches in girth. Last winter for nearly two months the entire plant was buried under snow; the leaves suffered somewhat, but the plant was not injured. It also lost most of its fronds in 1880-81. The following Ferns (not Tree Ferns) are also hardy at Cromla, Corrie:—*Todea superba*—its fronds were destroyed in 1880-81, but it soon recovered; *Todea bismarckensis*; *Adiantum pedatum*, *Asplenium Belsagii*, *A. lucidum*, and *A. falcatum* were all uninjured. *Pteris scaberula* and *Trichomanes radicans* have been added since.

CASUARINÆ.

These are "the most singularly picturesque trees in Australia, and furnish one of its best timbers." (Mueller.) They would grow in Arran were they not so brittle. The He Oak (*Casuarina equisetifolia*), which attains a height of 150 feet, grew vigorously from 1831 to 1885 in the Brodick Castle high garden; but at length it was snapped by the wind. The She Oak (*C. quadrivalvis*) grew at Captain Brown's, Lamash, but met with a similar accident. I much regret that this most interesting species is not now represented in Arran. Would they have stood such a winter as 1880-81?

THE GRASS TREE.

The Grass tree (*Xanthorrhoea arborea*: New South Wales).—"The 'Black Boy' of the colonists, specimens of which were exhibited at the Indian and Colonial Exhibition of this year, is one of the most singular of the plants of Australia. It resembles a great Rush with a tree stem, but in reality it belongs to the Lily family. The stem is sometimes 6 feet in height, with a girth of 2 feet; the flower-spike 3 or 4 feet high. The leaves are 3 or 4 feet in length and two to three lines broad. A specimen was this year planted at Captain Brown's, Lamash.

PALMS.

Chamereps Fortunei (North China).—"The hardiest of all Palms is *Chamereps excelsa*, one of the Fan Palms, which has stood 3° F., only having its roots protected by a little litter. This grows at the rate of a foot a year at Melbourne. *Chamereps Fortunei*, the Chusan Palm, from North China, is a variety or closely allied species. It attains a height of 30 feet, and also endures considerable cold." (Mueller.) One of the latter was planted this year at Captain Brown's.

PITOSPORA.

Pittosporum undulatum (South-eastern Australia).—"This tree at times attains a height of 80 feet. 'Its flowers are delightfully scented.' It has grown for several years in Brodick Castle high garden, and is now 4 feet 3 inches in height.

P. tobiro (Japan).—"This grows to the height of 12 feet. Its flowers, like those of *P. undulatum*, are white, and very fragrant. The extreme thinness of the Holly-shaped leaves is very remarkable. One was planted this year at Captain Brown's.

P. Ruffii.—One planted in the same place this year.

MISCELLANEOUS PLANTS BLOOMING IN ARRAN.

Buddleia globosa (Chili and Peru).—Its orange balls of bloom are very beautiful; *Desfontainia spinosa* (Peru), 8 feet high, flowers from July to January; *Azalea amena* (China), *A. pontica* *ambellora* (Turkey), *Deutzia gracilis* (Japan), *Myrtles*, *Camellias*, *Banksian Rose* (flowers seldom), *blue Passion-flower* (Brazil), the very beautiful crimson-purple variety of *Veronica Andersoni*, the very beautiful *Erica arborea*, 8 feet high, 18 feet in circumference.

MISCELLANEOUS PLANTS NOT YET BLOOMED.

Euonymus latifolia aurea (Japan), *Photinia serrulata* (China), *Coccoloba vespertilionis angustifolia*, *Eurya latifolia* (Japan), *Quercus suber* (Spain), *Cunninghamia sinensis* (1 foot in girth), *Agaloma tomentosa*, planted in 1885, now in excellent health; *Platanus occidentalis* (Levant), 3 feet 9½ inches in girth; *Osmanthus aquifolius* (Japan), *Othelia japonica*, the Cloth of Gold Rose, the Bush Lawyer (*Rubus australis*)—the variety with the leaves reduced to mid-ribs, the Tarabeke of New Zealand—very strange-looking, and a bush lawyer indeed; the Pepper tree of Gibraltar, where it grows in great beauty (*Schinus molle*). "From Mexico to Chili, ascending the Andes to about 12,750 feet. A tree thriving in dry and sandy soil, odorous in all its parts, the foliage in bouquets a good substitute for Ferns, and not quickly shrivelling; the jerking motion of leaf fragments thrown into water very remarkable; the somewhat spicy small fruit serving as a condiment." (Mueller.) I had seen and much admired this tree at Gibraltar. A friend kindly sent me seed from Chili. Planted this summer at Captain Brown's, Lamash. The wild Olive (*Elaeagnus reflexa*, syn. *japonica*) has grown for many years. The strange Bottle tree of Australia (*Brachychiton diversifolium*), so called from the bottle-shaped expansion above the neck of the stem.

CANTYRE, ARGYLLSHIRE.

Though Cantyre forms part of the mainland of Scotland, yet it is connected with it by so narrow a strip of land that in climate it is insular. It stretches for 30 or 40 miles parallel to Arran and about half-a-dozen miles west of it. The fame of the Australian plants growing at Lady Campbell's, South Park, Campbellton, led me to visit the place. Lady Campbell most kindly took me through her grounds. The most remarkable plant is a magnificent specimen of the lofty Palm-Lily (*Cordylina australis*). I had thought of those in Arran had not their equals in Britain, out-of-doors, except in the south of England; but this one at South Park is much superior. Its stem is more than 2 feet (24½ inches) in girth. At the height of more than 8 feet the stem separates into four smaller stems; and about 2 feet higher one of these parts into two, so that in all there are five stems at the top. Including leaves, it is fully 20 feet in height. Last year (1885) it bore four immense spikes of bloom and matured abundance of seed. Some of it was sent to the Botanic Gardens, Edinburgh, from which it was distributed by Mr. Lindsay over Britain, in the hope that, being native, plants raised from it would prove hardy. It has not bloomed this year. It is less than twenty years since it was raised by Lady Campbell from seed. Another remarkable plant is *Pittosporum tenuifolium*. It is 16 feet 2 inches in height; and the stem, near the ground, is 1 foot 10½ inches in girth. It blooms abundantly. The flowers are dusky-crimson in hue and sweetly perfumed. A plant of *P. undulatum* (the Lemon-scented *Pittosporum*), grows beside the other; but it has not yet bloomed. A high wall is covered with an Australian *Convolvulus*. The leaves are small, but the flowers, which are white, are of the size of those of *Calystegia sepium*. The Australian *Solanum aviculare* also grows on the same wall. The New Zealand Tea plant (*Edwardia microphylla*) has bloomed in the greenhouse; there is also in the open air a Blue and a Red Gum. These grow freely till they overtop the wall which protects them from the sea-blast; but when exposed to it they perish.

BALINAKILL, ARGYLLSHIRE.

Balinakill, the residence of William Mackinnon, Esq., is situated on the north-east of Cantyre, and about parallel to the north of Arran. The house is surrounded by carefully cultivated woods, which give shelter to more delicate plants. Here the Urn-bearing Gum (*Eucalyptus urnigera*) is 3 feet 5 inches high; the Little Blue Gum (*E. coccifera*), also 3 feet

5 inches high; and the Cider Gum (*E. Gunoli*), 5 feet high, all grow healthily.

GADGIRTH, AYRSHIRE.

Gadgirth, the residence of General Burnett, is on the banks of the Ayr, and 4½ miles from the sea. The soil is light and good, and the place is sheltered by wood and hills in all directions. Here the seed of the hardest of all the Gum trees (*Eucalyptus cocifera*) was sown in the open air in the spring of 1881. It germinated well, and now one of the plants is 12½ feet high, and 3½ inches in girth. Among the plants raised is one of a most interesting and beautiful variety, the leaves being so covered with a hoary bloom, both above and on the under-side, as to be almost white. Having been transplanted, it is only about half the size of the other: I have seen none at all like to it.

ROSENEATH, DUMBARTONSHIRE.

Roseneath, at the mouth of Gare Loch on the Clyde, is the furthest north that the Gum trees have been tried with success. It is above the 56° of north latitude. It is a most beautiful parish, and in it there is no more lovely spot than that of the Established Church manse. Here the tallest tree in the world, the Giant Gum (*Eucalyptus amygdalina* var. *regans*) was planted in 1876. It grew famously till the winter of 1880-81, when very severe frost cut it to the ground. It sprouted again in the spring, and grew so quickly that, lest it should break, it was topped. It now is, however, 15 feet 4 inches in height and 6½ feet in girth, both height and girth being taken at 4½ feet from the ground, as it bifurcates just above this.

Near to the Giant Gum grows a specimen of the Urn-bearing Gum (*Eucalyptus unguiera*). It was planted a few years ago, and has had to contend with a squirrel which ate its bark, and a roe deer that ate its leaves, yet it is doing well, and being much more hardy, may yet overtop its giant neighbour.

I have thus given a full and exact account of the Australian and New Zealand plants known to me as growing in Arran, and in the West of Scotland. This report I will not repeat for some time. Should I, or any one else, at the end of half-a-dozen years, furnish your Society with another report, it is hoped that it will tell of great growth and development. *D. Landsborough.*

EFFECTS OF THE RECENT FOG.

OUT-OF-DOORS any evil effects accruing to vegetation at the present time cannot be directly attributed to fog alone, seeing that we have lately experienced several degrees of frost in addition to the absence of sufficient light. Add to this the natural fall of the leaf and the fact that our native vegetation is less susceptible, as a rule, to changes in the intensity of the light than many exotic subjects, and we have a combination of causes at work in bringing about the phenomenon of severe and decaying leaves, so that changes in that direction out-of-doors are less noticeable at this season than they would otherwise be. Under glass, however, the conditions are very different, and where plants have to be kept in a growing or flowering condition, the difficulties that the cultivator has to contend with are of a serious kind, and all the more so because in a great measure insurmountable. Thin-leaved plants are those most liable to suffer from a diminution of the light, and especially those that are highly sensitive to variations in its intensity, and exhibit the phenomena of sleep. This will be evident by reference to such plants as *Phyllanthus* (*Reidia*) *glaucescens*, *Poinciana regia*, *P. pulcherrima*, *Casalpinia*, *Calliandras*, and others of that nature which during the week in which we had a continuance of three days' fog exhibited all the appearance of being kept in darkness for a considerable time.

In spite of every care and attention on the part of the cultivator as to temperature and moisture, the other all-important condition to plant life, namely, light, being absent, the leaves or the leaflets, as the case may be, turn yellow, and drop, making the plant for all practical purposes deciduous, although evergreen under ordinary and favourable circumstances. The same unfavourable conditions tell severely on *Victoria regia* owing to its rapidity of growth, and the necessary expedition with which the internal changes must take place. Nor is this confined to subjects of the nature just mentioned, but all

soft-wooded plants suffer more or less visibly, and make the task of the cultivator precarious and unsatisfactory. Orchid growers have also to deplore the failure of *Phalenopsis*, *Angraecum*, and *Cattleya* flowers, especially of the two former. *Poinsettias* have suffered visibly, and are in many cases practically ruined for a season. Fortunately, when we turn to hard-wooded plants the case is more satisfactory, and fine-foliated plants of this class suffer comparatively little from a temporary diminution of the light, provided the leaves are mature. This arises from the fact that changes take place much less rapidly in rigid, leathery, and evergreen leaves, than in those of a thin and membranous texture. *J. F.*

WOODS IN THE LATE COLONIAL EXHIBITION.

(Continued from p. 685.)

CAPE OF GOOD HOPE COURT.—Although but very few of the Cape of Good Hope trees, save, indeed, some of the now naturalised kinds, such as *Pinus Pinaster* and *P. Pinea*, our English Oak, *Quercus pedunculata*, *Populus alba*, and some few members of the *Willow* family, can be considered as suitable for growth in this country, still their remarkable and beautifully grained woods, as revealed in the majority of specimens exhibited, as well as varied uses to which they are applied, make it almost imperative for me to notice briefly a few of such as are of particular interest, or that, from their distinct and beautiful markings, attracted my notice.

No one who has even the faintest idea of timber and its graining could pass unnoticed the beautiful slabs—one plank and two round sections—of *Umiza* or *Unzumbeti*, for certainly as regards depth of colouring and beauty of arrangement in graining this wood was not surpassed by any other specimen in the whole Exhibition; and if the specimens shown be a fair sample, as regards colour and graining, of the wood as usually grown, then its value for particular purposes must be great indeed. Mr. Hedley, of the Cape Court, informed me that some doubt existed as to the botanical name of the tree that produces this wood, but that *Milletia Kaffra* was that usually bestowed, and by most authorities considered as correct. The wood, which we were informed, is believed to be the hardest and heaviest of those grown in South Africa, is recorded amongst my notes as being of a bright yellow, with markings of the darkest of ebony and brightest of pink. It is, indeed, at once a remarkable and beautifully defined wood, the deep yellow of the outer or sap-wood—but which is different to the majority of sap-woods in being almost as hard as the heart-wood—offering such a striking contrast to the black and pink of that towards the centre; indeed, I must confess that I have never before seen so beautifully grained and rich coloured wood. Amulets and other ornaments which require the most beautiful of wood for their manufacture, and on which a great amount of labour is usually bestowed, as well as the much-sought-after *Kaffir* walking-sticks, clubs, fancy boxes, &c., are usually made from this wood; but being of small size—for the largest we measured was but 15 inches in diameter—it is rarely employed in the making of artistic furniture, or for other uses where large planks are an acquisition. We were told that in the coast forests this tree occurs in some plenty. The bark reminded us much of that of our common Holly.

How durable, even under the most trying circumstances, some of the Cape woods are, was demonstrated in a very practical and common-sense way by the Railway Department, for I noticed no fewer than about a dozen sleepers that had been used on the Cape Government railways for periods varying from three to twenty-one years, and from the effects of which they seemed but little the worse. The red assegi wood certainly seems after nineteen years wear and tear to be as sound as some of the logs cut but recently for exhibition purposes.

Oak and Camphor wood sleepers, after twenty and twenty-one years use, were, likewise, fresh and with but little decay; while those made from Stink-wood also showed clearly how well adapted for that important purpose was the timber of that valuable tree, I fancy, somehow, but only in judging from the specimens exhibited, that the wood of the Oak, Willow, and *Pinus Pinaster*, as grown in South Africa, is superior to what is produced in this country. For certain the wood of the Pine just mentioned, as any

one would see who examined the cross section exhibited, is of a far deeper colour, harder, and with the concentric rings more firmly packed than any I have ever had the opportunity of examining in this country. This Pine is said to grow extremely well at the Cape, but the wood has not been much used yet, unless, indeed, for firewood, for which purpose it is largely used, and sells well at Cape Town. *Pinus Pinea*, of which a nice plank was exhibited, would seem to be more useful than the *Pinaster*, for it is frequently converted into planking for fencing materials, particularly posts, and in the construction of buildings. It is, perhaps, unnecessary for me to repeat what has been frequently stated in the columns of the *Gardeners' Chronicle*, that both these Pines are admirably suited for planting in this country.

The Stink-wood or Laurel-wood (*Oreodaphne bulla*) could not but attract the visitor's attention, whether by the large planks and round sections exhibited, or by the beautiful and costly bedroom and dining-room suites that, from the number of examiners, would seem to have attracted a more than ordinary amount of notice. Resembling the best-marked Walnut-wood, that of the Stink-wood is much prized for furniture making, having little or no sap-wood, being remarkably strong and durable, and susceptible of the very highest polish. Being now extremely scarce, the wood is much valued, but at one time it was fairly abundant and largely used in the construction of carts and waggon, for house building, and, as before stated, by Government for railway purposes.

From the Government Forest Department of Cape Town came some exhibits of the wood of that beautiful tree, *Leucodendron argenteum*, or the Silver tree, leaves and fruit of which were recently figured in the *Gardeners' Chronicle*, but which, from its soft nature, is not much in request, except occasionally for furniture making. It takes a fine polish, and seemed from its pretty appearance to merit a greater amount of attention than we were led to believe it bestowed upon it.

WIDDINGTONIA JUNIPEROIDES.

Two planks and round sections of the commonly called Cedar tree, show off to perfection the nicely marked wood of this valuable, but now almost extinct Conifer. It inhabits the highest parts of the mountains, but has in reality been, as it were, driven there before the axe of the woodman, yet so valuable has the timber of this tree become, that it is now, we are told, conveyed for many miles through almost inaccessible tracts of rocky country, and chiefly by manual labour, to the lower levels, where it finds a ready market.

Government has, however, and not before it was time, come to the rescue of this valuable tree, for whole woods of it have been formed on Table Mountain, but principally at high elevations; so it is to be hoped that both in the interests of commerce and for the beneficial effects to the surrounding country, they may prosper and become a source of revenue to the country.

SNEEZEWOD (PTERONYLON UTILE),

of which we noticed a large-sized board and several sections, is reckoned amongst the most valuable of the South African woods. It is said to be, so far as durability is concerned, superior even to *Lignum vitae*, and has actually, in machine bearings, been known to last longer than either brass or iron. Another valuable quality—valuable, at least, in its native land—is its freedom from the attacks of ants on the land, and marine insects when employed as piles beneath water.

CAPE BOXWOOD.

This Boxwood, so far as we could judge from the beautifully polished boards as well as rough logs and sections, resembles very closely our native plant, *Buxus sempervirens*; but with this it is certainly not identical, as any person may at once judge from the carefully preserved specimens of both foliage and fruit included in the interesting, and well arranged herbarium. In colour it is, likewise, lighter than what we have cut up at Penrhyn, but as regards weight and hardness, it is certainly a counterpart of our own. Being very plentiful in particular districts, this tree is sure to find a ready market in Britain, for the Continental supplies on which we have long depended are now said to be becoming less and less.

The many uses to which Boxwood is put in this country, such as in the making of mathematical instruments, and for engraving purposes, render a supply of the wood of the greatest importance, but grave doubts have been, for the past few years, expressed regarding the ultimate supply, which at the present time is gradually on the wane.

YELLOW-WOOD.

Perhaps the largest growing tree in the Cape Colony is the Yellow-wood (*Podocarpus elongatus*), but whether or not certainly the largest planks exhibited in that court were from this tree. The plank referred to was 20 feet long and about 5 feet in width, and showed the pretty yellow colour and unusual freedom from knots and shakes that is not characteristic of large growing woods generally. As will be seen on examining some of the Cape carts and waggons Yellow-wood is largely used for naves, but particularly for the bottoms and framework of the stronger waggons or such as are used for conveying merchandise, &c., from one station to another.

Several Yellow-wood sleepers, sent by the Railway Department, show the effects of both creosoting and an application of chloride of zinc, both of which processes considerably lengthen the lasting properties of the timber. In Africa, as well as here, it has been found by actual experiments that improper seasoning as well as felling these trees at the wrong time impair in a very marked degree the lasting qualities of the wood. *A. D. Webster.*

(To be continued.)

TREES AND SHRUBS.

POISON OAK AND POISON IVY.

THERE seems to be a little confusion about the synonyms of the plants called by these names. Two or three years ago Mr. Archer Hind, who lives in Devonshire, sent me in autumn some very brilliant scarlet and yellow leaves. My son, who had spent two years in the back settlements of Minnesota, and was near when I opened the box, exclaimed "Hallo! Mind how you touch those; they are poison Ivy leaves." He informed me that two distinct kinds, known as poison Oak and poison Ivy, are common in Minnesota. Their touch, or even their exhalations, affect different persons very differently. He was never injured by them, but he knew a man and his wife who nearly lost their lives by sleeping under one. The poison Oak is a shrub, the poison Ivy a creeper, and the latter is considered the more dangerous of the two. The two are no doubt identical with two species of *Rhus*, or *Sumach*, described by Asa Gray in his *Manual of North American Botany*, p. 111:—1. *Rhus venenata* (De Candolle).—Poison Sumach or Dogwood, the *R. vernix* of Linnaeus. A shrub 6 to 18 feet high, also called poison Elder. 2. *R. toxicodendron* (Linnaeus).—Poison Ivy or poison Oak. A creeper, climbing over rocks or ascending trees; leaves cut-lobed or else entire, then it is *R. radicans* of Linnaeus. Twice this autumn I have seen leaves of this exposed for sale in Covent Garden Market. Mr. Archer Hind tells me that neither he nor any one else have ever suffered any bad effects by touching the plant. *C. Wolley Dod, Edge Hall, Nov. 11.*

A MEMORIAL TREE.

A very interesting reminiscence of the memorable International of 1866 may be seen at the present time in the Ealing nursery of Messrs. Charles Lee & Son, in the shape of a magnificent specimen of *Wellingtonia gigantea*, at the entrance to the fine avenue of mixed shrubs. It is now 35 feet in height, and 20 feet across the branches at the base, well shaped. It was planted by Mr. George Cannon, the manager, soon after the close of the exhibition, its height then being 6 feet. The shrub formed part of a collection of Conifers exhibited by the firm, including *Piceas*, *Arcaurarias*, *Cedrus Deodara*, &c. They were all planted in the front of the nursery as specimens. Although the weather at the time of planting was very hot and dry, and of course very late for such an operation, they all grew and did well, making nice trees. *Abies Pinapo* made a grand tree, as also did one or two of the *Cedars* and *Arcaurarias*. All went well with the trees till the disastrous wet summer of 1879, and the severe winters of 1880-81, which destroyed some and damaged others. The *Wellingtonia* has borne well the brunt of the trying

ordeal through which it has passed, much better indeed than some of its companions at the great horticultural gathering above referred to. The memorable snowstorm on January 18, 1881, thinned the branches a little on the north side, otherwise it would have been a perfect specimen. *B.*

LARGE TREES IN THE WESTERN HIGHLANDS OF SCOTLAND.

Having had occasion lately to visit Ardgarten, the beautiful estate of Donald Macgregor, Esq., which is situated at the south end of the Vale of Glencoe, and the north shore of Loch Long, Argyshire, a district well known to tourists, here I found in the park, in front, also east and west of the mansion, some remarkably fine trees and shrubs of large dimensions, several of which I measured.

To give your readers some idea of what size trees and shrubs attain to in Northern Britain—the general idea being that few species grow to any great size in the Highlands of Scotland—the following are the measurements and names of the finest, the circumference taken at 1 foot from the ground:—

Spanish Chestnut	31 ft. 6 in.
Ash	11 " 2 "
Plane	18 " 2 "
Beech	16 " 10 "
Do.	17 " 9 "
Plane	10 " 10 "

Four Portugal Laurels average 12 feet high, and 65 feet in circumference. Three Sweet Bays average 18 feet high by 58 feet in circumference.

I may mention that these are all of them single specimens, standing on the turf. There are also numerous Larches of very large dimensions, and quite free from the Larch disease, the girth of which I did not measure. I hope to have something more to write about this fine place and its surroundings, when the numerous improvements, planting, &c., that are going on at present, are finished. *John Downie.*

P.S. Since writing the above, I have ascertained that the Spanish Chestnut tree noted therein is mentioned in the *Life* of the late Sir Robert Christison, in the following terms:—

"On August 6, 1877, I visited a Spanish Chestnut tree at Ardgarten, Arrochar, previously well known to me for its magnitude, but not yet so famous as it ought to be. When I was last at Arrochar, in 1867, it was a tall, stately, vigorous tree, 20 feet in girth at 5 feet from the ground, and not to the eye appreciably less for 20 feet upward, where its first division into branches took place. In 1877 it must have been about 100 feet in height. No such Chestnut tree has yet been publicly mentioned among the large forest trees of Scotland, so far as I have yet found. Neither have I yet seen any trunk whatever so fine, taking height and girth together."

CERASUS WATERERI.

The planting season of deciduous trees being now at hand I would like to call attention to a tree very effective in ornamental plantations, both in spring and autumn, viz., *Cerasus Watereri*, which carries its foliage longer than most deciduous trees. As at this season, when autumn and winter meets, any bit of colour is valuable, and the only other remaining bits of colour at present are the leaves on the young trees of the common Beech. *Cerasus Watereri* is equally beautiful in bloom in spring with its mauve tinted flowers. *R. Maier, Yattendon.*

A LARGE TURNIP.—A monster Turnip is at present on view in the shop window of Messrs. Smith & Son, seedsmen, Market Street, Aberdeen. This Turnip was grown on the home farm of Kingcausie, from seed supplied by Messrs. Smith & Son. It measures 38 inches in circumference, and weighed 231 lb. when pulled and dressed (about four roots to the hundredweight). The name of the variety is Sittiton Prize Purple-top Yellow.

Florists' Flowers.

THE CINERARIA.

FOR several weeks we have been enjoying the brilliant colours of the earliest flowering varieties, and those intended to flower later have nearly filled the pots in which they are to flower with roots, while the later April-flowering plants are now being re-potted. The weather, so far, has been admirable, and as a natural consequence the plants are free from green-fly and mildew. A few of the larger leaves have decayed on some of the plants, but not to the extent of causing the least permanent injury. To obtain good specimen plants, the point of the centre shoot has to be pinched out when it has grown 2 or 3 inches. The lateral growths require to be tied out as soon as they are long enough. A strip of tarred twine is tied underneath the rim of the pot, to which they are tied down. The plants require to be looked over about once in two or three weeks to do this, and to remove any leaves that may happen to decay. If green-fly is seen anywhere fumigate at once. Nearly all our plants have been propagated from offsets this year, and are quite as strong as the seedlings. The plants ought to be placed quite close to the glass roof, and those plants that have quite filled their pots with roots are much benefited by being supplied occasionally with very weak liquid manure water.

THE CALCEOLARIA.

The winter treatment of the herbaceous Calceolaria is very much the same as that of the Cineraria. So seldom are the plants raised in any other way except from seeds, that I will but remark that propagated plants can be grown fairly well by taking the growths any time during the summer with a portion of roots attached; these should be potted in sandy soil, using thumb-pots, and as soon as the roots have laid good hold of the soil repot them in larger pots, when they can be grown on as seedlings are. Seedlings make the strongest plants and the best furnished specimens; and when the seeds have been saved from the best well marked varieties the probabilities are that distinct good forms will be obtained, and the anticipation of their flowering adds greatly to the pleasure to be derived from watching the growth of healthy good specimens. Green-fly does not spread much at this season, and it is best to destroy it by fumigating, as no plants are so liable to its attacks as these. *James Douglas.*

FRUIT REGISTER.

PLUM COE'S LATE RED.

AT the end of the eighteenth century Mr. Jervoise Coe, a market gardener at Bury St. Edmunds, crossed the white *Magnus Bonum* Plum with the Green Gage, and this cross gave us the delightful dessert Plum known as Coe's Golden Drop—which planted on a north wall it has no equal; but it is to Coe's Late Red that I now wish to call attention. I am sorry not to be able to give its history, so can only say that we have a large tree of it here on the north wall, and that we find it most useful as a very late kitchen kind; it hardly ever misses carrying a good crop, and this season, in common with all other Plums, the crop was simply enormous: but it is its lateness that makes it so valuable, for yesterday was sent in to the dining-room a tart made from this Plum in fresh and good condition. There are several gallons on the tree still: there have suffered more or less from frost, but had there been a glass coping overhead, and "Frigi Domo" been down in front, they would have been good another week or two.

I am aware that it is only second-rate in quality, but then we do not expect such flavour late in the season; why I mention anything about it at all is because I do not see it in any nurseryman's catalogue, and it is a pity that the kind should be lost; besides, crossed with some of the new late kinds, we might get something still better. *J. Rust, Eridge Castle, Sussex, Nov. 30.* [The Wydale is an equally late keeping Plum, remaining good for several weeks after being gathered. It also does well as a standard. Ed.]

PLUM KAISER WILHELM, OR DARK BLUE
EGG PLUM.

This is a worthless variety of Plum, very well known in Germany under its latter name. The fruit is $2\frac{1}{2}$ inch in length and 2 inches in breadth, and is of a regular oval shape; the skin thick, tough, and somewhat bitter, but detachable from the flesh; of a black-blue colour, and covered with a light blue bloom. The flesh is golden-yellow, rayed, juicy, and clinging to the stone. In favourable years, as in this one, the flavour is pleasant. *Deutsche Garten Zeitung.*

FORESTRY.

DECEMBER PLANTING.

HAVING in my last communication under this heading treated of the various members of the Pine

Oak had to be sold at 1s. 4d. per foot, and clean straight Ash at 1s. 6d. Not many days ago I had occasion to visit a recently formed plantation at nearly 1000 feet altitude on the Snowdon range of hills, and was agreeably surprised to find that all along the outskirts of the wood in question, and where fully exposed to our hard-hitting south-western blasts, the Sycamore stands boldly out with its best front to the blast, and that even where the Scotch Fir and other equally hardy subjects are forced to give in, as their flattened heads and semi-procumbent habit of growth but too clearly point out. As an ornamental shade-giving tree it is quite superfluous for me to say one word in favour of the Sycamore, for its good qualities have been, both in prose and verse, handed down from the times of our great grandfathers. For hedgerow purposes the Sycamore has few equals, while as a farmer's tree it is found superior to either the Ash or Elm. Let me advise, therefore, every landed proprietor who contemplates planting

ground altitude not too high, the Oak, if only for estate purposes, should be planted in moderate quantity, as local demand will always assist in getting rid of surplus Oak. In the making of gates, carts, waggons, &c., Oak timber is invaluable, while in forestry for posts and fencing generally it is much in request. The rearing and management of Oak plantations, although simple enough, is, nevertheless, attended with "extras" over and above what is usually found necessary in the majority of hard woods.

THE BLACK WALNUT (*JUGLANS NIGRA*), AND THE COMMON WALNUT (*J. REGIA*)

are valuable forest trees, but receive far less attention than their merits demand. Perhaps this may be accounted for by the quality of soil required to produce good Walnut timber, for anything apart from a good vegetable loam is considered of but little use in the rearing of this valuable timber tree. The fact that the soil and climate generally of



FIG. 138. —VIEW IN MESSRS. PAUL'S GARDEN AT BROXBORNE. (SEE P. 711.)

family that have been found well suited for our soil and climate, I now purpose noting briefly a few of such hardwood trees as can be confidently recommended for rather extensive use in the formation of young plantations.

SYCAMORE.

Whether looked at from an ornamental or commercial sense, the common Sycamore is, perhaps, the most valuable tree at present cultivated in this country. For planting in exposed, high-lying situations, or within the influence of the sea, it has certainly few equals, while as to the value of timber produced, it realises at present, nearly double that of any other, not even excepting the Oak and Ash. Even in these depressed times when the market is literally glutted with almost unsaleable timber, we have no difficulty in getting 2s. 6d. per foot for Sycamore of fairly good quality and large size, while picked trees of large dimensions realise even a higher price per foot. This very week we disposed of some Sycamore at the above price, while the best quality of

on an extensive scale to use in the composition of his woods a fair amount of Sycamore trees; while for those who have tracts of coast or mountain land to reclaim, no hard wood is better adapted for, or will ultimately bring in so handsome a return, as the tree in question. Good sized plants with plenty of fibrous roots should be looked for and planted at once.

OAK.

"Once upon a time," and that but barely a century ago, the Oak was, whether as regards value of the timber produced or for ornamental purposes, king of the forest; but, alas! though its beauty still remains, its value in a commercial sense has departed with England's "wooden walls." For the best quality of Oak, felled in autumn, and that will square not less than 12 inches, it is now difficult to get 16d. per foot; indeed I saw a consignment of large trees, the timber being of fairly good quality, offered at the low price of 1s. per foot last week, and it could not be sold even for that. Where the soil is of good quality, and the

Britain is well suited for the tree in question, as well as the circumstance that hundreds of pounds are annually spent in the purchase of Walnut timber for the Army Department of this country, should make us look a little to our own interests, and plant more largely than we have hitherto done so important and valuable a timber tree.

Information from some of our seaport towns reveals the extraordinary fact that good Walnut timber rarely sells at a lower price than 5s. per foot, or double that of any other timber produced in this country. The price of young Walnut trees is, however, a serious drawback to the extensive culture of the tree, for when 6s. per dozen is paid for 3 feet high stuff, the owner thinks twice before purchasing what is sufficient for even a quarter acre. Thick planting in the case of the Walnut should, however, be avoided, for if the individual trees are placed at 24 feet apart, it is quite near enough, the intervening spaces being filled up with any other cheap, fast-growing trees, for removal at an early date. By acting thus, the first

cost of the plantation is usually low indeed. *A. D. Webster, Penrhyn Castle.*

LIBOCEDRUS DECURRENS.

In your issue of November 20 Mr. Webster tells us that *Libocedrus decurrens* or *Thuja gigantea* is the coming timber tree, and grows 3 or 4 feet in the year. Can he be adding to our confusion by giving the name of *Libocedrus decurrens* to that tree which has been known by the names of *Thuja Lobbi*, *T. Craigeana*, *T. gigantea*, *T. Menziesii*? The tree which is now known as *Libocedrus decurrens*, and once was known as *Thuja gigantea*, is surely of a very different habit, of slow close growth, and of a rich green. I can endorse everything he says as applicable to the tree, which is more generally known as *Thuja Lobbi*. It is a pity that the rules of nomenclature do not allow this tree to hand down to posterity the name of one of our greatest collectors. Can any of your readers endorse what he says as to the value of the timber when grown in this country? If it can compare in this respect with the Larch its other good qualities ensure for it a great future. *William Ellis.* [This *gigantea*, the *Lobbi* of gardens, is quite different from the *Libocedrus*. The timber in its native country is highly valued.]

THE LARCH DISEASE.

The essay by Mr. William Clark, of the firm of Messrs. Clark Brothers, nurserymen, Carlisle, to which the first prize of the English Arboricultural Society was awarded, has been published in the *Transactions* of that Society. Mr. Clark in the course of his paper points out that the Larch tree sometimes develops and grows with equal fitness and power in soils and situations of almost opposite character, but seems to prefer alluvial earths or deep rich gravelly lands. Yet it is singularly sensitive to the malign influences of certain soils and subsoils, and particularly of some circumstances of situation and culture—a fact which has not been generally studied by planters. The so-called "Larch disease" is generally found on undrained, retentive, stagnant soils of bog or clay, till, and adhesive loam; and it is here, Mr. Clark points out, that Larch of not more than eighteen or twenty-five years of age often exhibit symptoms of decay, and the trees are found by the forester unsound, or even widely rotten at the core. The finest plantations are those on the sides of mountains where the subsoil is of a dry and porous nature. The origin and the cause of the disease, the essayist contends, is attributable to the varied character of the climate in Great Britain. When the early delicate shoots of the Larch are exposed to a spring frost they not only cease to grow for a time, but the resin and turpentine escape, and, congealing on the surface of the bark, at once affect the growth of the tree permanently. The effect of this is that the insects, attracted by the sweet and scented liquid, immediately feed upon it, causing the matter to be spread more fully over the thin and tender bark. The action of the sun beating upon it then congeals the exudation into a casing as hard as a stone, effectually closing all the pores. Hence the excrecences and canker appearances all over the tree, causing ultimately an untimely death. The character and position of the land have a great deal to do with this. Dry subsoil and elevated position early mature the wood, and correspondingly retard the growth in early spring. The early ripening of the wood saves the tree from autumn frosts, and similarly the retarding of early growth, owing to exposed situation, prevents the damaging effect of early spring frosts. The effect of stagnant soil is just the reverse, because the wood ripens badly and late in the season, and so is unfitted to withstand any degree of frosty weather. Then frost acts more powerfully when moisture exists in excess either in the soil or the wood. Mr. Clark disputes the correctness of the theories advanced, that the cause of the disease arises from acrid subsoil, microscopic fungi, or the Larch-blight bug, the fungi being a result from causes, and the bug an after cause. Cold winds, he says, are but a minor factor in the case, and bad management has certainly a little to do with the present position of the Larch plantations of this country. Planters, Mr. Clark advises, should associate the Larch with some other protecting tree, as the Scotch Fir and the Norway Spruce, as their evergreen and bushy character ameliorate the climate very much around them. He recommends thinning out sparingly at first, but regularly, which would allow the maximum of light and air to reach every tree, and so ensure the ripening of the wood and the healthy condition of the trees.

The Apiary.

HINTS ON MOVING BEES.

THE season for outdoor work in the apiary is at an end, except indeed we want to move our bees, but I think that had better not be done just yet. It is far better to wait till December at the very least. Mr. Root of Ohio gives a very vivid description of how he lost a strong and valuable stock of bees because he moved them too soon. It is getting cold now, and it would not much matter if that continued. But in this changeable climate we are never safe for a single day, and if the bees are moved on a cold day and then two or three warm days come they would come out as usual, not knowing their position had been altered, and never find their way home again. This would so much reduce a stock that the first spell of cold weather would cause the remainder to die. But though nothing can be done of much account out-of-doors, a great deal can be done for our bees indoors, by looking well to our appliances.

FEEDERS.

Of course no feeders are now on the hives, so we can be looking to them to see if any alteration is required in them, or to get other sorts. There is a very good feeder which is not so widely known as it ought to be. It is manufactured and sold by Mr. Edward J. Butt, a seedsman of Barnstable, who also invented it. It is about the same shape and size as the round tin feeders sold by Messrs. George Neighbour & Son, but has this advantage, that, being made of white crockery-ware, it can be made as clean and sweet as a china teacup. There is a hole in the bottom of the feeder, and a pipe is fitted in this hole. The bees ascend the pipe, and are prevented from slipping backwards into the hive, and for wards into the syrup, because the pipe is fluted inside and out. A round cap with a glass top stands on the floor of the feeder, and there are two or three small triangular notches at the bottom of the cap, too small for a bee to get through. The vessel is placed in position, and filled with syrup. On the principle of liquids finding their own level, the syrup can never be higher inside the cap than it is outside, so there can be no fear of an overflow, and of course no fear of drowning. The bees can be seen feeding through the glass, and as their standing-room is limited, they are not liable to feed too quickly. Besides, it is always an easy matter to regulate their food by not putting too much in the feeder, as bees must be treated somewhat in the same way as babies. There is a lid with a knob to cover all up, so that no heat is wasted. Everything is made of the best material except the piece of glass. I have called attention to the feeder, as your readers will find it worthy of their attention. *Walter Chitty, Pevensey.*

The Flower Garden.

PLANTING AND PROTECTING.

PROCEED with the planting and removal of all kinds of deciduous shrubs and ornamental trees when the weather is favourable, but defer the operation if the weather be frosty or wet. Evergreens may also be removed when it can be done with a large ball of earth attached, otherwise wait till April. Protection should now be given to Hollyhocks. If the situation be damp and the soil heavy, it will be better to lift all the good sorts and pot them, placing them under shelter of a cold frame if possible, but if the situation be very favourable they may remain in the ground, nevertheless they will be greatly benefited by a little protection from a heap of dry leaves placed around the collar, a few twigs being stuck round to prevent the leaves blowing about. Lilies, *Watsonias*, *Alstroemerias*, &c., should be similarly treated. Some hoops should now be placed over beds of bulbs in readiness for a mat or other material, in case of heavy rains. Where the subsoil is gravelly, and the material in which bulbs are planted is light, any rain which falls on the beds will pass away speedily, and no protection will be necessary.

ALPINE AND HARDY PLANTS.

Constant attention will now be necessary where alpine plants are grown in pots to see that none of them suffer from too much moisture or from decay of the foliage. On the first symptoms the plants should be attended to, or else loss will speedily follow. Look over Finks and Carnations under glass to see they do not become dry at the root, for if once they get thoroughly dried up they will not do any good. Remove any withered foliage, so that damp may cause no decay, should it be necessary to shut up the structures close for any length of time. Auriculas require special care at this season. It should be borne in mind that they are perfectly hardy, and that the hardest frost will not kill them, but a close moist atmosphere in their dormant state will speedily do so. See that the plants are never wet, nor over-dry; frequently stir the surface of the pots to admit air to the roots. Scrub the pots upon the first appearance of moss on the surface; this had better be done with a cloth and dry sand, in preference to using water at this season.

ROSES.

It is a too common practice, when Roses are received from the grower, to lay them in by the heel, until such time as they can be planted. They usually under this method sustain much injury, as they commence to push out fresh roots almost at once, the majority of which are destroyed in the operation of final planting. The Rose beds should be prepared before the order is despatched, and immediately the plants arrive, if the weather be open, they should be placed in the quarters they are intended to occupy. Stake and tie up standards as they are placed in the ground. Any delicate sorts will receive great benefit from a hay-band wrapped round the stem, where the union with the stock takes place. *W. M. Baillie, Luton Hoe Gardens.*

THE ORCHID HOUSES.

CATTLEYAS.

PLANTS of *Cattleya Warneri* now starting to grow should be attended to if potting or top-dressing be necessary, and being a winter grower, like *Laelia purpurata*, it should have the warmest place in the Cattleya-house: the centre stage is good for both. The autumn-flowering *Cattleya labiata* should be examined after the bloom is over. See that the stems from which the flowers are cut dry up properly, or sometimes the moisture will cause the leaf to rot. If this should happen, the decayed part must be cut clean away before decay spreads downwards into the rhizome, as this course often proves fatal to the plants. It is not always safe to pinch the buds from weak Cattleyas with the idea of strengthening the plants; first let the flowers open, as by so doing moisture is taken away from the plants. Our practice before cutting *Laelias* or Cattleyas is to open the sheath, and tear it clean out; then cut the flower-stalk close to the leaf, this prevents water from lodging in the sheath. If there is one side of the Cattleya-house that catches more sunshine than the other, it will improve the flowers of *Cattleya Trianae* and *C. Percivaliana* as they open, if placed on this side. If well-developed flowers are expected in this house, care should be taken not to starve the plants by keeping the atmosphere too dry. When it has been necessary to use much fire-heat during the night, the floors should be well damped in the morning, at the same time opening the bottom ventilators a little as soon as the temperature rises.

We keep the evaporating-troughs filled in this house summer and winter, and these are what are termed trough-pipes, which give off a great deal more vapour than cast-iron portable troughs that lay on the pipes. The latter I consider will do little harm in any Orchid-house. In houses that are short of hot-water pipes it would be best perhaps not to fill the troughs in winter, it being necessary to heat the pipes more for the purpose of keeping up a given temperature. The water in the troughs would in such case evaporate too fast, and cause moisture to condense on the foliage. Here, the plants on the side stages stand on inverted pots placed in saucers filled with water, or stands made specially. In houses which have no tanks under the pipes, the dry places should have a thorough drenching with water occasionally during the winter. This should be done in the early morning of bright days.

Where *Dendrobium* flowers are wanted early for

cutting, D. noble, D. Wardianum, and D. crassinode might be selected, many of which species will now be showing their flower-buds. It is not always best to take them from a cool-house and place them in the warmest, as some of the buds might turn yellow and drop off; but it is better to place them for a week in any intermediate temperature, after which place them in the lightest part of the East Indian-house. I think the Dendrobiums, mentioned before best if kept in a rather dry house with the temperature from 55° to 60°, until about February, when they usually will make a fine display. This gives time for more of the back nodes to develop flowers. *Oncidiumlossum* Rozellii grown in the East Indian house are now best placed in a lower temperature to flower, as the flowers open there much larger; a warm moist corner of the Cattleya-house will suit them. *Cypripediums* in the warmest house that have filled their pots with roots and are growing freely can be shifted on into larger pots without disturbing the roots; give them less water for a time. Any *Orchids* that are suspended very near the roof glass should be lowered, or they might get injured during snow-storms or severe frosts. C. Woolford, Downsville, Leatherhead.

PLANTS AND THEIR CULTURE.

THE FORCING HOUSE.

IN order to keep up a sufficient supply of flowering plants utilise every available space in this department, selecting the earliest variety of any plant, and those with the best ripened wood. Indian Azaleas, *Andromeda floribunda*, *Kalmia latifolia*, *Solanum's* *Sisal*, *Dielis* *spectabilis*, *Hydrangea paniculata*, *Staphylea colchica*, *Deutzia gracilis*, *Lily of the Valley* (crowns), Roman Hyacinths, *Spirea*, and *Tazetta Narcissus* can be put into heat. If blue flowers are in request, *Chionodoxa Lucidæ*, *C. sardensis*, and *Scilla sibirica*, with a good supply of Violets, will be much liked. The first potted large named kinds of Hyacinths should be examined. If the pots are well filled with roots, and have pushed a little top-growth a few may now be introduced into heat, but they should be taken out of the ashes and a small pot or some moss placed over each crown for a few days previously, to prevent injury from the sudden transition from darkness to light. From this date onward, where space is at command, the Mushroom-house is one of the best places in which to bring forward some kinds of deciduous, or herbaceous plants. If a bed of fermenting material be made up and the pots plunged in it, this helps root-action. Lilacs can now be introduced freely into this place, selecting those that have been forced the year before and have good prominent buds, as when once forced they acquire the habit of flowering early. I force the plants in a pit with a tiled and cemented roof and having a flow and return pipe, with a bed of fermenting material. In this case it is difficult in securing up a supply during twelve months in the year. A few of the early Iris, which are always charming, may be started.

FERNERY.

This should now be kept at a temperature sufficiently low to rest the plants, at the same time it must not be so low, or so dry, as to cause the occupants to get into an unhealthy state. In moist ferneries as a rule, about this time there are large quantities of young seedlings self-sown from plants standing about; these should be potted up in a mixture of three parts of fine peat, one of sandstone, and a sprinkling of sand, using small pots. Where decorative Ferns are grown in pits, and the floor is moist (as it should always be), of such varieties as *Adiantum gracillimum*, *A. cuneatum*, and *A. concinnum*, &c., there is no need to sow Fern spores, there always being enough and to spare found in such places; but if any sort is scarce, spores should be sown in pans, using a mixture as for potting, pressing, and watering before sowing, otherwise the seed gets washed out, or too deep. The spores should always be gathered as soon as there is any sign of being liberated from their capsules, and they soon drop. E. Evans, Lythe Hill.

FRUITS UNDER GLASS.

PINES.

PLANTS of the Smooth-leaved Cayenne, *Charlotte Rothschild*, and Black Jamaica, which are swelling their fruits, should have a minimum temperature of 70°, running it up 15° or 20° with sun-heat at closing time, about 1 o'clock in the afternoon, damping slightly at the same time the walls, pathway, and plunging material, with warm water, care being taken

not to let any water into the "crowns" in doing so, as that would cause them to become unduly large. Give sufficient tepid liquid manure at the roots when necessary, to thoroughly moisten the whole ball of earth. Keep the evaporating troughs on the hot-water pipes filled with guano-water, and in order to keep the fruits swelling steadily until the ripening stage is attained a bottom-heat from 85° to 95° should be maintained, and where there is any difficulty experienced in keeping up that degree of heat it will be advisable—as indeed it will, should the necessity for doing so, not arise—to cover the same with mats or any other protecting material that may commend itself for that purpose, as by so doing a more genial heat is secured.

SUCCESSION PLANTS.

Plants in every stage of growth should, except those of the Smooth leaved Cayenne, which at all times require more moisture at the roots than other varieties be still kept on the dry side at the roots. I do not, however, mean by this that the plants of Cayenne are to be kept very moist at the roots, but that they should be kept only moderately moist; and aim at a night temperature of from 60°–55°, according to the weather, 5° higher by day with fire-heat, admitting a little fresh air when the thermometer reaches 65°, and afterwards regulating the ventilators according to the rise and fall of the temperature outside, giving abundance of air after the thermometer has registered 75° on bright days, so as to maintain the plants in a good sturdy condition. In many places the old-fashioned pigeon-holed Pine-pits are still in use, and in which case the bottom-heat, which for the plant under notice should not be much under 80°, will be supplied by a bed of Oak and Chestnut leaves. The heat must be maintained both at top and bottom by adding fresh materials to the linings, and thus in the absence of severe frost no recourse need be had to the hot-water apparatus. H. W. Ward, Longford Castle.

HARDY FRUIT GARDEN.

If it had not been for the unusual heavy rainfall experienced during last month, the almost total absence of frost would have rendered it a splendid planting month. Nevertheless with the aid of a little dry soil placed just about the roots we have been enabled to plant many small trees, principally maidens and cordons. Should the weather remain mild, as at present, planting may well be continued a little later than is advisable during seasons when frost comes upon us at earlier dates, and the temperature of the soil so rapidly descends, and its texture makes it unfit to be pressed around the roots. As fast as the nailing and pruning of a row of wall trees are accomplished, the border lying immediately over the roots should be forked up to the depth of 3 or 4 inches, and the soil left in a rough state, as the roots of established trees never get too much moisture when growing in such situations; in fact, the soil is frequently found to be dry there, even after long intervals of rainy weather. In many instances this is owing to the continual treading occasioned by attending to the trees themselves and when cultivating for, and cutting vegetable crops. It is a capital plan to have a line of rough, stout boards to put down along the alleys, on which to walk at all seasons.

LICHENS ON TREES.

Any established trees on walls, where the old leading branches are inclined to get green and covered with moss, lichens, or other bark-injuring parasites, should not be allowed to pass over another season without being dressed. Various solutions from time to time have been recommended for the destruction of these, but as yet we have found nothing better than a mixture made as follows, applied in the form of an adhesive paint. The foundation of the paint should be stiff clay, add to this soot, lime, and sulphur, mixing the whole well together until it is just of the right thickness to work easily on the branches. A mixture of this kind will not only destroy it at once, but prevent its infliction again for several years, and when put on with a brush, it can be kept off the young wood—a difficulty not easily overcome when applying a solution with the syringe of a garden engine. For large bush-shaped or standard trees, with lichens on their branches, we use finely sifted slaked lime; a dressing every two or three years will keep them clean. It

should be dusted on when the branches are damp, or the trees can be syringed before applying it. Trees growing in low-lying places, naturally damp, are certain, sooner or later, to get covered with lichens, if some preventative be not applied, and the bearing wood gradually becomes smaller as the pest gets established on the branches. It is caused more by a damp atmosphere and where heavy fogs are prevalent at nights, than by any ill effects arising from a bad condition at the roots. It is undoubtedly a troublesome evil, and in districts where it grows more or less on all forest trees the position selected for planting fruiting subjects should be as high as possible, providing other circumstances are favourable. Fig trees should now have protection placed round the branches in the shape of mats or straw bands, and in cold districts, where very severe frosts occur, Apricot trees might be similarly protected with great advantage during hard weather, but it is essential that it should be removed as soon as milder weather sets in.

THE FRUIT-ROOM.

The fruit in the fruit-room should receive attention once a week in the way of removing decayed fruit. Many of the varieties are ripening up earlier than usual this season, and notes should be made of their keeping qualities, which will be most valuable when making further plantings. For the sake of variety a limited number coming into use at each season ought to be grown, as if one variety fails the other might carry a crop, and so no break in the continual supply would occur. G. H. Richards, Somerley, Ringwood.

The Kitchen Garden.

WINTER SPINACH.

OWING to the mildness of the season, this crop has in a great many instances advanced too rapidly, and shows signs of running to seed; where this is found to be the case, the plants should be looked over, and the centres of all those so showing pinched out, also removing at the same time all decayed withered leaves and weeds.

YOUNG CAULIFLOWER AND CABBAGE.

The same remark also applies to these that were pricked out into frames, &c., to stand the winter; the warm, mild weather having encouraged them to grow so rapidly and luxuriantly, there is the probability of their buttoning prematurely and so becoming useless for the purpose for which they were intended. To guard against disappointment and failure, it would be advisable to make provision, by potting up plants from the latest sowings of Early London Cauliflower into 3-inch pots, placing them in a cold close frame until rooted, after which plenty of air should be given to render them robust and hardy. Cabbage plants from the seed beds also, should be pricked out on to others, thereby giving them a beneficial check, and preventing them from becoming drawn and weakly. Those planted out on permanent quarters should be hoed and earthed-up as they advance, and all yellow withered leaves removed, making good any failures.

LETTUCE AND ENDIVE

in frames will require constant attention, removing any decayed leaves, and occasionally stirring the surface of the soil between the plants, giving all the air possible. Cos Lettuce should have a strip of matting passed round them a week or ten days before they are required for use. Endive, to be thoroughly white, tender, and free from bitterness, should be allowed quite three weeks for bleaching, and before being covered or tied up must be as dry as possible, otherwise they are liable to rot during the process. Frames being cleared can be refilled with plants from outside, or the plants be thinned out and transplanted from store frames.

RADISHES, WOOD'S EARLY FRAME.

These can be sown on a light hotbed in from 6 to 8 inches of fine light soil, the seeds lightly covered, and little if any air admitted until the seeds germinate.

CHICORY.

Roots sufficient to meet the demands should be placed in the Mushroom-house, selecting the darkest corner. J. Austen, Willey Court.

Appointments for the Ensuing Week.

SHOWS, &c.

TUESDAY, DEC. 7.	Royal Horticultural Society: Meetings of the Scientific, Fruit and Floral Committees, at South Kensington.
WEDNESDAY, DEC. 8.	Meeting of the National Chrysanthemum Society at the Royal Aquarium, Westminster.
THURSDAY, DEC. 9.	National Rose Society: Annual Meeting at 1, Henrietta Street, Covent Garden, W.C., at 3 P.M.

SALES.

MONDAY, DEC. 6.	Sale of Dutch Bulbs, at Stevens' Rooms. Sale of Dutch Bulbs and 5000 Liliun auratum, at Protheroe & Morris' Rooms.
WEDNESDAY, DEC. 8.	Sale of Roses, Fruit Trees, Shrubs, Border Plants, Dutch Bulbs, &c., at Stevens' Rooms. Sale of 3000 Liliun auratum, Plants, Roses, &c., at Protheroe & Morris' Rooms.
THURSDAY, DEC. 9.	Sale of Imported Orchids, and 10,000 Liliun auratum, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
FRIDAY, DEC. 10.	Sale of a large Importation of Cattleya Lawrenceana, at Protheroe & Morris' Rooms. Sale of Roses, Fruit Trees, Shrubs, Border Plants, Dutch Bulbs, &c., at Stevens' Rooms.
SATURDAY, DEC. 11.	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.

The Potato
—Centenary
—Televation.

The collection in the building euphemistically called St. Stephen's Hall, is decidedly interesting. As to the exhibition of the noble tubers that does not present much novelty or any special interest. It is spoken of in another column, so that here we need no more than make passing reference to it. The chief interest undoubtedly lies in the extensive and varied collection of books, maps, and engravings relating to the naval heroes of Queen ELIZABETH'S time, such as the RALEIGHS, DRAKES, HAWKINS, in the course of whose wanderings, and perhaps from the pillage of Spanish ships, the "Papas Peruanorum" was introduced into Europe. Side by side with these are the works of CLUSIUS, GERARD, BESLER, and other botanists of the sixteenth and seventeenth centuries; while Mr. BAKER'S coloured drawings aptly illustrate the botany of the Potato in this present year of grace, and Mr. SMITH'S diagrams illustrate the diseases to which it is heir. The history of the introduction of the Potato, it will be remembered, was discussed at great length in our columns in the spring by Mr. W. S. MITCHELL.

Possibly, one result of the conference may be to clear up some of the points still left doubtful, and almost certainly another result will be to add to our existing knowledge on the subject. Mr. CLEMENTS MARKHAM, for instance, shows some books and reprints of manuscripts not known to botanists, still less to Potato cultivators, and which are of great interest as showing how extended was the cultivation of the Potato by the native Peruvians and Chilians anterior to the Spanish conquest—how long anterior it is impossible to say, but it must have been for many centuries. One of these books, by GARCILASSO, contains an account of Potato cultivation by the Incas, and another includes a vocabulary of names in the now extinct Chibcha language. The Spanish priests and others collected vocabularies of native words, some of which have been reprinted in our own times. One such work—the *Gramatica, o Vocabulario . . . de la lengua Chibcha*, por Don E. URICOECHA—contains nine or ten names applied to different varieties of Potatoes, such as *Papa turma de tierra*, *amarilla*, *ancha*, *arenosa*, *blanca*, *grande*, *larga*, *menudilla*, *negra*, and *negra por dentro* (black inside).

These names prove that there were varieties then as now, differing in flavour, size, colour, and in the character of the soil in which they grew. The Chibcha language was spoken around Bogotà.

Another book (referred to but not exhibited) is a dictionary of the Aymara language in Southern Peru, compiled by BERTONIO. In this work we are told that no fewer than eleven varieties are mentioned. These facts are of great interest intrinsically, and they serve to explain the difficulty experienced in ascertaining beyond dispute what was the real starting point of the Potato as we now know it. Some interesting relics of RALEIGH are shown, together with photographs of his house at Youghal, Cork, now the residence of Sir JOHN POPE HENNESSY. "My Oriel" as RALEIGH mentions in his letters to Queen BESS, is still in existence, and the identical spot is photographically represented where tradition alleges that RALEIGH grew his first crop. Be that as it may, it is interesting to see Potatoes grown from the same garden in this present year of grace, with a spray of the Yew under which he may have sat, and to note the primitive looking tools still in use by the Irish peasants—tools which, in form, carry us back to the Bronze Age.

The question as to the exact species, variety, or form experimented upon by Messrs. SUTTON at Reading, will no doubt come under consideration. The substance of Messrs. SUTTON'S statement has been given in a previous issue, and in support of their allegation that a mistake has occurred they adduce Lord CATHCART'S evidence, which is before us as we write, and, what is more to the point, they rely on their own personal observations at Kew, and on the remarkable experiments with cuttings as shown recently by them to a party of experts. That a mistake has occurred somewhere, it seems impossible to doubt, but it is not clear exactly where it occurred. Messrs. SUTTON'S evidence seems to us quite conclusive on this point. Mr. BAKER, on his part, energetically protests against the notion that any mistake was made by him; so the matter may well be allowed to rest.

Another season, Messrs. SUTTON can repeat their experiments with true Magia, free from any possible doubt. The interests of individuals or establishments are, after all, only incidentally involved. It is the interests of science that are paramount, and through them those of practical utility. The reputation of Mr. BAKER as a botanist is beyond serious criticism, though he, as a man of science, would be one of the very last to claim anything like infallibility, and Messrs. SUTTON can perfectly well defend their own well earned reputation.

—EUPHORBIA GRANDIDENS.—The Succulent house at Kew serves to give some idea of the appearance of the giant Euphorbias, Cacti, and Agaves, but excellent and interesting beyond measure as is that collection, when the circumstances of the case are considered, it is clear that it must be only suggestive. What house could contain such a specimen as that we now figure (fig. 139), from the estate of Mr. RANDLE, of Sydenham, Durban, Natal, where the plant is growing under the care of the gardener, Mr. CLAPHAM? The figures of the Caffirs in the foreground convey some idea of the magnitude of this Spurge—an impression that will be intensified by the inspection of the natives in the branches. The spread of the branches, indeed, as we learn from Mr. ADLAM, is no less than 35 yards, and the girth of the tree about 12 feet.

—HORTICULTURAL AND AGRICULTURAL EXHIBITION AT TRONDHEIM, 1887.—The eighth general exhibition of the productions mainly of Sweden, Norway, Denmark, and Finland, will take place on July 4, and last till the 10th of the same month. Delegates from foreign countries requiring lodgings must state their requirements to the "Landbruksmedete Indkvarteringskontor," in Trondheim, Norway. The programme is very comprehensive, and the show should be well deserving of a visit.

—FRAU THERESE KOCH.—We regret to hear of the decease, after long suffering, of the widow of

the late Professor KARL KOCH, of Berlin. Frau THERESE KARL KOCH died at Berlin on Nov. 26, in her sixty-ninth year.

—EDWARD SPARY.—A suggestion has been made to us that an attempt should be made to alleviate the distress of EDWARD SPARY, of Brighton. He has fallen into misfortune, but as the boy who, as we are informed, was the first stoker of a horticultural boiler, he deserves practical sympathy from those who have profited by heating by hot water. It is related of him that he saw a shoulder of mutton cooked for a wager in an ordinary stable pail at a roadside inn near Bath, and from observation of the bubbles rising from the bottom of the pail to the top, the idea was suggested to Sir A. BRADY that hot water could be made to circulate in pipes, and SPARY was, as we have said, the stoker. We tell the story as it is told to us, and need not enter into discussion on the matter, the practical point being, who will help SPARY? We have a promise of a small subscription, and if others come forward we will do our best to help the matter on.

—CERTIFICATED POTATOS "KING OF RUSSETS" AND "FREEDOM."—We are informed by Mr. LYE that he has disposed of the entire stock of these two high-classed Potatoes to Messrs. JAMES CARTER & Co., of 237, 238, High Holborn, W.C., who will, in due course, distribute them.

—LIVE PLANTS FOR THE CONTINENT, AND THE PHYLOXERA REGULATIONS.—We are pleased to be enabled to publish the following letter on this important subject, from Messrs. PITT & SCOTT, Foreign Carriers, 23, Cannon Street, London, E.C. 1:—"Your readers who may be forwarding live plants with roots to the Continent should, before the same are packed, take care to first comply with the regulations imposed by the respective foreign Governments, which require the sender to make a declaration before a magistrate, to the effect that the plants in question are perfectly free from Phylloxera. The magistrate's signature requires afterwards to be verified by the nearest Consul, or Consular Agent of the country to which the plants are going. We will supply the necessary forms and instructions free on application. We have had many instances of delay and disappointment, through persons sending plants off to us, without first complying with these regulations. These declarations are required for France, Belgium, Holland, Switzerland, and Italy. Live plants are prohibited from importation into Germany from the United Kingdom.

"DECLARATION.

"I, _____, do solemnly and sincerely declare that the [case, bundle, or bag] marked _____ shipped by me per the _____ to _____ contain as follows [state full particulars of contents], all of which [shrubs, roots, trees, plants, or seeds] are set forth and described in the annexed invoice, marked (____). And I further declare that the whole of said [shrubs, roots, trees, plants, or seeds] are perfectly free from the pest known as Phylloxera. And I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Statutory Declarations Act, 1835. Subscribed and declared at this _____ day of _____, 188 _____."

—NATIONAL AGRICULTURAL SOCIETY.—NATIONAL CARNATION AND PICOTEER SOCIETY.—We are informed by Mr. DOUGLAS, Great Gearys, Ilford, Hon. Secretary, that the annual general meeting of the above Societies will be held, by permission of the Council of the Royal Horticultural Society, in the east crush-room of the Albert Hall, South Kensington, as soon after 12 o'clock as possible, on Tuesday, December 7. The business of the meeting will be—the election of officers and committee; the reception of the Secretary's and Treasurer's reports; the election of judges for the ensuing year, and any other necessary business as may pertain to the annual general meeting.

—DEVELOPMENT OF SILLOTH.—With a view to increase the convenience of the general public, and to induce builders to provide the much-needed further accommodation, the directors of the North British Railway Company have called in the advice of Messrs. LITTLE & BALLANTYNE, the well known Carlisle nurserymen, who have executed a plan for providing shelter and ornament, by breaking up the great stretch of greensward between the parade and the sea by ornamental belts, mounds, rockeries, and clumps of

flowering and evergreen shrubs. A public meeting has been held at Silloth, in order to support the movement of the railway directors, by resolving that a small rate be levied to provide funds for planting all the streets of the town with avenue trees, and thus give them the appearance of Continental boulevards.

Exhibition will not re-open next year the attention of the amusement-loving public will be undividedly directed to the American Exhibition, to be opened May 2, 1887, at Earl's Court, Kensington. The Jubilee year, then, will be made additionally attractive by the enterprise of our Yankee cousins in coming

— ROYAL HORTICULTURAL SOCIETY OF ABERDEEN.—The annual meeting of this Society was held on Saturday evening, 27th ult. There was a large attendance of members, and Councillor LYON, chairman of the acting directors, presided. The Secretary, Mr. A. M. BYRES, Aberdeen, read the



FIG. 139.—EUPHORBIA GRANDIDENS IN NATAL. (SEE P. 720)

The trees will be planted 30 feet apart, and will line each side of the whole of the streets. They will consist of Sycamores, Norway Maples, Elms, Chestnuts, Limes, &c.

— THE AMERICAN EXHIBITION.—Now that it is definitely settled that the Colonial and Indian

across the ocean to submit for our inspection, criticism, and haply our approval, the results of their last half century of industry. Already a large number of men are at work on the grounds at Earl's Court. Preparations are being pressed forward in every way, and the main building is in process of construction.

directors' report as follows:—"In submitting the annual report for 1886, your directors desire to express the thanks of the Society to Her Majesty the QUEEN for the handsome prize which Her Majesty has been graciously pleased to continue this year. The best thanks of the Society are due to the Right Hon. the Earl of ABERDEEN, Sir WILLIAM CUNLIFFE

BROOKS, Bart., M.P.; Sir FRANCIS GRANT, Bart., of Monymusk; J. H. BOTT, Esq., Sutton Hall, York; the Town Council of Aberdeen, Lord-Provost HENDERSON, ex-Lord-Provost MATTHEWS, and others, for their contributions to the prize list. The total income for the past year amounted to £369 15s. 7d., and the expenditure to £333 17s. 3d., leaving a surplus of £26 4s. 4d. to be deducted from the adverse balance of £41 16s. brought forward from last year, thus reducing it to £15 11s. 8d., which sum the directors are hopeful will be wiped off next year. A letter was read from Sir FRANCIS W. GRANT, Bart., of Monymusk, intimating the presentation of a silver cup, value £5, for the best table of plants for next year's show.

— M. CAMILLE DOGNIN.—All visitors to Cannes have heard of, and many have seen, the gardens of M. DOGNIN at Valletta-Californie. The garden, indeed, formed one of the attractions for plant lovers visiting the French Riviera. We now learn of the death of this eminent horticulturist. Having accumulated a fortune in business in Central France, he settled at Cannes, because, as he said, that was the only country in which he could at his age engage in planting. With this object he selected the district known as California, for even at Cannes the climate varies according to locality, and the spot chosen by M. DOGNIN enjoys perhaps the mildest climate of all. In the garden created by him in a previously sterile region M. DOGNIN collected together illustrations of the vegetation from all countries which would be likely to thrive out-of-doors on the shores of the Mediterranean—Palms, Tree Ferns, Agaves, succulents, and, indeed, plants of all kinds suitable to the climate. Not only were the plants well selected and well cared for, but great pains were taken with their arrangement in picturesque manner. The *Midi* relates how M. LINDEN paid these gardens a visit, and said to the proprietor—"Sir, I shall pay you no compliment nor utter any eulogium—you must have received so many as to be no longer capable of appreciating them; but, I may assert your claim to have collected in your garden, in the open air and in good health, a larger number of plants than can be cultivated elsewhere in Europe without protection." M. DOGNIN thus contributed very largely to the introduction and acclimatization—if that word may be permitted—of plants along that favoured coast. M. DOGNIN's labours find an eloquent and grateful exponent in M. A. CONSTANT, the President of the Horticultural Society of Cannes.

— NEW EXHIBITION RUNNER BEAN.—What with the Champion Scarlet Runner, the Girtford Giant, the Wiltshire Giant, and Ne Plus Ultra—all fine, long, and large podded types of the Scarlet Runner Bean—there appears to be no lack of exhibition varieties. But a new claimant to public favour comes to us from Holland, known as Vancels's White Princess, a giant long-podded variety without strings, a higher productive and remarkable new variety, with very fleshy and soft pods, 20 inches in length, really without strings, and which are to be eaten with the husk. Here is the Bean of the future! Ne Plus Ultra has to face the advent of one far beyond it in the scale of promise. But what of the performance? We shall see.

— A DOUBLE WHITE PHLOX DRUMMONDI.—This is one of the novelties that Mr. ERNEST BENARY, of Erfurt, announces for this season. It is the first really double Phlox ever offered to the trade, and it is believed that it will prove the progenitor of a new class of one of the most popular and showy annuals, and in the case of this particular novelty it is not merely a tendency to become double which is apparent, but, on the contrary, more than half of the seedlings, at least, produce a profusion of charming densely double pure white flowers. This Phlox originated in the United States of America, and it is from a personal inspection of its merits while on a visit there that Mr. BENARY has been induced to offer it.

— THE SURVEYORS' INSTITUTION.—The next meeting will be held on Monday, December 6, when a paper will be read by Mr. E. RYDE (Past-President), entitled "The Tithe Question, with Suggestions for the Redemption of the Rent-charge," which will be followed by a discussion on the paper, and on the

paper entitled "Extraordinary Tithe and the Redemption Act of 1885," read by Mr. J. W. WILLIS BUND (Associate), at the meeting of Monday, November 22.

— BOTANIC GARDENS.—From a report of the Montreal Horticultural Society we learn that there are 197 gardens of this character, distributed as follows:—Great Britain and Ireland, 12; British colonies, 27; Germany, 34; France and colonies, 25; Italy, 23; Russia and Siberia, 17; Austro-Hungary, 13; Scandinavia 7; Belgium, Holland and colonies, Spain and colonies, United States, 5 each; Portugal and Switzerland, 3 each; Denmark and Roumania, 2 each; Brazil, Chili, Ecuador, Egypt, Greece, Guatemala, Japan, Peru, Servia, each one—total, 197. The list is not complete, though sufficiently so for the purpose; Geneva, Louvain and some of the Indian gardens are omitted. Of the gardens named about half are maintained by the state—about 18 per cent. by universities, either alone (5 per cent.), or in association with the state or municipality; 11 per cent. are maintained by the municipalities, and 5 by private donations; 94 per cent. grant free admission; 70 per cent. are open on Sundays; and 73 per cent. publish reports or in some way contribute to scientific research. The Montreal garden itself seems to have made a fair start, and as it is capable of doing such good service we earnestly wish it success. Most botanic gardens fail in their duties as regards instruction in horticulture. The science of horticulture should in such an establishment receive as much attention as the science of botany itself. If a botanic garden is to confine itself simply to the cultivation and diffusion of ornamental plants, no doubt the work could be as well done by commercial establishments, but the botanic gardens should be in each district the head centre of applied botany including agriculture, horticulture, pomology, and forestry.

— THE PHILADELPHIA FLORISTS' CLUB.—This club having been hospitably and sumptuously entertained by Mr. G. W. CHILDS, at Wootton, presented the host, in acknowledgment of his kindness, with a magnificent bronzed iron vase, the dimensions of which, according to the *American Florist* are 7 feet 4 inches in height, the bowl being 8 feet in diameter. It is placed on the lawn in front of the house, and is an appropriate and handsome object.

— ACACIA FISTULA.—According to Dr. SCHWEINFURTH, in the *Pharmaceutical Journal*, the Acacia fistula, which grows in dense groves in Nubia, is known among the natives as the "whistling tree." It owes its name to the fact that a gall insect selects for the site of its operations the ivory-white shoots, which the development of the larva distorts and causes to swell at the base into a bladder-like gall, about 1 inch in diameter. The insect upon emerging leaves a circular hole, and the wind playing upon the shoot is said then to produce a flute-like sound.

— NATIONAL CHRYSANTHEMUM SOCIETY.—On November 29 a largely attended meeting of the General Committee took place at the "Old Four Swans," Bishopsgate Street, R. BALLANTINE, Esq., Vice-President, in the chair. The Hon. Secretary having read a list of the extra and special prizes awarded at the recent show at the Royal Aquarium, they were duly approved; among them were the Silver Medal of the Society, to Messrs. G. BUNYARD & CO, Maidstone; and Mr. WILLIAM HOLMES, the Hon. Secretary, for extra exhibits. Communications were read from Mr. E. MAWLEY, recommending some important alterations in the schedule of prizes; from Messrs. WEBB & SONS, seed merchants, Stourbridge, offering to continue their special prizes for six dishes of vegetables at the next annual show, and considerably augmenting the value of their prizes; from Mr. WOOD, of Wood Green; Mr. COLCHESTER, of Ipswich; and Mr. FIELD, of the Old Kent Road, also offering special prizes. These were referred to the Schedule Sub-committee. Twenty-five new members were elected, bringing the numbers up to 399. Several protests against the awards made by the judges at the recent Aquarium show were considered and disposed of. It was announced that a private subscription had been opened and the sum of five guineas had been subscribed to be presented on the occasion of the annual dinner to Mr. C. GIBSON, of Morden Park,

Surrey, in recognition of the splendid stand of forty-eight blooms he exhibited at the Royal Aquarium, which were a long way first in the premier class, but had to be disqualified through an unfortunate oversight. The date of the annual dinner was fixed for Monday, December 13, on which occasion the prize-money will be paid. Subject to the approval of the annual general meeting, the November exhibition in 1887 was fixed for Wednesday, the 9th, and Thursday, the 10th, of that month. The meeting closed with the usual vote of thanks to the Chairman.

— MR. AYRTON.—The death is announced of this gentleman, best known to readers of this journal for his conduct towards the then Director of Kew, and toward men of science and art generally. *De mortuis nil nisi bonum*. It is sufficient to say that Mr. AYRTON's motives were laudable, and that his attacks upon Kew and its management really contributed very much indeed to raise the establishment and its staff in public estimation.

— ALLOTMENTS.—As a supplement to the agricultural returns given at p. 683 we give the following:—In other allotment tables we find the number of labourers having ground for Potatoes in June, 1886, is stated to be—in England, 80,045; Wales, 13,263; Scotland, 17,838; making a total for Great Britain of 111,146. It is further returned that in Great Britain there are 134,932 allotments or field gardens (excepting railway allotments) of under one-eighth of an acre; of one-eighth and under a quarter of an acre there are 117,766; and of a quarter and under a acre, 105,097. The returns of allotments of from 1 to 4 acres (both inclusive) are divided as follows:—Arable land, 19,071; pasture land, 12,330; partly arable and partly pasture land, 531—showing a total of 36,722. As for those granted by railway companies to their servants it was found that in June, 1886, in Great Britain there were 33,385 of under one-eighth acre, 4160 of one-eighth and under a quarter of an acre, 1570 of a quarter and under 1 acre, 310 of 1 to 4 acres (both inclusive), making a sum-total of 39,425 (which includes 350 allotments on the London and North-Western line which are held by others than the company's servants).

— PROPOSED PRESENTATION TO MR. W. HOLMES.—We understand that it has been decided that the presentation of a testimonial to Mr. W. HOLMES, Hon. Sec. of the National Chrysanthemum Society, shall take the form of a silver centrepiece with two side tazzas, for the table. These will be accompanied by an illustrated address. The presentation will probably be made to Mr. HOLMES on the occasion of the Society's annual dinner.

— PUBLICATIONS RECEIVED.—*The Chemist and Druggist*, No. 344. (London: 42, Cannon Street, E.C.)—*The Apple and Pear as Vintage Fruits*. By ROBERT HOGG, LL.D., &c.; H. G. BULL, M.D., &c. (Woolhope Naturalists' Field Club: JAKEMAN & CARVER, Hereford.)—*The Insurance Year Book*, 1887. (London: SIMPKIN, MARSHALL & CO.)—*The Band of Mercy*, vol. viii.; also *The Animal World, an Advocate of Humanity*, vol. xviii. (London: S. W. PARTRIDGE & CO., 9, Paternoster Row, for the Royal Society for the Prevention of Cruelty to Animals.—*Charity*. (London: WYMAN & SONS, 74, 75, 76, Great Queen Street, W.C.)

— GARDENING APPOINTMENTS.—Mr. LOWRY, late Gardener to JAMES MACANDREW, Esq., Belmont, Mill Hill, has been appointed successor to the late Mr. SARGESON, who was Head Gardener for forty-one years to Sir H. F. DE TRAFFORD, Bart., Trafford Park, Patricroft, Manchester.

THE HISTORY OF A VIOLET.—The mosque at Adrianople, says a writer in the *Daily News*, has a legend connected with a stone Violet plant which is carved over its fountain. A poor man, who owned part of the ground over which the mosque is built, refused to sell his land unless a Violet, which had been planted by his wife, was allowed to bloom upon it. The Sultan accepted the condition, and the Violet was carefully raised and tended, but in time it died, and the sovereign ordered that a fountain should be erected on the spot where it had blossomed, and that a stone Violet should be carved upon it as a symbol of marital constancy.

Notices of Books.

Life Histories of Plants. By Professor D. McAlpine. (Swan, Sonnenschein & Co.)

The first chapter of this volume contains an interesting account of the relationships existing between plants and animals, and between morphology and physiology. The author, while acknowledging that the two departments are naturally inseparable, evidently leans to the physiological side of his subject rather than the morphological. His aim, as he tells us, is to study the plant as a living thing, and as a dead carcase. This is well: but in his desire to exalt physiology he surely detracts from the importance of morphology by speaking of it merely as "a matter of mechanism," while he mixes up physiology with morphology when he goes on to say that it (morphology) reveals "nothing higher than a combination of mechanical movements, harmonious in action and beautiful in execution." The harmony of action and the beauty of execution are surely matters of physiology.

To speak of morphology merely as a matter of mechanism is to ignore hereditary descent and consanguinity, to set aside progressive variation, adaptation, reversion, or degradation. Morphology is not satisfied with a knowledge of things as they are, but seeks to know them in relation to other things and to their surroundings, and it endeavours to ascertain how things became as and what they are, while it seeks the aid of physiology to know the aim and present purport of morphological appearances. In tracing the several existing groups of plants and animals the author starts with simple protoplasm, from which two main groups were formed, distinguished by their different modes of feeding, and then "the plant having acquired its green colouring matter or chlorophyll, was enabled to live independently upon the inorganic material around it." The Professor does not, nor could he, tell us how the plant first acquired its green matter, and yet from the tone of his language, if not from his very words, it might be inferred by the student that there was no mystery about it. From this beginning the author passes on to the higher groups of plants, distinguishing in each group, or in each organ, such as the root, an elemental or rudimentary type, a typical or fully developed condition with modifications by excess or defect, according to circumstances.

In his comparative classification he brings into clear relief the differences in plants according to the number of distinct stages through which they pass—neutral, bud-forming, spore-bearing, or sexual. A study of Professor Caruel's *Morphologia Vegetale* is of great importance from this point of view.

Professor McAlpine's book is well adapted to the requirements of those who desire to get a good general view of plants and of their mode of life; but there is in this, as in most modern botanical books, an absence of systematic method and arrangement, which renders them difficult to consult. A terse diagnosis is no doubt artificial and dogmatic rather than scientific, but it is as useful to a student as an index or a table of contents.

Professor McAlpine's book, moreover, is destitute of any index, and the illustrations are mostly old friends from Sachs or other sources; nevertheless, for the purposes we have indicated, the book is in the main well adapted, and we may commend it for its freshness and modern spirit, which renders it abreast of the times.

Colonial and Indian Exhibition, 1886: Empire of India. Special Catalogue of Exhibits by the Government of India and Private Exhibitors. (London: Clowes & Sons.)

Amongst the last, if not actually the last, to appear of the several handbooks and catalogues of the late Colonial and Indian Exhibition was that referring to the empire of India. Considering the extent of space occupied by the exhibits in the Indian section, and the great variety and extent of those exhibits, it would be natural to expect that the catalogue would be one of considerable bulk, and that this is so proved by the present volume extending to 317 pages. The book, which is full of valuable information of a very varied character, is especially valuable for its "Guide to the Economic and Commercial Court," and for that to the "ethnological models and exhibits

shown in the Imperial Court," both of which have been prepared by Dr. George Watt, the special officer in charge of the Economic Court. Under the first head the several subjects are treated in the following order:—Timbers, fodder and cattle foods, human food in times of scarcity, vegetables, tubers, bulbs, roots and stems, fruits, nuts, condiments and spices, pulses, grains, sugars, starches, and toddy, narcotics and stimulants, drugs, fibres, oils and oil seeds, gums and resins, extracts and inspissated saps, dyes and tans. Under each of these heads the plants yielding them are arranged alphabetically, according to their scientific name. As an illustration we may quote a paragraph, taken hap-hazard from the section "oil and oil seeds," thus:—

"OLEA FERRUGINEA, Royle: Oleaceae.—In Afghanistan an oil is obtained from this tree which would doubtless take an important place in the oil trade were it procurable in large quantities; it is as good in quality as the ordinary Olive oil. The Olive tree, *Olea europea*, Linn., has been introduced in the hills, and there seems no reason why India might not take a place amongst the countries which supply the Olive oil of commerce. Olive kernels yield 44 per cent. of oil, and Olive pulp 39 per cent."

This example of the way in which each product is treated will show the plan and scope of the book, for not only is information given as to the uses and commerce of the several plants, but suggestions are often thrown in as to the probable value of any given product as a new article of export. This will cause the book to be of special value in the hands of commercial men. The arrangement also of the products in groups will have the same advantage, and in the case where one or more product is yielded by the same plant the cross references from one to the other will be particularly useful, and indicates that much care has been given to its compilation. Sufficient has been said to show that the catalogue of the empire of India, though appearing last, is certainly not the least important of the many catalogues and handbooks that emanated from the recent Exhibition; indeed, we may say that it is both the best and cheapest book that has appeared, and those not interested in raw products will find more than a shilling's-worth (the price of the book) in the second part, which is devoted to the ethnological models and exhibits, for in this are excellent and readable descriptions of the several tribes and their productions.

THE NURSERY ON HARLOW MOOR.

CLOSE to the beautiful town of Harrogate, the favourite health resort of the North, lies Harlow Moor, which is a large expanse of land covered with Heather and Scotch Firs. From the summit of the Moor, which is about 500 feet above the level of the sea, very beautiful views are obtained of the surrounding country. The Scotch Firs make an excellent shelter, and, covering several acres, have a very fine effect. One would scarcely expect to see a thriving nursery garden on the very summit of the Moor, but such is the fact, and in Mr. Batchelor's hands it is rapidly extending. By great labour and perseverance some useful land has been cleared and brought into cultivation. Mr. Batchelor finds Roses do well here. His stock this season is very fine: both standards and dwarfs are good. Mr. Batchelor intends going in largely for Roses. Rhododendrons also do very well here, getting plenty of the breezy air of Harrogate. The plants show great vigour and robustness. He already has a fine stock of all the best named varieties, and intends going in largely for them. He intends working a great many this next season. Most kinds of hardy evergreen trees and shrubs do well in the soil here. In a wide border on each side of the road leading from the bog fields to the Moor, there are a great many choice trees and shrubs growing most luxuriantly. The common Laurels even on the very summit of the Moor thrive wonderfully well, and rarely suffer from the severe frost, and so with nearly all hardy trees and shrubs, they rarely suffer here from the severe frost of winter.

The light bright breezy dry air of Harrogate is most favourable for ripening the young wood, which in consequence rarely suffers from frost in severe winters. Carnations and Picotees seem to do well, and of these there is a large stock; there are many useful things among hardy plants. But besides a general outdoor nursery

stock, Mr. Batchelor has a good business in cut flowers and decorations. To meet the demand for flowers and plants, interiorly a considerable amount of glass is provided, every part of which is made the most use of that it is possible to do. There is a houseful of Gardenias, one of *Adiantums*, also one of *Azaleas*: together with some fine *Camellias*, *Indianrubber* plants, a quantity of young *Palms*, *Heath*, *Gonistas*, and *Hydrangeas*. Mr. Batchelor has a house chiefly of *Roses*, a quantity of *Teas* being planted in the houses to keep up a supply of flowers. On the rafters of some of the houses there are *Lipagarias*, both alba and rosea, also *floribunda*, and a great variety of other plants. Visitors to Harlow Heath should not fail to visit Harlow Nurseries; they will find many things there to interest them.

PARIS.

THE LOTTERY FOR THE PARIS GARDENERS.—As we have previously announced, among the plans for assisting the market gardeners and nurserymen so severely tried by recent hailstorms was a tombola, or lottery. Numerous contributions of works of art, pottery, plants, seeds, flowers, fruit, wines, engravings, photographs, &c., were made. The Syndical Chamber of Belgian Horticulturists sent more than a thousand plants. The sale of these varied articles realised about 8,000 francs, which was handed over to the National Horticultural Society. Twelve thousand tickets were sold, and 998 lots of articles were disposed of.

PARIS EXHIBITION 1889.

M. Alphand is, we are informed, engaged in organising the staff of the Paris Exhibition of 1889. M. Bartet, chief engineer of the promenades of Paris, and M. Rafarin, one of the city horticulturists, are charged with the management of the horticultural department.

THE POTATO EXPERIMENTS AT READING.

AGAINST the statement that any mistake has been made at Kew I desire to protest energetically.

What has really happened is as follows:—In the summer and autumn of 1883, at the instigation of Earl Cathcart, I took a great deal of pains to work out the characters and mutual relationships of the different wild types of tuberous *Solanums*. In a paper read before the Linnean Society in January, 1884, I gave the characters and geographical distribution of about twenty wild types, classifying six of them as species and the remainder as varieties. Lord Cathcart asked more especially for any suggestions likely to be of economic use, and what I suggested was that each of these wild types should be separately individualised, and its economic value tested. At that time we had at Kew in cultivation three of the types described, namely, *tuberosum*, *Maglia*, and *Jameisii*. *Jameisii* grows very palatable tubers, but we never have got them larger than small marbles. Of our single *tuberosum* form the fully developed tubers are oblong, 4 or 5 inches long, with a thin smooth reddish-brown skin, and they weigh several ounces. It was that autumn that I first made out from the descriptions in the books and the dried specimens in the herbarium, that a form that Mr. P. L. Slater had given us in 1862 was identical with the Chilean *Solanum Maglia*, as described by Dunal in De Candolle's *Prodromus*, and that the well-known plant figured by Sabine in the fifth volume of the *Transactions of the Horticultural Society* was also *S. Maglia*, and not *S. tuberosum*, as Dunal had stated. Lord Cathcart did not ask for any tubers of *S. Maglia* to experiment upon. At that time I do not believe that any of the English cultivators had so much as heard the name mentioned. I sent him, entirely on my own responsibility, a few tubers from this plant of Mr. Slater's. I was then working at the paper and writing to him about Potato matters, frequently, comparing ideas as we plodded on, step by step. I remember as distinctly as if it were yesterday sending him these said tubers. They were not so large as we sometimes get them, for the best, raised that year, had been already given away. There were six or eight of them, not larger than Walnuts; and round, and very wrinkled, by being kept some time in a dry dish,

the whole lot were packed in a small box, that was sent by letter, and perhaps weighed a couple of ounces. The whole box with its contents did not weigh as much as a single average tuber of our tuberosum, and that year we had saved no tubers of tuberosum at all. I brought the tubers over myself from the herbaceous ground to the herbarium, and I packed and directed the box to Lord Cathcart with my own hand. I speak, therefore, about a matter on which I have full personal knowledge when, I say, that Mr. Arthur Sutton's statement, that tubers [as grown at Kew] of tuberosum were sent to Lord Cathcart instead of those of S. Maglia, is incorrect.

What does Mr. Arthur Sutton know about the matter which he is speaking about so confidently? He had nothing to do with the criticised transaction whatever. He did not enter upon the scene till a year later, when the tubers had been a year out of my hands. He did not know that his Reading Maglia differed in any way from our Kew Maglia till I told him so myself this summer, when the tubers had been out of my hands three years. And now, because at the end of three years there is an appreciable difference between the Reading and the Kew types he jumps at the conclusion that the Kew people must have made a blunder, without taking time to consider whether the fact may not have some other explanation. It does not follow in the least, that because the two types are appreciably different, that the Kew people must have made a blunder. In those three years an accident may have happened to the tubers. We all know how easily such accidents happen in large gardens where many hands are employed. Botanical experiments of this sort are best carried on in small gardens, where the master is a man of leisure, and can look carefully after everything himself. I have no special reason to believe that in this particular case an accident has happened. In three years such a plant as a Potato that has always been grown in poor soil may be altered materially by being transferred to rich soil. This, to my own mind, is the most probable explanation of the difference that exists between the Kew type and the Reading type. M. Alphonse De Candolle, who has lately written a paper on the subject, and whose authority is of the very highest value, has in this recent paper, written after full study of my own paper and the *Botanical Magazine* figure of Maglia, whilst separating as species some of the forms I had classed under tuberosum, classified Maglia as a variety; and what he means by a variety is a form that differs from the type extremely little. Since 1883 we have ourselves at Kew grown S. Maglia in richer soil than before, and one of the characters which I relied upon as differential—the absence, in S. Maglia, of little leaflets intercalated between the big ones—has to some extent broken down. But, rejecting either of these two very probable explanations, Mr. Arthur Sutton has invented a third hypothesis—that the Kew people must have made a blunder. I think he has shown a want of care and consideration for other people in allowing a mere hypothetical suspicion to be treated as a fully ascertained fact, and instigating its dissemination as a fact in various newspapers. I am very sorry to have to write in this way about a man from whom I have received much help and kindness, but when an average reader of the *Times* or *Daily Telegraph* stops one of us in the street and asks if it be true that Suttons, of Reading, have grown a wonderful new Potato, and found the Kew people out in a blunder, it is perfectly impossible to make him understand what has really happened; and unless this story be explained now, when it first shows itself in black and white, it will soon pass into an accepted belief.

It is just one illustration more of the fact how easily things get misrepresented. The whole foundation of this new departure in Potato experimentalism was my own planning. Everybody at Kew has done everything that could possibly be done to help the matter forward; we have grown as many of the distinct types as we could get together; Sir Joseph Hooker has figured S. Maglia and S. Jamesii in the *Botanical Magazine*; we have written and answered letters innumerable; we have given away many hundreds of duplicate tubers; we have shown everything we had most freely to Messrs. Sutton and every one else interested in the matter; and the upshot of it is, that to-day the newspapers are accusing us of carelessness in a chorus which the chief experimenter leads. J. G. Baker.

A FASCIATED ROOT OF POTHOS AUREA.

I HAVE received from Herr F. M. Braun, of St. Petersburg, an aerial root of *Pothos aurea*, which may throw some light on the origin of fasciation. This specimen has the ordinary aerial roots of these plants about 5–6 centimetres long and 4 millimetres in diameter, and is characterised by a sudden arrest of growth, in consequence of which it has become thickened, and has all at once grown very strong (see fig. 140). Shortly after another arrest seems to have taken place, but this time the result was different. The tip of the root became black and died, and just above the decayed point a new root was produced differing from the original one in its flat shape.

On this root, as it now lies before me, a thickened ridge may be traced running from the point of junction on the one side to close by the same point on the other side, so that the root gives one the impression of three roots joined together. Further down a modification is to be found in the central portion. For about 12 centimetres of length it separates from



FIG. 140.—FASCIATED ROOT OF POTHOS.

one of the sides, and grows like an independent root; some millimetres further separation from the other side root takes place, while the central part is distinctly seen to consist of two roots joined together. These remain united for a further distance of 5 centimetres, and ultimately divide into two.

At a later date a normal secondary root has grown out above the starting point of the fasciation. The explanation of the fasciation is in this case clear—sudden and excessive flow of sap. In consequence of this the tip of the root at first became destroyed. In the tissue found close under the tip, there occurred a very extensive cell-division, resulting in the starting of three or perhaps four growing-points close against each other. A separation of the adjacent roots could not take place on the one side on account of the closely packed growing-points, nor on the other on account of the rapid development of new cells, so that the newly started roots were produced entire from the primary root.

As by degrees the sap, which was originally concentrated in one spot, became more equally diffused, division took place, and the epidermal cells were able to develop over each division separately instead of forming one uniform layer over the whole root. As this occurred, as the equilibrium in the flow of sap became re-established, the normal secondary root was developed. *Udo Dammer, Berlin.*

The Rosery.

ROSE MARIE VAN HOUTTE AND GLOIRE DE DIJON.

OF the several trees which we grow in pots for cut flowers the first named is the most free to blossom at this season of the year. Our plants of this variety, at the present time situated in an unheated house, where they have the benefit of free ventilation, have not, owing to the mildness of the season, received a check, and are now well furnished—as they have been for weeks past—with buds in various stages of development. The unexpanded blossoms of this kind are excellent for cutting purposes, and especially at this time are they valued here, although *Eucharis*, *Bouvardias*, *Chrysanthemums*, and some other equally choice flowers, are forthcoming in quantity. Unlike the buds of many varieties, those of *Rose Marie Van Houtte* appear to withstand a considerable amount of damp without blemish, for although we have had an unusual long period of wet weather, their outside petals are free from decay, a defect which usually befalls many *Roses* which flower late.

Another *Rose* which is about to do us good service is *Gloire de Dijon*. We have a plant of this valuable old variety which was lifted in the spring of 1885, and planted in a house devoted to *Rose* culture. The plant when lifted was a strong one, having filled for two or three years a space on an outside wall. When taken indoors it was cut down moderately close to its base, and the ensuing summer it made numerous growths some 12 feet in length, the length of trellis-work; during the spring of this year these growths broke from almost every eye, and with but few exceptions they blossomed, producing such a mass of *Roses* as I have never seen equalled upon any one plant. Many were gathered for decorative purposes; in fact, it was a case of "cut and come again," without much perceptible thinning being observed. At the present time the plant is showing numerous buds from the points of the shoots laid-in this season, which will by mere preservation from frost yield a supply of flowers at a date when they will be invaluable. It has been remarked that this old *Rose* is too common to deserve root under glass, but no other in my opinion is more worthy of such a position. We have given its congener, *Reine Marie Henriette*, similar treatment with almost equal success. This variety, however, with us, is subject to mildew. I have read somewhere that it is a shy bloomer; such is not our experience of it, either in pots or planted out under glass. *Thomas Coomber.*

THE PARENTAGE OF THE ROSE LADY MARY FITZWILLIAM.

My attention having been called to the remark of "Wild Rose" in the *Gardeners' Chronicle* of November 6, 1886, p. 587, that the *Rose Lady Mary Fitzwilliam* is not a *Tea Rose*, I beg to state that I placed this *Rose* before the public as a seedling from *devoniensis*. I can prove this *Rose* to be a seedling from *devoniensis* on sworn evidence, corroborated beyond a doubt. I am bound to give this contradiction to "Wild Rose's" statement, or I must rest under the stigma of having willfully deceived the public. It now rests with "Wild Rose" to prove the truth of his assertion, or to withdraw it. *Henry Bennett.*

A NEW MIGNONETTE.

OUR illustration at p. 725, for which we are indebted to Mr. Cannell, gives a representation of a new variety of *Mignonette* recently sent out by Messrs. H. Cannell & Sons, of Swanley, Kent. The illustration fully explains itself, but we may add that a flowering stem was kindly forwarded to us for inspection by the firm, and on measuring it we found it to be over 24 inches in length! Another feature in this variety is the curiously twisted appearance of its flowering stems. (See fig. 141.)

HORTICULTURAL CLUB. — The next meeting of the Club will be held at the Club-room, Covent Garden Hotel, on December 7, when, after the dinner, Mr. T. FRANCIS RIVERS will open a discussion on "Pears and their Culture."

Orchid Notes and Gleanings.

ORCHIDS AT SUNBURY HOUSE.

THE number of specimens of Orchids here is both extensive and well grown, while in some instances the plants have attained enormous dimensions—a plant of Cattleya Mossiae, to wit, having upwards of sixty well-developed flower-sheaths. Among the many handsome species and varieties in blossom special mention may be made of Ansellia africana nitida, a splendid Orchid, dwarfier in habit, freer flowering, and more showy than the typical A. africana. This variety is worth careful and special attention, even in the most select collections. Several Dendrobies were in bloom, including D. Dearei, with its lovely droop-

O. Uro-Skinneri, Oncidium Forbesii, Polystachys pubescens, contributed a grand display.

In the Cattleya-house the Cœlogyne Gardneriana was flowering freely, carrying four spikes of its waxy white blossoms; Oncidium bicolor is an attractive yellow-flowered species, and is here well represented; the rare Saccolabium bellinum was doing better here than I have seen it elsewhere, the warmest end of the Cattleya-house evidently suiting its requirements, the plant being in robust health, and developing two strong spikes of bloom. Some species, generally difficult to cultivate, are here grown admirably; for example, Epidendrum bicornutum, E. Humboldtii, Coryanthes macrantha, Ionopsis paniculata, are all growing freely; but perhaps the most perfect example of successful cultivation is that of Renanthera coccinea, grown on stems of the Birch tree. I know that the practice is not a new one, as the late Mr. Speed, of Chatsworth, used to cultivate the plant in this

Vanda cerulea is also well grown in this garden. The plants are very healthy, and furnished with bright green leaves. One plant produced a handsome spike with twenty-three flowers. The temperature for this species should not be more than 50° to 55° during the winter months. After they have flowered they pass through their season of rest, and during winter do not require a very large supply of water. In our own garden we have at present seven plants (the whole stock) and every one of them has flowered as well this year as they did the last. They have been grown throughout in cool Cattleya-house temperature.

Dendrobium formosum is also here as a handsome specimen, with seven flowers on one spike. This is one of the most useful of Dendrobies; whose large handsome blooms last in perfection for three months. The plants require a high temperature and moist atmosphere when they are making their growth.

Dendrochilum Coddianum is a recent species, curious, and sufficiently distinct, but the flowers lack the delicate perfume of D. glumaceum, or the elegance of D. filiforme. It may be worth growing as a variety. It had produced but one spike on a moderate-sized plant.

Trichosma suavis is another singular Orchid that was in flower; it is not plentiful in cultivation, but it is sufficiently pretty to be worth growing. The flowers are white, and resemble some of the small-growing Cœlogynes; indeed, Lindley named it in the first place C. coronaria. It was first discovered by Mr. Gibson "upon trees in densely shaded woods near the summit of the hills" in the Chirra district of Khasia. He sent it to the Duke of Devonshire. The flowers have a sweet perfume, and are valuable on that account. J. D.

ORCHIDS AT STUDLEY HOUSE.

One of the best of recently formed collections of Orchids is that belonging to F. G. Tautz, Esq., Goldhawk Road, Hammersmith, which although situated so near to London, the plants appear to be in excellent condition. Mr. Tautz, who is an ardent lover of this family, takes great pains to learn the whole history, and to know thoroughly all about his plants, and has made, in a comparatively short space of time, a collection of the most valuable and select species and varieties. At the time of my visit, the following were in bloom:—Lælia elegans Wolstenholmei, Odontoglossum maculatum anceps, Lælia purpurata Russelliana, Cattleya Bowringiana, Lycaste Skinneri alba (with two flowers on a scape), Cattleya exoniensis (in bud), Cyrtopidium enanthum superbum, C. Leeatum superbum, C. microchilum, C. vexillarium, C. Schlimii, and C. S. album (a magnificent plant), C. conchiferum, C. calurum superbum, C. Sedeni superbum, C. concolor, C. virens, C. Spicerianum (in quantity), Cœlogyne Massangeana, Oncidium Forbesii, O. tigrinum, O. varicosum, Lælia pumila marginata, Trichosma suavis, Odontoglossum Pescatorei, O. crispum (very handsome forms), O. cariniferum, O. Roezii, Cattleya luteola, Dendrobium formosum giganteum, D. bigibbum, D. superbiens, the true autumn-flowering Cattleya labiata, C. Dormaniana, C. Gaskelliana, Cymbidium affine, the new Spathoglottis angustorum, and many others in sufficient numbers to make the flowering house especially gay and charming. In gloomy winter weather, these lovely Orchids are more appreciated, than is the case at other less dull times. The owner and his gardener (Mr. Cowley) work in unison, taking care that everything is properly done, the houses kept throughout in excellent order, and the plants free from insects of any kind.

Cyrtopidiums are a special favourite with Mr. Tautz, and this collection is as nearly complete as it is possible to make it; the rare C. Fairreanum is represented by a beautiful specimen, while C. Morganæ, C. Wallisii, C. Sanderianum, and C. Schrodære may be specially mentioned.

In the East Indian-house are some magnificent specimen Vandas and Aërides of the best species, such as V. Sanderiana, V. Lowii, V. suavis, V. cerulea, Aërides Houletiana, A. Lawrencei, A. Regnierii, a grand plant of the new Saccolabium coccinea, S. bellinum, Phaius tuberculatus, and the new Calanthe Sanderiana, the latter a beautiful example of good culture.

The Cattleya-house contains some magnificent specimens of C. Mendellii, C. Trianae, C. Warneri, C. Skinneri, C. S. alba, C. Percivaliana alba, C.

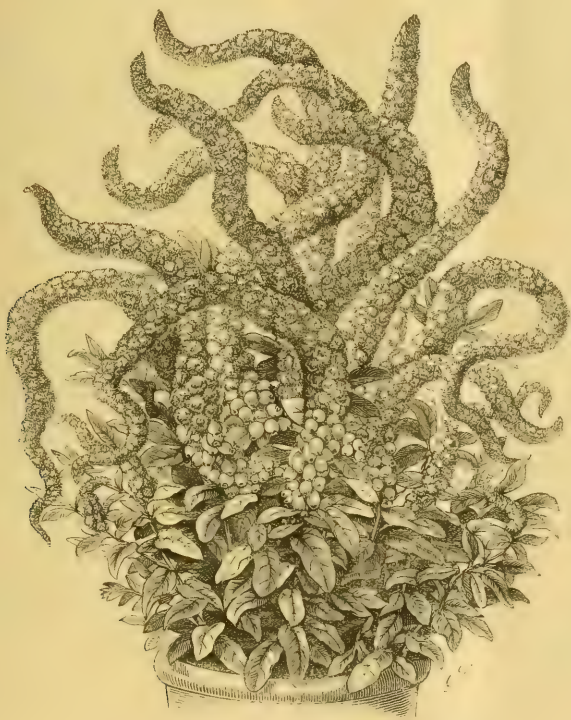


FIG. 141.—MR. CANNELL'S NEW MIGNONETTE. (SEE P. 724.)

ing spikes of white and green flowers; the handsome North Australian D. superbiens and D. bigibbum; D. formosum giganteum are well grown. Cyrtopidiums are largely grown, and include all the best known species and hybrids procurable. At the present time the most conspicuous in flower are the varieties of C. insignis and C. Spicerianum.

In the cool-house there are several pans of the lovely Pleione Burmanica, probably a variety of P. Wallichiana, and decidedly superior for decorative purposes. The varieties of Lælia pumila are special favourites of Major Lendy, and the best varieties of L. p. marginata I have ever seen was in bloom at the time of my visit. The same may be said of Odontoglossum roseum, a comparatively small growing species, but which, when well cultivated, is a gem, its crimson-violet shaded blossoms contrasting well with Odontoglossum crispum and O. Rossii majus, whilst quantities of the brilliant Sophronites grandiflora, the rare Masdevallia racemosa, the beautiful Oncidium Phalaenopsis, Odontoglossum blandum,

manner, and it is doubtless the best way of growing it, as in that position it roots abundantly, and grows freely. In this short notice I have mentioned a few only of the good things in this fine collection. G. J.

MR. COBB'S ORCHIDS.

Cattleya luteola.—This species is beautifully in flower in the garden of Mr. Walter Cobb, Silverdale Lodge, Sydenham. It is grown here, and also in Mr. Dorman's garden, under the name of C. Holfordii. Its correct name is C. luteola, being described by Dr. Lindley under that name in the Gardeners' Chronicle 1853, p. 774. There is a very correct representation of it in Bot. Mag., t. 5032. Mr. Cobb's plant has three spikes, on one of which there are thirteen flowers. It is one of the very dwarf growing Cattleyas which succeed best in pans or baskets suspended from the roof; moreover it is very distinct and pretty, the flowers primrose with an orange blotch on the lip.

Wagneri, C. Reineckiana, C. Morganii, C. nobilior, C. crispa Buchananiana, C. Trianae alba, C. Eldorado alba, Lælia callistoglossa, L. amanda, L. Perrii alba, L. euspatha, L. anceps Davidsoni, L. elegans Turneri (a superb variety), L. anceps Percivaliana, &c., all in fine order. *Catleya gigas* and its varieties are now resting in a temperate-house. Very little water will be given to this section for the next three months, but on their commencing to grow they will be removed to warmer quarters, and supplied with plenty of water until the flowers expand. This treatment was adopted with much success by Mr. Cowley when Orchid-grower to the Rev. Mr. Norman, of Edgware, and might doubtless be applied to some other species with good results.

It is quite a pleasure to see the *Phalenopsis*, with their large thick healthy leaves and network of fleshy roots. They are suspended from the roof of the stove, the side stages being occupied with ornamental flowering and foliage plants. *Angrecum caudatum* was growing freely and showing flower. A *Kotschyia* is a more difficult plant to cultivate, and makes but slow progress. *Dendrobiums* occupy a great amount of space, and consist of the choicest kinds, such as *D. signatum*, *D. nobile Cooksoni*, *D. Phalenopsis*, *D. endocharis*, *D. splendissimum*, *D. stratiotes*, &c.

The *Odontoglossum* house contains some good specimens and fine varieties; there is a large quantity of *O. vexillarium* in the best of health, the growths being sturdy and clean. *Masdevallias* and *Oncidium macranthum* occupy one end of this house, and are doing well; whilst magnificent specimens of *Cymbidium Lowianum*, the rare *Oncidium grandiflorum*, *O. incurvatum* album, *Miltonia spectabilis* bicolor, the white *Cœlogyne cristata*, *Sobralia zantholeuca*, and a host of others were observed. *L. G.*

HOME CORRESPONDENCE.

Chiswick Red Tomato.—"H. E.'s" praise of this is well deserved, for it is of sturdy growth and very free; but lest any one should be led to try it for outdoor cultivation, through the remark that "it needs less heat than the larger sorts" I would remark that my experience with it during the past summer on a south-west wall was anything but satisfactory. I found that it ripened very slowly indeed, probably on account of the thickness and toughness of the skin. Thin-skinned varieties are early ripeners, and they are the best for outdoor culture. The yellow-skinned varieties well deserve a trial. *West.*

Zonal Pelargoniums in Winter.—At the Chrysanthemum show held recently at Egham, a local gardener, Mr. Reddick, who makes such a striking and beautiful show of *Fuchsias* in the garden of his employer, Mr. Pice, of Egham, in the summer, exhibited six plants of zonal *Pelargoniums*, which were so beautiful as to merit the highest commendation. The plants were about 2 feet across, not more than 18 inches to the top of the bloom, which was so fine, rich, and perfect, as to fully equal if not to excel anything of the kind seen during the summer. These plants will remain, in a gentle heat, quite as beautiful for a month or more longer, and will carry flowers nearly all the winter. It is strange, having regard to the comparative ease with which really good specimen zonal *Pelargoniums* can be grown fit for exhibition in November, that societies do not more widely encourage their appearance at the Chrysanthemum exhibitions, to which they would lend such glorious hues. The kinds in question were the fine crimson, H. Jacoby, Scarlet Dr. Orton, and Mrs. Gordon, the latter a really fine flower; Woman in White, and Constance, pink, and singularly beautiful; and a pleasing violet shaded double, M^{me}. Leon Daboby. We sometimes see lists of kinds specially selected for winter blooming, but have rarely found any under proper treatment refusing to bloom well, and such is the singular refinement and finish given to the blooms under the dull winter sky that it is hard to tell which hues of colour are the most beautiful. Those who have visited Swanley in mid-winter, and there seen the houses of zonal *Pelargoniums* in bloom, have found it very hard indeed to declare which were the loveliest when all were lovely. It may be desirable to make selections which give free blooming and good habits of growth, but on the whole one kind when in bloom seems to be as acceptable as another. Many of our more recently introduced doubles have good somewhat habits now, and they are all the better suited for pot, and especially for winter pot culture. There is no special charm attached to the means of obtaining winter blooming plants. Spring-struck cuttings potted on as required during the summer, kept well pinched, and liberal watering, and especially good

outdoors from the beginning of June till the middle of September; should, when finally in 8-inch pots, have heads, some 15 inches to 18 inches over, and compact without requiring a single stick or tie to keep shoot or flower in place. The last potting should take place at the end of August, and by the end of October the plants will be in good bloom. A gentle heat, ample light, and careful attention when damp prevails, are the chief essentials to success. *A. D.*

Adiantum Farleyense.—I have never known this lovely Fern to have spores. I have grown plants to 6 feet in diameter, and have exhibited them that size, plants of it are now being grown by me yet I have never seen a sign of fructification, nor did I ever hear of anybody else who did. Your correspondent asks how the first man's seedling is to be accounted for. Adam would thus have to be communicated with—a matter of some difficulty; but, apart from joking, every seedling is to be accounted for, he would indeed have a gigantic work on hand. We all know that, in Ferns at any rate, they cannot be accounted for, though they frequently show signs of one parent at least. *Adiantum fragrantissimum* is an unknown seedling, but none the less beautiful. It is fertile. Why *Farleyense* is not I cannot say; but I do not point with certainty to its being a hybrid? I used to be told that it was an imported novelty when it first came out, and it might be, of course, and still be a hybrid. As an exhibitor I have dropped out of the ranks, but my enthusiasm is as great as ever, and photographs of my Fern treasures remind me pleasantly of past victories recorded in your columns, whilst medals and cups in abundance bear witness that I have been on many a battle-field. *T. M. Shuttleworth, F.L.S., F.R.B.S.*

"W. G.'s" inquiry as to the *Adiantum Farleyense* bearing spores is a question I have presented to more than once. I am not prepared to assert that it does definitely it does bear them, but I am under the impression it does so on very rare occasions, and that the spores are so minute that they are scarcely discernible to the naked eye. If they do not carry spores where do the seedlings come from? Like the gardener that "W. G." mentions about at p. 692, we found a seedling this spring or early summer in a pot in which a *Clivia* was growing, and which could not possibly have got there except by means of a spore. *P. J.*

In answer to the query of your correspondent, "W. G." on p. 692 of your last issue, I beg to inform him that though I have never seen a spore on this handsome Fern it has never been reproduced itself quite true from spores in my stove, the seedling having been found growing in the gravel under the heating pipes among a number of other self-sown Ferns some six or seven years ago, and having been carefully lifted into a pot, has now grown into a handsome plant quite indistinguishable from the named plant purchased some years previously. I may add that the seedling appeared at the other end of the rather large house from that which was occupied by the parent plant. *W. E. Gumbleton.*

Juglans nigra, L.—In the *Gardeners' Chronicle* of November 15. I see it stated that this species in the neighbourhood of London rarely produces fully developed nuts, and, in fact, that hundreds of nuts were opened by the writer of that note, and all of them were found to be destitute of embryo. It may, perhaps, interest him and others to learn that about twelve years ago (I do not know the exact year) I gathered a few nuts of this Walnut in Kew Gardens under a good-sized tree there, and afterwards placed them carelessly in a small heap on the surface of the ground in my garden at Richmond, in Surrey, where I then resided. In the following year, much to my surprise, I observed that one of the nuts had germinated. I took care of the young plant and brought it into pot in Barnstable in the autumn of the year 1877, and planted it in the open ground in my garden here. It is now living, and measures in its present condition, after the fall of its leaves, 9 feet in height, and its stem measures 2 inches in diameter at its base, 1½ inch at the height of 3 feet, and 1 inch at 4 feet above the ground. It is unlikely that any of the flowers of the tree in Kew Gardens had been artificially fertilised. *W. P. Hearn, The Castle, Barnstable.*

Pistia stratiotes.—Many are doubtless familiar with this interesting and highly ornamental water plant, notwithstanding the insignificance of its inflorescence. It is patent no one would ever grow it for the latter; but the beauty of its leaves, as well as the arrangement and delicate glaucous green colour, and their outline, will always secure it a place in the household tanks of the cultured. Although a native of the Tropics, its pliable constitution enables the plant to keep up a tolerable healthy and presentable appearance in the open air in this country during summer. In a warm tank, however, it is more at home, and gives evidence of this by its delicate and

pleasing hue of green, and by its enormous rate of increase by short runners or stolons. This extraordinary rate of vegetative reproduction is seen in most aquatics with which we are familiar, from *Lemna minor* up to the lordly *Pontederia crassipes*, which is almost generally grown as a floating aquatic. The floating condition is apparently perfectly favourable to ordinary vegetative growth and reproduction; but many years ago it was observed that a greater vigour was induced if the water was shallow and the roots of the plant had access to a rich stratum of mud or soil. The roots in that case are better able to collect all the necessary constituents of plant life, and especially so the nitrates essential for the production of flowers and seeds. Cultivated on soil, the plant has recently been even now producing seed freely in the aquatic houses at Kew. There is a figure of the plant in the *Botanical Magazine*, t. 4564. *J. F.*

Lettuce.—When the crops of Lettuce are lifted to meet the demand during the winter months and placed in frames, pits, or other protection, there should be at least two lots coming forward to give supplies during spring and early summer months, and when there are no walls or other protection of such a serviceable character on the ground, other means must be adopted. We have found none to equal the sharp ridge thrown up from 2 to 4 feet high, on which the plants are planted about 6 inches apart, and they can be thinned in spring, leaving the crop a foot apart each way. The plants removed, invariably do well on a prepared plot, and the slight check gives a succession which is very valuable till spring sowings are ready for use in summer. When planting is done the holes formed by the use of the dibber are left till the ridge is planted, and are then filled up with finely sifted ashes and soot mixed. The whole surface among the young plants is diked with the same material or wood ashes, and grub or slugs are thus kept in check; no loss of plants is sustained, and the depth of rich surface soil of which the ridge is formed allows deep rooting, and drought or damp, however severe, is harmless. All the Year Round, Hick's Hardy, and Bath Cos are excellent kinds. *Caledonian.*

Mossy Stones as Ornaments in the Garden.—When pieces of stone, especially sandstone, are used about a garden for the shelter or general good of plants, they will be found in some situations to be completely coated with beautifully bright green moss. Having at Oakwood a long mound in full view of the cottage windows, on which it was desirable to put some stone to prevent the soil washing away from the plants, I collected moss-covered pieces of stone, and sunk them about half their depth in the soil. The moss, though dried up in the summer, has become again bright green, so that in place of bare stones, we have a quite pretty object to look at at a time when flowers are almost over. It is possible that this may give a hint useful to some of your readers. *F. Wilson.*

Plant Physiognomy.—In the review of Mr. Molyneux's book on the Chrysanthemum, at p. 625, execution is taken to the chapter on leaf recognition, as being dogmatic. No doubt whatever, to most persons it seems difficult to understand that any one should be able to recognise such plants as Chrysanthemums by their foliage features, but I had ample evidence, during last summer, that Mr. Molyneux possessed that capacity in a marked degree. It was my fortune to spend a day with him at Heckfield during that summer, just at the time when Mr. Wilmshurst's 600 plants consisting of many kinds were about 7 feet in height. Looking at them I was surprised at the ease with which Mr. Molyneux named kinds in rapid succession, recognising them solely by character of leafage, for there was little else by which to distinguish one from another except, perhaps, colour of stem. In all cases this leaf recognition proved correct, and I suggested that he should embody in his proposed book a chapter on plant physiognomy. It was quite evident to me that constant observation of the leafage and habits of the various kinds would enable an intelligent grower to become as familiar with his plants as a shepherd is said to become familiar with the comparatively similar faces of his sheep. *A. D.*

The Gardeners' Royal Benevolent Institution.—The suggestion of your correspondent, Mr. Perkins (p. 692), is a capital one indeed, and one I think which would be favourably received throughout the country. It is true our churches are greatly indebted to gardeners for the never-ending supplies of plants and flowers supplied on all festive occasions; and I think if the clergy of the different dioceses were consulted on the subject, and the facts relating to this admirable Institution laid before them, pointing out the good that has been done and is being done, there is no doubt whatever that they would receive the proposal in a fair and generous manner, and would consent to a collection being made in all churches, and other places of worship throughout the country in the year

1887. This would form an interesting item in the annals of the Gardeners' Royal Benevolent Institution as a handsome donation from the Church to commemorate the jubilee year of Her Majesty the Queen. I might suggest that a strong and thoroughly representative committee be chosen in the different districts to carry forward the proposal, so as to insure a thorough success. R. Greenfield, Priory Gardens, Warwick.

Proliferation of Sedum reflexum.—Proliferation of this species seems to be not infrequent, especially when it flowers late, and probably this is one of the principal conditions and causes of it. Growth becomes arrested (that is, vegetative growth) in the usual manner, and the inflorescence makes its appearance in due course and form. The familiar, many-branched cymose inflorescence becomes fully and perfectly formed, and many, if not all, of the flowers expand, commencing with that terminating the floral axis. I have never observed proliferation in the latter flower, but after a time most of the other flowers on the branches of the cyme, instead of carrying out the functions of reproduction, become green, and both sepals, petals, and pistil assume the form of ordinary leaves. The inflorescence gradually elongate, carrying the several floral whorls apart, giving the whole flower the appearance of a branch, which in reality it is. The apices of the branches of the cyme show the greatest inclination to develop, and generally take the lead, while the flowers developing into branches below that, are dwarfed by comparison. The whole inflorescence, however, presents rather a singular appearance, for instead of flowers developing and maturing successively, we have a group of slender branches on the flower-stalk. There is a figure of the species in *English Botany*, 695. On the rocky at Kew at the present time is a variety generally known as *S. r. monstrosum*, which shows proliferation at the apices of the branches only of the inflorescence. J. F.

Father Camel's Plants.—The writer of the paragraph on p. 639 need not go to Louvain to obtain information about F. Camel's work. We have in the Botanical Department of the British Museum the types of the plants enumerated in the appendix to Ray's *Historia*, and also a very important volume of drawings and MSS. descriptions, amounting in all to 634 in number. The figures are well executed, and the MSS. accompanying them beautiful specimens of calligraphy. The volume is prefaced by a note in F. Camel's hand, which runs:—"Descriptiones Fructuum et Arborum, Luzernæ, quas Georgius Josephus Camel, Dno. D.ri Willhelmo Ten Rhyné Battaviam mittebat anno. 1700: nunc vobis Domino Jacobo Petiverio Pharmacopœa Londinensi, et Regiæ Societatis Socii, mittit, anno. 1701." The writer says "the real name was Camelli," but its owner wrote it "Camel"—this may, however, have been only a Latinised form. There is no such thing as an Order of Jesuits, the proper title is the "Company" or "Society of Jesus," the members of which are called Jesuits. The distinction is not one without a difference, though it may appear so to some. Several MSS. and letters of F. Camel are in the British Museum (Sloane MSS., 2941, 3241, 4040). *Fames Briticæ*. [Camel is, we hear, a common Moravian name. Ed.]

Spinach.—This is one of the most wholesome vegetables extant, and greatly valued (by those who can appreciate it) all the year round. During summer it is very liable to "bolt" to seed, and must be sown on cool, deep, and rich soil. A shady position during the summer months is very desirable. Sowings made every ten days or so among fruit bushes, or between other crops, in most cases meet all demands. For winter supplies thoroughly trenched ground, which has been well manured in previous years, is very suitable. When the plants are fairly up they should be partially thinned, to let them develop themselves, and when 1½ inch high they may be thinned out in zig-zag form, and the thinnings planted on good ground in rows a foot or more apart in the rows, and about 6 inches from plant to plant. These become very sturdy, frost, and damp resisting plants. To keep grubs and slugs in check a good dusting of sifted ashes and soot mixed may be given, and repeated. Within four or five days the plants will have not lost a plant yet. A good supply is maintained, and growing freely during this mild weather. *Calcuttiana*.

Eucalyptus in Arran.—I have been much interested in the correspondence on the Eucalyptus as grown in the island of Arran. I may state for your information that several plants of the Eucalyptus are growing at Arran, Portlinter, West Kilbride, which is thirteen miles east of Lamlash, and ten miles east of Corrie, in Arran. A seedling of 1881 was planted outside in 1883, and is now 22 feet in height. Several seedlings of 1885 were planted outside this summer, and are now 12 feet in height, having grown this season 6 feet 6 inches. The plants are grown on light soil sheltered from east and north-

east winds, at about 60 yards above high-water mark. J. Maclean, The Garden, Auchanear, near Kilbride.

Reports of Societies.

BIRMINGHAM CHRYSANTHEMUM:

November 24 and 25.

This show was held in the Town Hall, which was well filled. It was the twenty-sixth exhibition of the Society, and was considered to be in all respects one of the best yet held. Cut blooms were staged in large numbers, and were generally of good quality. Plants were also well shown, and were of excellent quality. Bouquets and Primulas kept up the usual high standard of excellence found at the Birmingham shows.

PLANTS IN POTS, &c.

For nine large flowering Chrysanthemums (Japanese excluded) Mr. C. Brassier, gr. to T. Martineau, Esq., was 1st in this set with plants 4 feet in diameter. Jardin des Plantes was very rich in colour. Mr. H. Dyer, gr. to Mrs. Marigold, Edgbaston, also showed good specimens, the best being Lady Slide.

Mr. J. Crook, gr. to W. Millward, Esq., Edgbaston, was 1st for six plants, neatly trained, composed of leading varieties.

Mr. E. Cooper, gr. to J. Chamberlain, Esq., M.P., Highbury, staged the best single specimen, incurred, which was a very fine plant of White Venus, 4 to 5 feet across.

Mr. Brassier occupied the same place in the Japanese class with a fine lot of Bouquet Fait; and was 1st for six pompons, lightly trained; Mr. Dyer following also with freely trained plants.

CUT BLOOMS,

as has been said, were staged in large numbers, and made an imposing array. In the leading class for forty-eight blooms, twenty-four to be incurred, and the remainder Japanese (distinct), there were eleven competitors. This class was remarkable for the successful appearance of a new grower in Chrysanthemum culture in Mr. R. Parker, gr. to J. Corbett, Esq., Impney Hall, Droitwich, who was an easy 1st, staging magnificent blooms in both sections, being both solid and fresh, and of capital finish, the best being Triomphe de la Rue des Châlets, Mons. Astorg, Belle Paille, Flamme de Punch, Fair Maid of Guernsey, Jeanne d'Arc, Queen of England, Prince Alfred, John Salter, and Lord Alcester. Mr. W. Comfort, gr. to J. A. Everitt, Esq., was 2d, staging very fine Japanese; he had fine blooms of Jeanne d'Arc and Louis d'Or.

For twenty-four blooms, twelve to be incurred and the same number of Japanese, there were twelve competitors, the best being staged by Mr. Barker, gr. to Lord Hindlip, Hindlip Hall, the Japanese being very fine, while the incurred were extra large, though rather faded in finish.

For eighteen incurred distinct, Mr. Barker had the best, but was disqualified for staging two blooms of Princess of Wales; Mr. W. Comfort accordingly received 1st for medium-sized, but neat blooms.

Mr. Barker was to the fore for Japanese, twelve varieties, with large, even, bright blooms; Mr. R. Parker was a close 2d.

Mr. Barker was again to the front for twelve Anemone blooms.

Mr. A. Johnson, gr. to R. Ramsden, Esq., Knowle, was 1st for twenty-four varieties, distinct, twelve Japanese, twelve incurred, and to be grown within twelve miles of Stophenson Place, and very fine they were.

Reflexed blooms were well shown by Mr. Comfort, who was 1st.

Mr. Brassier took leading honours in the miscellaneous plant class of nine specimens (Chrysanthemums excluded) with a fine group, plants of Croton Veitchii finely coloured, and Callicarpa purpurea being best.

MISCELLANEOUS.

Mr. T. B. Thompson, Spark Hill Nurseries, Birmingham, showed a fine group, consisting of Palms, Crotons, Dracenas, Heaths, and Tulips, effectively arranged.

Mr. Hans Niemand, Royal Nurseries, Harborne Road, Edgbaston, had a grove kind of arrangement of richly coloured Crotons, finely grown Palms, and Calla rethiopica, on a groundwork of Ferns, and Pan-cu; Roman Hyacinths and other plants were freely used. These two groups evoked general admiration.

Messrs. Pope & Sons staged a fine bank of zonal Pelargoniums, having splendid trusses of blooms—about one hundred plants in 48 sized pots; the new semi-double variety, Le Brunt, rich scarlet, being one of the most noteworthy kinds. A choice collection of wreaths and crosses from the same firm were much admired.

Messrs. H. Cannell & Sons, Swanley, Kent, had a

choice collection of cut zonal Pelargonium blooms and Chrysanthemums.

Primulas were well shown by Messrs. Thompson and Messrs. Pope; and Camellias were well represented by Messrs. Perkins, Coventry; Mr. Hias Nemand, and others.

A well arranged group of Chrysanthemums was shown by Mr. J. H. Horton, gr. to R. Chamberlain, Esq., Edgbaston, with good plants bearing fine blooms.

FRUIT.

Apples were shown in large numbers, 450 dishes being staged.

For a collection of miscellaneous fruit of six dishes, distinct, Mr. E. Gilmour, gr. to the Earl of Shrewsbury and Talbot, Ingestre Hall, was 1st with very fine Alicante and Muscat of Alexandria Grapes, and Charlotte Rothschild Pine-apple, all good. Mr. Parker was 2d, and had the same kinds of Grapes in good order.

For three bunches of black Grapes Mr. W. J. Thornton, gr. to W. Bassano, Esq., Old Hill, was 1st, with Alicante, fine.

Mr. Gilmour took leading honours for white Grapes (Muscats excluded).

Mr. J. Pass was 1st for one bunch of black Grapes, staging Alicante in fine condition. For the best twelve dishes of Apples, six to be dessert and six culinary Mr. W. J. Thornton was 1st, with extra fine Yorkshire Greening, Peasegood's Nonsuch, Ribston Pippin, and King of the Pippins.

Mr. Mason won 1st prize for six dishes, half culinary others dessert, with fine produce.

For twelve dishes Pears, distinct varieties, Mr. Barker was awarded the 1st prize.

Very fine collections of Apples came from Messrs. R. Smith & Co., Worcester, and Mr. Bunyard, Kent, consisting of about 100 dishes in each collection of the finest varieties, highly coloured. To these collections were awarded Certificates of Merit.

LIVERPOOL HORTICULTURAL.

The seventh show of this Society was opened on Tuesday in the driest of weathers. Never before was such a grand exhibition of cut flowers and fruit seen in Liverpool at this season of the year; the cut flowers were superb, the incurves were by far the best we have seen this season, and Japanese quite up to the mark; the 1st prize lot were indeed a grand sight.

We have seen larger and better specimen of incurved kind, but the pompons were very fine.

In the plant classes, prizes were well competed for in all departments. Stove and greenhouse plants were well done.

Amongst orchids, although not great in quantity, some good things were shown; the 1st prize lot, from Mr. H. Tait, jun., gardener to J. Edwards, Esq., contained a magnificent specimen of Oncidium varicosum with two grand branching spikes—one of the best we have seen for some time.

Table plants were very good, several good collections being staged. Primulas and Cyclamens were poor, but Roman Hyacinths, Mignonette, and Epiphyllums were good.

The cut flowers, taken all round, were excellent, the leading class being well filled; the quality of the flowers was as good as possible.

A new feature was introduced by the committee offering a prize for six Japanese and six incurred, to be competed for by those who have never won a prize. This was well responded to, some excellent flowers being staged, which speaks well for the future prospect of the culture of this favourite flower. The prize for the premier flower, both incurred and Japanese, was found in the stand of Mr. Wilson, gr. to J. E. Reynolds, Esq., Sandford Park, the former being a grand flower of Lord Alcester, and the latter an equally fine examples of Boule d'Or.

FRUIT

made a most magnificent display, especially Grapes, which were fine in colour and finish, about 136 bunches being put up. Those from Mr. Goodacre, of Elvaston, Mr. Lindsay, and Mr. Hollingsworth being particularly fine. The Pine-apples shown were both numerous and good; Apples and Pears also. Mr. Mackenzie, of Linton Park, Maldstone, was successful in these classes; and Mr. Goodacre took 1st for both the collection of twelve and six varieties of fruit with a grand lot.

In the miscellaneous exhibits, Messrs. Kerr & Sons, Aigburth, showed a magnificent group of well grown Cyclamen and Roman Hyacinths on a groundwork of Maidenhair, nicely relieved by Cecos Weddelliana, producing a fine effect, and was highly commended. The same award was made to Mr. Cowan, of Garston, for a group of miniature grown and well flowered Chrysanthemums, Erics, Ferns, six foliaged plants.

Messrs. F. & A. Dickson, Chester, were highly commended for Tree Carnations in flower, and for a collection of fruit, &c.

Mr. Wm. Cutbush, of Highgate, contributed a collection of miscellaneous plants suitable for decorative purposes.

Messrs. Rylance showed a collection of fruit, as did Mr. Smith of Rock Ferry.

The attendance was very large, the large hall being crowded with visitors during the time the show remained open. It is pleasing to record, that the decision of the judges gave the greatest satisfaction to all concerned.

TRADE NOTICES.

OWING to continued ill-health, Mr. C. Young is compelled to withdraw from active life, and to relinquish the home business at Upper Tooting Park Nursery, which he has carried on for the last quarter of a century. He has disposed of the above nursery and stock-in-trade to Mr. John R. Box, formerly partner with Mr. John Laing, Stanstead Park Nurseries, Forest Hill, S.E.

We understand that Mr. J. H. Heathman, who was formerly employed by Messrs. Merryweather & Sons at 63, Long Acre, W.C., is no longer in their service, and is not authorised to represent them in any respect.

THE POTATO TRICENTENARY.

THE CONFERENCE.

MR. CARRUTHERS, P.L.S., took the chair at the inaugural meeting on Thursday. The first paper read was one by Mr. W. S. Mitchell, entitled, "Historic Consideration of the question whence came the Potato to England." Mr. Mitchell's paper has already appeared in substance in our columns. It must here suffice to say that the author in his paper sifted the evidence of the arrival of the Potato in England, and discussed such points as the first illustration of the plant which appeared in the first edition of Gerard's *Herbal* of 1597, the fact that Sir Walter Raleigh was never in Virginia, and that the Potato of Sir John Hawkins was the Sweet Potato, *Convolvulus Batatas*. Drake, he considered, might have obtained it in the open market at Carthagena, or possibly from some Spanish ship boarded and plundered by him in the open sea.

The paper on "Drake's Expedition of 1586," by Mr. W. Herries Pollock, M.A., was read by Sir Richard Pollock.

The important paper on "Cultivation by the Incas and other Andean Nations," read by Mr. Clements Markham, proved even more interesting than his hearers had anticipated. The ancient civilisation of that Master-Race, the Incas, or "Children of the Sun," and especially their agricultural economy, was described in eloquent language and in attractive detail. Many facts were brought to view probably for the first time, in the course of this paper, and which will have to be carefully weighed in future both by botanists and historical inquirers. With regard to the way in which the Potato came to us from Virginia Mr. Carruthers significantly remarked that a plant may be embarked from a certain port without necessarily being a native of the adjacent country, and we may readily believe, from what Mr. Clements Markham has so forcibly brought before us, that the Potato may have reached Virginia from the South, as it certainly did Carthagena, as a food plant, introduced for its merits. Mr. Markham's paper greatly strengthens this position, showing, as it does, that the Potato, on the arrival of the Spaniards, was spread over 70° or 75° of latitude, extending from Chili to Colombia, as a plant of utility, important in the agriculture of that wide region, and existing in numerous cultivated varieties. The "Children of the Sun," said Mr. Markham, deserve our gratitude for having detected the merits of the wild Potato, and for having first improved it and handed it over to other nations as one of the most important food plants of the world. It seems that nine "best sorts" were grown on a site not far distant from Callao, 7000 feet above the level of the sea, and they are described in the paper as of excellent quality. It is difficult to avoid the conclusion that an esculent of so much merit, and one so widely known, may have reached Virginia centuries before the period of Sir Francis Drake.

Mr. Baker, before reading his own paper on the

wild species of Potatoes as at present recognised, alluded in enthusiastic terms to Mr. Markham's paper.

A paper on "The Introduction of the Potato into France" was read by M. Henry L. de Vilmorin.

"The Potato Disease" was the last subject on the card for discussion, but the time at which we had to go to press prevented our obtaining any report of these papers, or of those read on Friday; hence we must defer further mention of them till our next issue.

THE EXHIBITION.

THE competitive exhibition of Potatoes comprised two classes—the first for collections of not less than six and not more than twelve varieties, twelve tubers of each being shown, and as these were exhibited, six on each plate, a collection of twelve varieties was actually enlarged to twenty-four dishes. Three prizes were offered, viz., a Gold Medal, a Silver Medal, and a Bronze Medal, commemorative of the Tercentenary Exhibition. In the other class a Silver Medal was awarded for the best new variety of Potato produced during the last two years and not yet in the market. Some twenty-six collections competed in the first class, and the Gold Medal was awarded to Mr. E. Chopping, Periwinkle Mills, Milton, near Sittingbourne, who had a remarkably good collection for the season of the year, consisting of white rounds:—Schoolmaster and the Colonel; white kidneys:—Abundance and Chancellor; coloured rounds: Adirondack, Village Blacksmith, Reading Russet, and Purple Perfection; coloured kidneys: Reading Ruby and Belle, in the way of Queen of the Valley; Rufus and White Elephant. The Silver Medal was awarded to Mr. J. H. Diver, Pitshill, Petworth, Sussex, also with a very good lot, consisting of white rounds:—Washington Hero and Schoolmaster; white kidneys: Reading Giant, International, and Snowflake; coloured rounds: Reading Russet, The Dean, Vicar of Laleham, and Adirondack; coloured kidneys: Mr. Breesee, White Elephant, and Edgemoor Purple. The Bronze Medal went to Mr. William Ker, Durgavel, Dumfries, who had of white rounds:—Mammoth Pearl, Schoolmaster, and Eclipse; coloured rounds: Village Blacksmith, Adirondack, Queen of the Valley, and Vicar of Laleham; white kidneys: International, Snowdrop, and Chancellor; coloured kidneys: Mr. Breesee and White Elephant. The following collections were highly commended:—From Mr. E. S. Wiles, The Gardens, Edgemoor Park, Banbury; Mr. J. Hughes, The Gardens, Eydon Hall, Byfield, both showing collections of twelve and six varieties; and Mr. C. Fidler, potato grower, Reading, for three collections, comprising seventy-two dishes, nearly all dissimilar, and considered to be a good representative collection.

Among the collections not for competition was one of about 150 dishes, shown by Mr. John Watkins, Pomona Farm, Hereford, the most attractive-looking being Village Blacksmith, Fidler's Enterprise, The Dean, Edgemoor Purple, Reading Russet, Adirondack, Vicar of Laleham, Scotch Blue, and Pride of Ontario. Messrs. Hooper & Co., Centre Row, Covent Garden, also showed a collection, including good samples of Adirondack, London Hero, Chancellor, Edgemoor Purple, Hooper's Paragon, The Dean, Reading Russet, &c. Messrs. Vilmorin & Co., of Paris and London, exhibit a dozen dishes of French varieties of Potatoes, including Saucisse, red kidney; Joseph Rigault, white kidney; Princesse, white kidney; Marjolain Tetard, white kidney; Seville d'Orti, white kidney; and Blanchard, round. Also some shallow wicker baskets, in which sprouted seed Potatoes are placed and sent away to their customers.

Mr. M. J. C. Buckley, of London, exhibited some souvenirs from Raleigh House, Youghal, Co. Cork, including a photograph showing the oriel window to which Raleigh so much referred—the spot where it is believed the first Potato introduced to Ireland by Raleigh was grown, and the Yew tree under which he and Spenser sat, and where it is believed Spenser composed a great portion of his *Fairie Queene*. Accompanying it was a peculiar shovel used by the Irish labourers in lifting Potatoes, a wicker basket commonly used for the dug Potatoes, a small beech pail out of which they drink butter-milk, and samples of the white Rock Potato grown in that part of the country.

There were nine entries for the special Silver Medal for the best new Potato not yet in commerce; and after the samples had been carefully cooked on the spot in one of Bower's patent Potato-steamers the Medal was awarded to Mr. James Lye, The Gardens,

Clyffe Hall, Market Lavington, Wilts, for Clipper, a white round of a refined Regent type, handsome, early, a good cropper, and promising to make an excellent market variety. The next two best were King of Russels, also from Mr. Lye, a good-looking red round, of the character of Adirondack, but deeper in colour, being russety-red; and Mottled Beauty, from Mr. E. S. Wiles, a rather large and handsome pale kidney, mottled with dull wine-brown, like Fidler's Enterprise, yellow flesh, and, like King of Russels, cooks dry and floury.

Obituary.

WILLIAM FROMOW.—We learn with regret of the death, in his seventy-second year, of Mr. Fromow, of the Sutton Court Nurseries, Chiswick. Born in July, 1815, at Attleborough, Norfolk, he came to Chiswick in 1829 with his father, who established in a very small way the business now known as W. Fromow & Sons. About a year and a half after settling in Chiswick Mr. Fromow died, leaving the nursery in the hands of his son (who was only about fifteen years old at the time) and widow. Latterly Mr. Fromow's sons have been carrying on the business, which they have also considerably extended. Mr. Fromow died rather suddenly, on November 27, from an affection of the heart.

MR. CHARLES GREEN.—We regret to announce the death of Mr. Charles Green, formerly Head Gardener to Mr. Wilson Saunders, and more recently to Sir G. Macleay, Bart., Pendell Court. He was a frequent contributor to the columns of this journal, his extensive knowledge of plants, especially of rare and almost forgotten species, and his skill as a cultivator rendering his articles of great value to gardeners.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, DECEMBER 1, 1886.

MONTH AND DAY	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRI- CAL DEDUC- TIONS FROM GLASIER'S TABLES 5th Edition.	WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	State of Bar. Departure from Normal of 1870.	Highest.	Lowest.	Range.	Mean for Day.			
						Departure of Mean from Average of Month.	Dew Point.	Degree of Humidity.	Average Direction.
								Sat. in 100.	
Nov.	In.	In.	a	a	a	a	a		In.
25	30.42	+0.73	46.0	50.0	53.6	38.6	67	N. E.	1.00
26	30.37	+0.67	48.36	51.1	54.3	47.4	95	N. E.	0.00
27	30.36	+0.69	46.0	50.4	53.8	42.0	88	N. E.	0.00
28	30.34	+0.45	49.6	50.0	54.3	41.1	93	S. E.	0.00
29	30.62	+0.10	49.8	51.0	54.3	44.2	80	S. W.	0.04
30	30.40	+0.23	43.53	50.38	56.1	35.3	89	N. W.	0.00
Dec. 1st.	30.71	+0.02	41.5	47.0	53.6	36.1	78	N. W.	0.00
Mean	30.01	+0.31	45.35	50.4	54.3	45.38	89	N. E.	0.04

Nov. 25.—Dense cold fog till 2 P.M., fine with thin mist afterwards.

— 26.—Fine, but dull and overcast all day.

— 27.—Very dull and overcast throughout.

— 28.—Mist in early morning, overcast all day.

— 29.—Wet till 10 A.M., fine and bright afternoon.

— 30.—Fine, bright morning, dull and overcast afternoon.

Dec. 1.—Fine and bright day, dull at times.

LONDON: Atmospheric Pressure.—During the week ending November 27, the reading of the barometer at the level of the sea increased from 30.36 inches at the beginning of the week, to 30.73 inches by the afternoon of the 24th, decreased to 30.58 inches by the afternoon of the 25th, increased to 30.60 inches by the morning of the 26th, and was 30.49 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 30.56 inches, being 0.72 inch higher than last week, and 0.68 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 49° 6 on the 21st; the highest

Despite some heavy arrivals of Canary seed the article is still strong. Rape seed remains unaltered. Temptingly low rates now prevail for Hemp seed. More attention is being devoted to blue Peas. Haricots are good and cheap. Linsed is easier.

CORN.

MARK LANE: Nov. 29.—Exchange for Australian and Indian no advance was quoted to-day for either English or foreign Wheat, but at the current rates of this day week holders were firm. There was only a limited business, purchases being confined chiefly to small quantities. English white Wheats ranged up to 35s. 6d., and red up to 35s. Flour, with a moderate inquiry, was fully supported. The Barley trade was inactive, and quotations were nominally unaltered. Beans were dearer. Peas were 6d. to 1s. higher. For Oats buyers operated with reserve: prices were weaker.

Dec. 1.—The hardening of prices for most kinds of grain continued. The demand for Wheat was limited, but prices follow the upward movement, and 3d. over Monday's rates have been paid for Russian, American, and Indian. Flour was if anything still firmer, and for reputed marks of American 3d. to 6d. advance was quoted. Barley was quiet. Beans were a very strong market, and tending against buyers. Peas were scarce, and dearer to buy. Maize was in scanty supply, and hardening in value. Oats were dull of sale, and stocks heavy.

Average prices of corn for the week ending Nov. 27:—Wheat, 3s. 1s. 1d.; Barley, 27s. 7d.; Oats, 16s. 7d. For the corresponding period last year:—Wheat, 30s. 9d.; Barley, 29s. 6d.; Oats, 18s. 7d.

FRUIT AND VEGETABLES.

COLUMBIA (East London): Dec. 1.—Trade has been brisk at the following quotations:—Apples, 3s. 6d. to 7s. 6d. per bushel; Pears, 4s. to 5s. to do.; Brussels Sprouts, 1s. to 1s. 6d. per half sieve; Spinach, 1s. to 2s. per sieve; Cauliflowers, 1s. to 2s. per dozen; Cabbages, 2s. to 2s. 6d. per do.; Savoy, 1s. 6d. to 3s. do.; Onions, 3s. 6d. to 4s. 6d. per cwt.; Carrots, 20s. to 25s. per ton; Mangels, 16s. to 18s. do.; Greens, 1s. to 1s. 3d. per dozen bunches; Carrots, 1s. 6d. to 2s. do.

STRATFORD: Nov. 30.—The market has been well supplied, and a good trade was done at the undermentioned prices:—Savoy, 2s. 6d. to 3s. per tally; Greens, 1s. to 1s. 6d. per dozen bunches; Cauliflowers, 1s. to 1s. 6d. per dozen; Turnips, 1s. 6d. to 2s. per dozen bunches; do., 2s. to 3s. per do.; Carrots (household), 2s. to 3s. do.; do. (cattle feeding), 2s. to 2s. 6d.; Parsnips, 6d. to 1s. per score; Mangels, 13s. 6d. to 17s. 6d. per ton; Swedes, 15s. to 22s. do.; Watercress, 6d. per dozen; Apples, 1s. to 1s. 2d. per bushel; do., 5s. 6d. to 7s. per half-bushel.

POTATOS.

BOROUGH AND SPITALFIELDS: Nov. 30.—Trade continues steady for good samples, and dull for inferior. Quotations:—Regents, 70s. to 110s.; Magnum Bonums, 55s. to 70s.; Victoria, 70s. to 90s.; Champions, 50s. to 70s.; and Hebrons, 80s. to 110s. per ton.

COLUMBIA (East London): Dec. 1.—The trade here was dull, at the following prices:—Essex Regents, 65s. to 80s.; Magnum Bonums, 55s. to 70s.; Cambridgeshire Regents, 65s. to 70s.; York and Lincoln Magnums, 60s. to 70s.; Regents, 70s. to 80s. per ton.

STRATFORD: Nov. 30.—Quotations:—Best Magnums, 60s. to 80s.; second do. 50s. to 55s.; Champions, 55s. to 65s.; and Regents, 65s. to 85s. per ton.

Imports.—The imports into London last week consisted of 6s bags from Rotterdam, 17s Ghent, 2473 Hamburg, 80 Bremen, 30s Boulogne, 40 Ostend, 1500 Snettlin, and 600 Antwerp.

HAY.

WHITECHAPEL: Nov. 30.—There were fair supplies on sale to-day, and a slow trade at previous rates for all articles. Quotations:—Clover, prime, 88s. to 100s.; inferior, 70s. to 84s.; hay, prime, 70s. to 90s.; inferior, 30s. to 65s.; and straw, 28s. to 40s. per load.

Dec. 2.—There was a short supply on offer. The trade was quiet, at late rates.

CUMBERLAND (REGENT'S PARK): Nov. 30.—A large supply of Clover and meadow hay, with drooping prices. A fair supply of straw, and a fair trade. Quotations:—Clover, best, 84s. to 100s.; second, 70s. to 80s.; hay, best, 78s. to 85s.; second, 50s. to 70s.; and straw, 28s. to 38s. per load.

STRATFORD: Dec. 1.—Quotations:—Hay, 70s. to 80s.; Clover, 70s. to 90s.; and straw, 28s. to 32s. per load.

Government Stock.—Consols closed on Monday at the figures of the preceding Saturday—viz., 102½ to 102½ for both delivery and the account. Tuesday's figures were as on the previous day for delivery, and 100½ to 100½ for the account. Wednesday's closing figures were 100½ to 100½ for delivery, and 100½ to 100½ for the account, ex div. Thursday's final quotations were 100½ to 100½ for delivery, and 100½ to 100½ for the account (ex div.)

SPECIAL NOTICE.—

On and after Jan. 1, 1887,
the Price of the
"GARDENERS' CHRONICLE"
will be

Reduced to Three Pence.

SMITHFIELD SHOW,

December 6 to 10, 1886.

STAND No. 61, NORTH GALLERY.

JAMES CARTER & CO.

Respectfully invite the attention of Visitors
to the magnificent display of

ENGLISH-GROWN
TOBACCO

IN GROWTH, CURED,
AND MANUFACTURED.

Together with their CELEBRATED
GRASS SEEDS, in Sample and Growth;
and the GIGANTIC ROOTS grown from
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SEEDSMEN BY ROYAL COMMANDS TO H.M. THE QUEEN
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2381 High Holborn, London, W.C.

HAMPTON COURT BLACK HAM-
BURGH VINES.—Extra strong Fruiting Cane of the
above, and all other leading varieties, at greatly reduced prices.
T. JACKSON and SON, Nurseries, Kingston-on-Thames,
and Royal Kitchen Gardens, Hampton Court.

DARTMOUTH CRAB.

NOTICE.

HAVING purchased the principal part of
Mr. Laxton's Stock of this handsome
fruit, we are able to supply the Trade at 15s.
per dozen. It is a remarkable sort, in size and
colour resembling a large Victoria Plum. Good
dessert quality, vigorous grower, and very fertile.
Stock very limited. Order early.

HARRISON & SONS,
ROYAL NURSERIES, LEICESTER.

KELP — KELP — KELP. —

This powerful and stimulating Ash, made from the sun-dried plants of *Laminaria digitata* and other selected seaweeds, is especially rich in Potash, and Phosphoric Acid. Mixed with three times its bulk of dry soil, its effect on Vine Borders, Tomato Plants, and nearly all Pot Plants, is marked and beneficial, while no better dressing exists for Potatoes, Peas, Seakale, and Celery. It is an excellent Remedy for Old Garden Soil, and exhausted and Moss-grown Lawns. Price (for cash with order only) 8s. per bushel-bag, bag included. Cheap through rates via Southampton or Weymouth.

N. E. FERRY, La Poudrette, St. Martin, Jersey.
B. As the Seaweed selected for this Ash can only be harvested during the spring tides of the four summer months, and then at some distance from the mainland, the supply is necessarily limited, and Orders will therefore be executed in strict rotation.

COCOA-NUT FIBRE REFUSE.

Newly made. Truckload (5 tons) 61s. 40 bags, 25s. Free on rail. Cash with order.—J. STEVENS and CO., Fibre Merchants, 153, High Street, Battersea, S.W.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.

4s. per bushel; 100 for 25s. truck (house, about 2 tons), 40s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS FEAT, 5s. 6d. per sack; 5 sacks 25s.; sacks, 4d. each.
BLACK FIBROUS FEAT, 5s. per sack, 5 sacks 25s.; sacks, 4d. each.
COARSE SILVER SAND, 1s. 6d. per bushel; 15s. per half ton, 25s. per ton in 8-bushel bags, 4d. each.
YELLOW FIBROUS LOAM, FEAT-MOULD, and LEAF-MOULD, 12s. per bushel.
SPHAGNUM MOSS, 8s. 6d. per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Price List.—H. G. SMITH, F.R.H.S., 21, Coldsmith's Street, Drury Lane (lastly called 17A, Coal Yard), W.C.

BRESON'S MANURE is the best for all Horticultural Purposes. Sold in tins, 1s., 2s. 6d., 5s. 6d., and 10s. 6d., or 1 cwt. bags, sealed, 13s. each. By all Nurserymen or Seedsmen, or direct from Carbrook Bone Mills, Sheffield. Also pure CRUSHED UNBOILED BONES, any size, and guaranteed of the best quality.

PEAT and SAND.—Light Brown PEAT for Nursery and Greenhouse Work, in four ton trucks of 10 yards each, at 10s. per yard. In bags, at 2s. 6d. per bag. Rhododendron and American Plant Beds, at 15s. per ton. Orchid Peat 5s. per bag; Fresh SPHAGNUM, 10s. 6d. per bag. SILVER SAND, coarse or fine, 13s. per ton. WALKER and CO., Farnboro' Station, Hants.

GARDEN REQUISITES.

TWO PRIZE MEDALS.
Quality, THE BEST in the Market. (All sacks included.)
PEAT, best black fibrous 5s. 2s. per sack; 5 sacks for 25s. 6d.
PEAT, extra selected Orchid 5s. 6d. 5 sacks for 25s. 6d.
LOAM, best yellow fibrous 12s. per bush, 3s. per sack.
PREPARED COMPOST, best 1s. per bush, 3s. per sack.
LEAF MOULD, best only 1s. (sacks included).
SILVER SAND, coarse, 12s. 6d. per bush, 14s. half ton, 54s. ton.
RAFFIA FIBRE, best only 1s. 2s. per lb.
TOBACCO CLOTH, finest imported 8d. lb., 28 lb. 18s.
TOBACCO PAPER 1s. 2s. per lb., 28 lb. 18s.
MUSHROOM SPAWN, finest Milltrack 5s. per bushel.
SPHAGNUM MOSS, all selected, 2s. per bush, 6s. per sack.
CHUBB'S "PERFECT" FERTILISER, the Food for all kinds of Plants, Flowers, Fruits, Vegetables, &c. Tins, 12s. 6d. Bags—7lb., 25s.; 25 lb., 28lb.; 8s.; 56 lb., 14s.; 1 cwt., 22s. VIRGIN CORK, best quality only—14 lb., 3s.; 28 lb., 5s. 6d.; 56 lb., 10s. 6d.; 1 cwt., 17s.
HORTICULTURAL CHARCOAL, best quality only, 2s. 6d.
COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. each; 1 cwt. 15s. 15 sacks, 13s.; 20 sacks, 17s.; 30 sacks, 25s.; 40 sacks, 30s. Truck-load, loose, free on rail, 25s. Limited quantities of G. special quality, granulated, in sacks only, 2s. each. Terms, strictly Cash with order.

CHUBB, ROUND & CO.,
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THE ALLUVIAL MANURES

are made from a peculiar deposit of SEA-WEED, and from MUSSELS, BONES, FISH, POTASH, and BLOOD. By systematically varying the mixtures of these materials a dozen varieties of Manures are produced, each compounded specially to suit its own group of plants. This system has been tested, approved of, and adopted by leading Gardeners throughout Europe, and should be tried by all lovers of plants.

Prices from 5s. 6d. per cwt. and upwards.
Particulars post-free.

THE ALLUVIAL MANURE COMPANY,
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PEPPS & CO.,
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GISHURST COMPOUND, used by leading
Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 oz. to a ounce to the gallon of soft water; 4 to 10 ounces as winter dressing for Vines and Orchard-house Trees; and in 1 gallon from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 12s., 3s., and 10s. 6d.

GISHURSTINE keeps Buds dry and soft on wet ground. Boxes, 6d. and 1s. from the Trade. Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

RUSSIA MATS,
FOR COVERING AND PACKING.
THE LARGEST ASSORTED STOCK IN LONDON.
CATALOGUE on application.

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THE
GARDENERS' CHRONICLE

FOR

SATURDAY, DECEMBER 25,

WILL CONTAIN A BEAUTIFULLY

COLOURED ALMANAC

(18 inches by 13 inches),

FROM AN ORIGINAL DESIGN.

PRICE FIVEPENCE; POST-FREE, FIVEPENCE-HALFPENNY;

OR WITH

ALMANAC MOUNTED ON OAK ROLLERS,

READY TO BE HUNG UP, AND ENCLOSED IN CASE,

SEVENPENCE; POST-FREE, EIGHTPENCE-HALFPENNY.

Purchasers are specially recommended to order the Almanac in a Case,

TO PREVENT INJURY FROM FOLDING.

The Publisher cannot be responsible for injury to the Almanac unless it is so protected.

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As a large Extra Sale of this Number is guaranteed, it will be a very valuable medium for Advertisements.

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Russia Mats—Raffia.
NEW ARCHANGEL MATS, PETERSBURG MATS, of all qualities, **RAFFIA FIBRE**, of best quality, &c. All these goods at Lower Prices than any other firm. Supplied to the Trade only by **MARENGO AND FISHER**, James St., Covent Garden, W.C.

ASTON CLINTON STRAW MATS.—The Warmest Coverings for Firs and Frames. Sizes:—6 ft. 6 in. by 3 ft. 9 in., at 2s. 6 ft. 6 in. by 4 ft. 6 in. at 2s. 2d.; 6 ft. 6 in. by 7 ft. by 3s. 2d. Apply to **Miss MOLIQUE**, Aston Clinton, Tring, Bucks.

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J. BLACKBURN AND SONS are offering Archangel Mats lower than any other house in the Trade. Also Petersburg Mats and Mat Bags, Raffia Fibre, Tobacco Paper, and Shading Materials. Prices free on application.—4 and 5, Wormwood Street, London, E.C.

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as do "crown" Edgings, consequently being much cheaper. GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design. **F. ROSHER AND CO.**, Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E. Agents for LOOKER'S PATENT "ACME" FRAMES, PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

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WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability. Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c. **F. ROSHER AND CO.**, Brick and Tile Merchants. See Addresses above.

SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post. **FLINTS and BRICK BURS** for Rockeries or Fountains. **KENT PEATS** or **LOAM** supplied at lowest rates in any quantities.

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100 squares of 15-oz glass in each case for as follows (Packing Case included), free on rail in Leeds:—

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12	× 10	10 × 12	12
12	× 12	12 × 12	12
12	× 12	12 × 12	12
12	× 12	12 × 12	12
12	× 12	12 × 12	12
12	× 12	12 × 12	12
12	× 12	12 × 12	12
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For the price of 21 oz reckon half as much more.

Rolled Plate, 3 1/2 in., same as 21-oz.

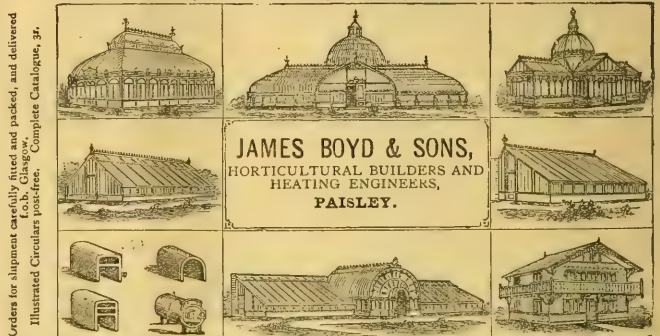
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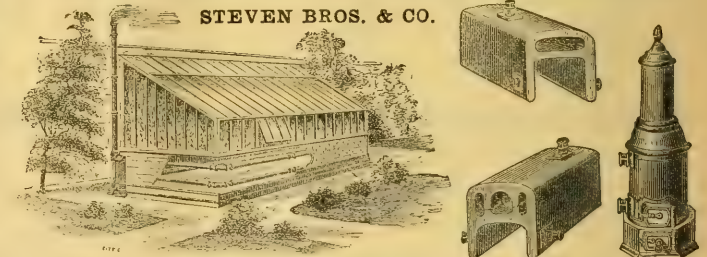
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Alphabetical List of the Gardener, and their full Addresses, in Great Britain and Ireland.
List of the Botanic Gardens and Public Parks throughout the World, with their Curators and Superintendents.
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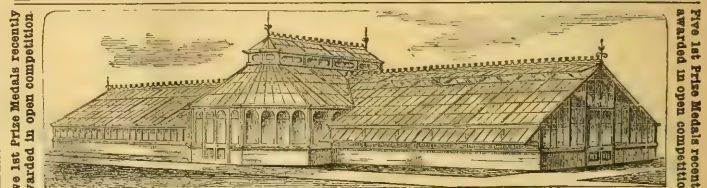
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The Celebrated Darlington WONDERFUL VALUE in

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- 12 yards Navy Black, or any fashionable colour Darlington Celebrated Union Foulé Costume Cloth.
- 2½ yards Beautiful Skirting, worth 3s. per yard.
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The lot for 21s. Value to manufacture, 31s. Carriage Paid.

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- 12 yards Celebrated Darlington Cross-Warp Serge, black or coloured.
- 2 yards Darlington Fast-Pile Twill, Genoa-finish, Velveteen to match.
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In order to clear Odds and Ends accumulated during the season, Henry Pease & Co.'s Successors have made up Bundles of Remnants, containing useful lengths of Serges for Dresses, Meltons, Calicoes, Flannels—white and scarlet, Velveteens, Prints, Satens, &c., in lengths of from 2½ yards to 8 yards. The Prices are 10s. 6d., 15s. 6d., 20s., and 25s. each. They are well worth double the money.

As many applications are received from ladies for charitable purposes, special bundles have been prepared for this purpose. Ladies ordering bundles will please state whether for Charity or Family use.

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W. H. LASCELLES and CO. will give Estimates for every description of HORTICULTURAL WORK, free of charge, and send competent assistants when necessary. LASCELLES' NEW ROCKWORK material in various colours. Samples can be seen and prices obtained at

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Oil Paint no Longer Necessary.

HILL and SMITH'S BLACK VARNISH, for Preserving Ironwork, Wood, or Stone.



This VARNISH is an excellent substitute for oil paint or any outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of forty years ago by the Advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requiring no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of most of the Nobility and Gentry, from whom the most flattering testimonials have been received. Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

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From ALFRED LOWE, Esq. *The Ryers, Albury Lodge.*
"Some twenty years ago I used your Black Varnish, and shall be glad if you will forward me a cask, as I consider it the best thing known for the preservation of all outdoor work, either wood or iron, that requires to be painted."

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Brierly Hill Ironworks, near Dudley;

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116, Stephen's Green, Dublin.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest prices of
WATSON and SCULL, 90, Lower Thames St., London, E.C.

Wanted every Gardener and Florist to use CASBON'S LIGHT WOOD POSTAL BOXES and PROPAGATING TRAYS. Sample and Price List free for six stamps.
T. CASBON, Box Maker, Millfield Works, Peterboro'.

HORTICULTURAL GLASS.

A large quantity of all descriptions and sizes in stock, at the lowest possible prices.

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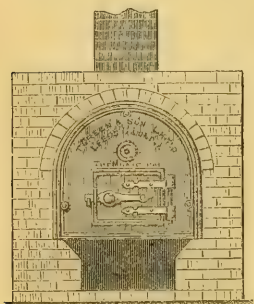
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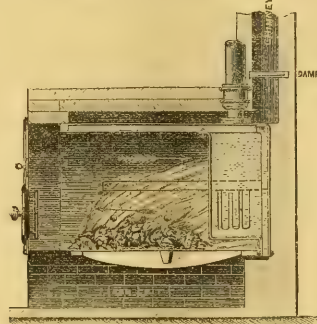
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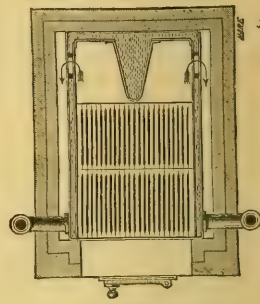
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THOS. HEWSON, Borough Engineer.

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GARDENERS' CHRONICLE FORM OF SUBSCRIPTION

FROM

To

W. RICHARDS,
41, WELLINGTON STREET, STRAND,
LONDON, W.C.

1886.

Please send me "THE GARDENERS' CHRONICLE" for _____ Months,
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Cheques should be crossed "DRUMMOND."

G. C.
Dec 4 1886.

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher" at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & CO., Lombard Street, Precinct of Whittakers, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, December 4, 1886. Agent for Manchester.—JOHN HEYWOOD.

GARDENERS' CHRONICLE.

Established 1841.

No. 676.—VOL. XXVI. {NEW SERIES.} SATURDAY, DECEMBER 11, 1886.

{Registered at the General Post-office as a Newspaper.} Price 5d. POST-FREE, 5 1/2d.

SPECIAL NOTICE.—On and after January 1, 1887, the Price of the "Gardeners' Chronicle" will be REDUCED TO THREE PENCE.

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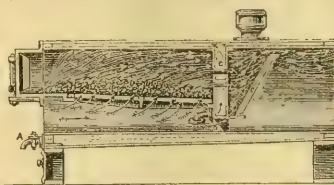
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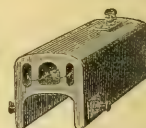
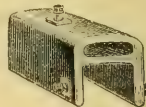
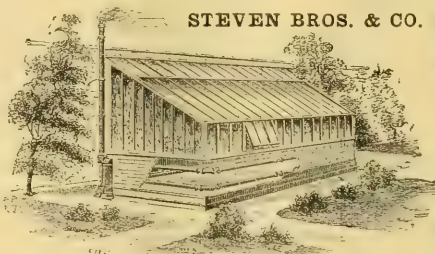
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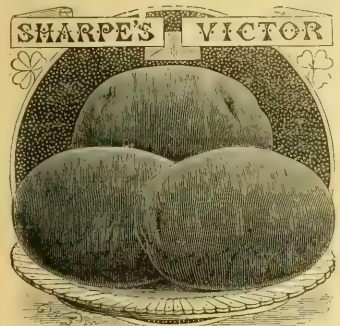
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 bald Hall, planted Victor Potatoes on January 26, and placed a
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"Mr. MELVILLE, Gardener to Mrs. Hornsby, St. Vincent's,
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 in SIX WEEKS from planting."

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 dessert quality, vigorous grower, and very fertile.
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 Dwarf-trained Pyramis FRUIT TREES.
 Dwarf-trained PEACHES and NECTARINES, of extra size
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THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 11, 1886.

**THE IMPROVEMENT OF
PLANTS.**

EVERY seedsman may be a plant improver,
 whether he cultivate a thousand acres
 or only so much ground as will fill a flower-pot.
 Messrs. Dickson, Brown, & Tait, of Corpora-
 tion Street, Manchester, are not engaged either
 in field culture or garden culture, but they are
 improvers of plants nevertheless, since they
 have built up their reputation by the distribution
 of the best seeds that could possibly be ob-
 tained. They hold a few acres as a trial-ground
 for testing seeds, where the various stocks of
 vegetables or roots are subjected to critical
 examination, and their characters duly regis-
 tered. The distributor of seeds is not usually
 himself a plant-improver at home (although
 there are some very remarkable exceptions to
 this rule), but his business as a large trader
 makes it advantageous to him to reward the
 actual plant-improver, so as to gain possession
 of superior strains, and to keep himself "at the
 front" by the only means which are certain not
 to fail. It is in the field or garden that the
 final appeal as to quality takes place. There the
 trial is made under the consumer's own eye, and
 he is enabled to ascertain, not only whether a
 thing is good, but whether it is suitable for
 his soil and for his purposes. Such evidence
 cannot be resisted, and every one must have
 noticed how telling it proves. It is this weighing
 of seedsmen in the balance which, in its results,
 obtains for them new customers or loses them
 their old ones, which gains them fame or
 failure.

The very small seedsmen must always be
 at a disadvantage, as general distributors,
 compared with the great houses, since they
 do not possess the same opportunities of
 enlisting the services of experts in plant-im-
 provement, so as to obtain the best possible
 stocks. It is true that their business may grow
 from small beginnings, but the small tradesman,
 so long as he is small, can hardly send out stock
 seeds to the various growers of each particular
 sort—horticultural and agricultural—selecting
 the right men as growers and improvers, as well
 as the best districts for the best production of
 each kind of seed. "Little boats should keep
 near the shore," and the small seedsmen should
 either purchase most of their goods of the
 great houses, or they should confine their
 attention to the growth of one or two sorts of
 seeds only. It may here be mentioned that
 Messrs. Dickson, Brown & Tait have intro-
 duced many well-known and widely grown
 fruits, vegetables, and flowers. There are few
 Cauliflowers in greater demand than their
 Eclipse, the sale of which is increasing, its
 quality, flavour, size, and adaptability for either
 private or market gardens, gaining for its
 introducers many of those testimonials which

CHARLES SHARPE & CO.,
 SLEAFORD.

people send unasked for the relief of their feelings. They possess a Beet which bears out my remark on the usual course of plant improvement, since it was raised by Mr. Hope, gardener to the Earl of Jersey, of Middleton, Stoney Park. To cite another case, they have arranged to distribute the Penrhyn Seedling Melon; and to send out the Clumber Seedling Cucumber; while Mr. H. Moore, Peel Park, Manchester, has placed in their hands the stock of a new Tomato, a cross between Conqueror and Vicks' Criterion. The Best of All Melon is an older introduction, a cross between Colston Bassett and Golden Gem, possessing the beautiful netting of the former and the bright deep orange colour of the rind of the latter. It weighs three or four pounds, and needs no further praise, after all that the horticultural Press has already given to it, since a large proportion of exhibited Melons are of this variety.

Besides the actual improvements by experts Messrs. Dickson, Brown & Tait, spare no pains in thoroughly cleaning all seeds, sending them out entirely free from weeds, or any other misplaced matter, such as dirt or rubbish, everything being rubbish which is not the seed you bargained for. No seeds are sent out that do not, on trial, reach the highest percentage of germination. It would interest and satisfy all the customers of this firm if they only saw the working of their very complete system of testing and cleaning the various seeds before they are sent out.

The extent of the business in grass seeds in the agricultural department, and in Dutch bulbs, is surprising. Hundreds of thousands of Tulips and Hyacinths are annually imported from Holland, the firm being among the largest importers in England, while in grass seeds the trade is very large. New seeds of grasses and Clovers sufficient to sow 10,000 acres had already been received from various sources at home and abroad, and stored in the warehouses, in the middle of November, and this did not exceed more than one-fourth part of the quantity which had still to come from the growers for the supply of next year's trade.

Grass seeds are either sold separately or mixed in such proportions as Messrs. Dickson, Brown & Tait, may deem to be expedient either for permanent or temporary pastures on various soils. They guarantee the percentage of growth and the purity of all these seeds, and we are assured that the greatly increased trade in the seeds of permanent pastures which set in six or seven years ago still continues, and shows no present sign of abatement. Messrs. Dickson, Brown & Tait were among the first firms who offered guarantees for the seeds they supply.

THE BULB GARDEN.

LILIES.

THE various species of Lilies, more especially *L. auratum*, will all need to be reported at once. They should not have been left out of doors exposed to all sorts of weather, but kept comparatively dry at the roots, and in a well ventilated greenhouse, and now, when they are turned out of the pots, the roots will be found matted together into a compact mass. Two classes of roots are observable, the most numerous being those from the base of the old stems. They are tough and fibrous. A set of thicker and more fleshy roots are produced from the base of the bulbs. Our method of procedure is to take hold of the stem firmly, twisting it out from the crown with the mass of roots attached. The roots from the base of the bulbs are not disturbed at all, and in repotting care is taken to keep the mass intact. We use for potting soil about equal portions of peat and loam, with a fourth part of decayed manure added, and some sharp sand. When potted they are plunged over the rims of the pots in a bed of cocoa-fibre in a frame. I find they are injured by wet in winter if

they are left fully exposed to the weather. *J. Douglas, Great Gearys.*

SALVIA AUREA.

A CORRESPONDENT has kindly given us the opportunity of seeing this desirable old plant (fig. 142), which we had long lost sight of. It is a native of the Cape of Good Hope, and was cultivated by Philip Miller at Chelsea in 1731, and figured in one of the early volumes of the *Botanical Magazine*, t. 182. Its glaucous leaves and relatively large bronzy-orange flowers are so striking, that we wonder such a fine plant should have been allowed to go out of cultivation. Table decoration and cut flowers have as much to answer for as "bedding out." It would form a fine plant for our friends on the Riviera, and we should even think that it might be tried with good chance of success in the Channel Islands, or in some favoured nook in Devonshire or Cornwall.



New Garden Plants.

GONIOSCYPHA EUCOMOIDES, Baker.*

UP to the present time only a single specimen of this remarkable Liliaceous plant was known to exist, and now a living specimen of it has been sent to Kew by Mr. W. Bull, of Chelsea. It is a very interesting, and apparently an exceedingly rare or local plant, allied to *Tupistra*, and of rather striking appearance; the dense cylindric flower-spike being crowned with a brush-like tuft of very narrow bracts after the manner of a *Eucomis*.

It has a short fleshy rootstock with fleshy roots, and a loose rosette of petiolate, elliptic, acute leaves, a foot long by 5-5½ inches broad, of a bright green colour. The terete green peduncle arises from the middle of the rosette of leaves, and is about 4-5 inches high, and bears a dense cylindric flower-spike, 2½-3 inches long, by 1-1½ inch thick, crowned by a tuft of fine subulate bracts, 6-8 lines long, the flowers having similar bracts mingled with and protruding beyond them. Flowers dull dark green, fleshy, perfectly sessile, horizontal, campanulate, ½ inch long, and the same in diameter, the lobes of the perianth half as long as the tube, spreading, roundish, thickened and truncate at the tips with an inflexed apiculus, minutely eroseolate on the margins. Anthers sessile at the mouth of the tube, oblong, yellow. Ovary globose, light green, style projecting a little beyond the anthers, clavate and trigonous at the apex.

Mr. Bull does not know from whence he introduced the plant, but the original specimen was collected in Bhotan. So far as the leaves are concerned the plant has somewhat the habit of a *Funcia*. *N. E. Brown.*

STREPTOCALYX FÜRSTENBERGII, *E. Morren*, in "*Belgique Horticole*," 1883, p. 13. *ÆCHMEA FÜRSTENBERGII*, *Morren and Wilm.*, in "*Belg. Hort.*" 1879, p. 42, t. 2, f.

This is a very curious new Bromeliad, which Mr. Bull has introduced. It looks at first sight very like a Pine-apple, but, instead of an eatable syncarpium there is a dense oblong panicle, made up of innumerable horizontally distichous spikes of flowers, each spike subtended by a large pinkish serrulate bract. The genus stands at the head of the order in *Bentham's* classification, but, so far as I am aware,

* *Gonioscypha eucomoides*, Baker, in *Journ. Linn. Soc. Bot.*, vol. xiv, p. 581, t. 19.

† *Streptocalyx Fürstenbergii*.—Acaulis: foliis 30-40 dense rosulatis lanceolatis rigidis arcuatis facie viridibus concavis dorso subtiliter lineatis, margine aculeis parvis deltoideis cuspidatis armatis; floribus in spici horizontaliter distichis ascendens in paniculam amplam densam oblongam acutam ordinatis; spica singula bractea ovata subcoriacea rubella albo furfuracea serrulata præditâ; spicis inferioribus 6-8 floris; bracteis propter parvas ovadas; ovario globozo viridi albo furfuraceo; sepalis connatis lanceolatis adpressis apice mucronatis; petalis breviter protrusis; genitalibus inclusis.

this is the first time it has been seen in England alive. There are three other species known, all natives of Guiana or the Amazon valley. The present species was described and figured by Morren, from a plant that flowered in 1877 in the fine collection of Prince Fürstenberg, at his château of Donaueschingen in the Black Forest. It came from the province of Bahia, in Brazil.

Acaulescent. Leaves thirty to forty, arranged in a dense rosette, lanceolate, arcuate, rigid in texture, 2-2½ feet long, 1½ inch broad at the middle, 3 inches at the dilated base, tapering gradually to the point, dull green and concave all down the face, finely vertically lineate on the back, armed on the edge with copious small decurved deltoid cuspidate prickles. Inflorescence central, sessile, oblong, strobiliform, 15-16 inches long, 3-4 inches diameter; bracts imbricated, ovate, pink, rather horny, furfuraceous, serrulate, ascending, the lower 3-4 inches long, the upper an inch. Spikes horizontally distichous, the lower alternately six to eight flowered. Flower-bracts small, ovate. Calyx including ovary an inch long; ovary greenish, fleshy, one-third of an inch in diameter. Sepals pale, horny, adpressed, lanceolate, with an erecto-patent mucro. Petal limb small, only seen faded. Genitalia not protruded beyond the calyx. *J. G. Baker.*

THE CULTURE OF HARD-WOODED HEATHS.

THAT *Ericas* of the hard-wooded class are found to be delicate or difficult subjects to cultivate by beginners is a point that will be very generally admitted by all who know anything of their cultivation. They will not bear without resenting it the rough-and-ready treatment that plants of coarser organisation will endure unharmed. Their fine capillary roots and delicate constitution under cultivation in pots are admittedly very susceptible of adverse influences; but that they are the untractable subjects they are too generally believed to be by those who will not trouble themselves to understand their peculiarities and their cultural requirements we cannot admit. Although they undoubtedly constitute one of the most interesting, varied, and brilliantly beautiful classes of plants known to cultivation, they have never been taken to by gardeners generally with that amount of fervour and wide appreciation that their attractive colours and pretty forms would lead to the expectation of. They have not of late years been popular plants in the liberal sense of the word, and the reason of their unpopularity is that their management has always appeared to the majority of cultivators to be shrouded in mystery penetrable only to the few.

Since George III. was king, during whose reign British gardeners first made their acquaintance with Cape Heaths, down to the present day, the feeling of plant growers appears to have been that they were "uncanny" things, that only the wizards of the craft could hope to deal with successfully. And the wizards disposed to charm with them have always unfortunately been few, but never perhaps more so than now, if we may judge by the rarity with which well cultivated plants are met in the country. Good collections lying between Land's End and John o' Groat's may almost be counted on the fingers, and to so low an ebb has the demand for them shrunk, that the very small stock kept up in two or three of the London nurseries is sufficient to meet the requirements not only of this country, but much of that of the Continent as well. We are aware it is usual to ascribe this state of things to the influence of fashion at the present time, and are ready to admit that there is some force in the plea. The demands on glass and other resources of the garden were never greater than at present, and in many places it would probably be impossible to accommodate Heaths suitably. This fact may well account for the circumstance that they engaged less attention at the present time than they ever did since their introduction to cultivation, but not for their unpopularity in times when hard-wooded plants were the most favoured of all classes with gardeners who laid claim to distinction in the art of plant growing. Fashion, no doubt, has something to do with the limitation of Heath growing at the present time, but the unreasoning prejudice that as a class they are very unmanageable does now and always have done more to circumscribe their cultivation than anything else.

What appears to be wanted to counteract this is an

increase, not of wizards, but of men who will carefully and patiently study the requirements of the plants for themselves. Without this they can never become more popular, indeed they are rather more likely to disappear from cultivation altogether. He who observes closely and comprehends clearly the lessons the plants themselves teach cannot fail in the culture of hard-wooded Heaths, provided he apply himself with the energy and painstaking the subject is worthy of.

Turning to practical details we shall first deal with the consideration of soil. The only suitable soil is peat, and it should be the best obtainable for the purpose; that which is hard, as if compressed and densely fibrous, with a deep hazel or chestnut tint, is the best, and if also possessing a good proportion of natural grit or sand it may be pronounced perfect. All these points of excellence may not be found in the peat of every district, but in these days of horti-

choosing the latter month in that case for the work. It is handy also when the collection embraces many plants of various sizes to classify them according to the several sizes, dealing with the largest first. By this means the bulk of the rougher parts of the soil will fall to the larger plants and leave the finer particles fitly to the smaller ones.

Never pot an *Erica* except it requires it. The test for this in young plants that are being grown on is that the pots shall be full of roots. If the soil of the last shift is only partially occupied with roots, and the soil be healthy, and the drainage in good working order, it is better to return such plants to their pots again and wait till they have filled up the soil with roots. If, on the other hand, the soil and drainage are unhealthy it would be proper in that case to break down the ball and repot in the same size of pot, or if found necessary even into a smaller size. Plants again that have reached specimen size, and are in

a perfectly thorough incorporation of the sand in mixing the roughly prepared compost will sooner or later bring about the same result in this case also. Thus, there will in either case be an undesirable increase of the liability to mishap without any compensatory advantage. On these grounds we prefer to break the compost moderately fine with the fingers, and refrain altogether from the use of the riddle except in potting very small plants as in the first and second shifts from the cutting pot. At the time of potting the compost should be moderately moist, rather dry than wet, and the ball of the plant should be in the same condition. A liberal admixture of sand of the cleanest and sharpest quality must be thoroughly well incorporated with the soil after it is broken up, when it is ready for use.

Small shifts in preference to large ones should be the rule in potting Heaths. Enough room to give pasturage to the roots for a season will be found safer and altogether better than larger shifts. From half an inch to an inch all round added to the ball, according to its size, at any one shift, will be ample for the requirements of the most robust and progressive plant for a season. Let the drainage be liberal, using rough rather than finely broken crocks, and protect it with a layer of the roughest potting material, from which the fine particles have been removed by shaking well in a quarter-inch sieve.

We are now fully prepared for potting, in the process of which each plant, on being turned out of its pot, should be carefully examined with the view to ascertain the condition of its roots. If dry, return it to its pot to be sufficiently moistened; if much matted open up, and relieve the roots gently with a pointed stick, inflicting as little damage as possible in doing so.

Here it will be proper to caution beginners against the system advised by some *Erica* growers, of placing the ball in the process of potting so that its crown shall be on a level with the rim of the pot. This is a pernicious system that has caused the death of more Heaths than perhaps all other causes together. The object is to prevent the lodgment of water at the collar of the plant, which is not only desirable but necessary as a preventive of decay at that point, to which some varieties are more prone than others; but the cure invariably proves more fatal than the disorder. The elevation of the ball prevents the percolation of water through it, consequently only the sides get a sufficient supply, and if the roots at that point should perchance become dry, there being nothing to sustain life in the dried-up core of the ball, collapse is the inevitable result. Therefore avoid this practice by all means. It may be desirable to elevate the collar very slightly above the level of the surrounding portion of the ball, but it should never rise nearer the level of the rim of the pot than half an inch in the case of small plants, to $\frac{1}{4}$ inch in larger ones. A very slight decline from the centre to the circumference of the ball will be found quite sufficient if the drainage is as good as it should be to prevent the lodgment of moisture about the collar; but there must in any case be ample space left between the surface of the ball and the level of the rim to contain sufficient water to moisten the whole at any time. Having placed the ball as just described in the centre of the pot, proceed to fill in and ram the soil home equally and firmly around it till the space is filled up to the level of its outer edge. When finished, the surface of the new soil should be as impervious to the impression of the thumb as the old.

WATERING.

This is the most important of all operations in *Erica* growing; but it is most difficult to convey an intelligible idea of how, and when to do it in language to a beginner. It is an operation, the right performance of which can only be acquired by experience and close observation. The Heath grower must, of all cultivators, be acquainted with his plants collectively and individually—he must know their condition as to drainage and their behaviour under cloud and sunshine before he can water them aright. When he acquires this familiarity with their wants he will know at a glance, or by a rap of his knuckles on the pot of any doubtful individual what to do. We can only give general hints which will serve to indicate lines for the guidance of observation, but cannot impart or take the place of experience. After potting let the plants stand a few days without water, after which time they should be supplied with it copiously enough to moisten every particle of soil and every fibre of the



FIG. 142.—*SALVIA AUREA*: FLOWERS BRONZY-YELLOW. (SEE P. 744.)

cultural soil-men there is no difficulty in procuring a quality that will suit the requirements of the most fastidious variety of Heath. If obtainable at home the collecting of it should be gone about with some care. The herbage or growth, whether it be Ling or other Heaths or Ferns, should be cleared off the surface before beginning to cut the turves; this done, the latter should be cut in convenient sizes as regards length and breadth, from 2 to 3 inches thick, according to the depth and density of the fibre. Let it be cut only a month or two before it is required for use, as it is better to use it almost fresh than when much decayed. After cutting let it be stacked to protect it from being saturated with rain or snow.

POTTING.

This operation is best performed in February or March. If the collection of plants is large the most early to move in growth should be first dealt with, and the remainder in the order of their starting; but if small, they may be all done at the same time,

pots as large as are convenient to move about, will not often need potting. They may be kept in good health and vigour for many years in the same soil and pots by good management in other respects.

In giving directions for preparing the soil for potting it may be noted that there are some differences of opinion regarding the degree of fineness it should be reduced to in breaking up; some good Heath-growers believe it should be broken, not only very fine, but should be passed through a half-inch riddle after it is broken; others, who have been equally successful, go to the other extreme, and prepare their compost roughly, going the length of sifting the fine particles out if they bear too large a proportion in their estimation to the rougher particles. With regard to this it is only necessary to remark that in either case the difficulty of the subsequent management, especially as regards watering, is certain to be greatly increased. The fine compost will be very liable to become sodden especially in large pots; and the difficulty, or rather impossibility of obtaining

plant. Subsequent waterings must be regulated with great care and circumspection till the roots have taken full possession of the new soil. Over-watering would certainly result in the new soil becoming sour, and the death of the roots would ensue; under watering, on the other hand, would retard the progress of rooting by reason of drought—a lesser evil perhaps than the former if not too much prolonged, but in either case the loss of health and the loss of the season of growth would be in proportion to the duration and magnitude of the mismanagement. The watering of hard-wooded Heaths should be done by preference in the morning or early part of the day, especially throughout the colder months of the year. In summer pot-bound plants and even those that may not be so, will perhaps require water twice or oftener during the twenty-four hours. Much will depend on the local conditions of climate and other circumstances under which they grow, as well as on the state of the drainage of each individual plant, as to the frequency with which each will require water. If the surface of the ball of any particular plant is continually moist and water stands for some time after applying it there need be little doubt but that it is water-logged, defective drainage being the cause. Water should never be given twice to such a plant without correcting the fault in the drainage. If there is any doubt as to the requirements of a plant in respect of water the use of the knuckles already alluded to will settle the point at once. A rap sharply delivered on the side of a dry pot will call forth a light ringing sound, but if the ball is moist the sound will be heavy or dull. The best of all water for Heaths is that from the clouds. This should by every means be secured for them wherever the spring or other water on supply is impregnated with the salts of lime, iron, or any other pernicious ingredients.

GENERAL TREATMENT.

Little more remains to be said. *Ericas* being essentially plants of the sun should have the fullest exposure to light at all times, except the brief period during which they make their growth—they should then be lightly shaded during the brightest hours of the day. The house best adapted to their growth is one that is light and airy—span-roofed if possible—and in which they may be placed near the glass. As to placing them out-of-doors at any time in summer, that point must be decided by a consideration of the local atmosphere, as to whether it is pure, or loaded with the impurities of manufactories or city smoke. In the latter case they should on no account be put out-of-doors; in the former they may, but with doubtful benefit, especially in very moist localities where rain would interfere with the proper control of watering. Even in the best localities they will be under control if they are placed in cold pits in a good exposure, or in any temporary erection where they can be protected with glass at will. At all seasons they must have a free circulation of air, only shutting the ventilators during the prevalence of frost and cold cutting winds. It will be difficult during the spring months to do this, and at the same time to keep the temperature desirably low: the increasing power of the sun will, even in the teeth of a frost-laden March wind, raise the thermometer in a shut-up house to a degree much beyond what *Ericas* will endure for long. When this is frequently the case, acrim may be spread over the openings of the ventilators to temper the wind and deprive it of its frosty particles.

The temperature should be kept as low as is consistent with the exclusion of frost, but in long-continued dull damp weather in winter or spring it may be necessary to raise the temperature even when already undesirably high, in order to induce a free circulation of air, only shutting the ventilators during the prevalence of frost and cold, cutting winds. During the spring months the opening of the side ventilators is strictly to be avoided when frosty or cold east winds prevail, but the top ventilator may be kept open to moderate the temperature, which, in spite of a frost-laden March wind, the power of the sun at that season, will often raise higher than is desirable for *Ericas*. In long-continued dull damp weather, in winter or spring, it may be necessary to give a little fire-heat even when the thermometer stands undesirably high in order to induce a free circulation of air, by which means only can an attack of mildew be averted. When this course has to be adopted, it is best to give the heat during the day and open the ventilators freely.

Of the ordinary matters of pinching or pruning and staking it need only be said that the fewer the stakes that are used the better it will be for the health of the plants. Stopping or pinching will be necessary to keep the plants well furnished at all points, and as the direction of vigour in most sorts is upwards, to the detriment of the lower branches, the top shoots will require the largest amount of attention.

Mildew is almost the only enemy to which the *Erica* is a prey, but it will give little trouble if the plants are kept in health, free ventilation at all times, except during frost, being the best preventive, and the timely application of sulphur being the best cure. *W. S.*

ON THE WILD FORMS OF TUBEROUS SOLANUM.*

THE well marked distinct species of tuber-bearing *Solanum* are five in number, and are all natives of America, viz.:—

1. *Solanum tuberosum*, including numerous subspecies and varieties; 2. *S. Commersoni*; 3. *S. cardiophyllum*; 4. *S. Jamesii*; 5. *S. oxycarpum*.

The Potato of cultivation originated from the first. I will say a few words about the others and then return to this one, *S. tuberosum*.

2. *S. Commersoni* is a native of Uruguay, Buenos Ayres, and the Argentine territory, in rocky, arid situations at a low level. It is a dwarfier plant than *tuberosum*, with small, oblong, obtuse, subequal leaflets and larger flowers, with a corolla always pale lilac, and deeply cleft. It has been cultivated successfully in France, but is probably too subtropical in its climatic needs to be adapted for our own country.

3. *S. cardiophyllum* is more like some of the *tuberosum* forms in general habit, but the corolla is different in structure. It is a native of the highlands of Central Mexico at an elevation of 8000 to 9000 feet above the sea level. It was cultivated many years ago in the Chiswick Gardens, but is not in this country now, and no record seems to have been left about the shape, size and quality of its tubers.

4. *S. Jamesii* is a Northern type, being a native of the mountains of Colorado, New Mexico, and Arizona. It is very different from the cultivated Potato, in size and habit, much dwarfier, with oblong acute subequal leaflets and small pale flowers with a deeply cut corolla. It has been grown at Kew and many other places in England. The tubers are very palatable, but I have never seen them larger than marbles.

5. *S. oxycarpum*.—Of this I have never seen even dried specimens, and know it only from a drawing. It is like *Jamesii* in general habit, and differs very much from all the others in its fruit, which is oblong and sharp pointed, whence its name. It is a native of Central Mexico, and the flowers and tubers have never been described.

Tuberosum, using the name so as to include under it all the tuberous-rooted *Solanums* with short deltoid segments of the corolla, extends down the western side of the American continent, from the Rocky Mountains in latitude 30° north, to the Chonos Archipelago, off the coast of Patagonia, in latitude 45° south, so that it is spread over a latitudinal range of 75°. Within this area we get no less than sixteen forms, so far different from one another that they have been named by some one or other botanical writer as distinct species. They are not, however, species in any comprehensive sense. They all coincide in the general characters of tuber, leaf, inflorescence, flower and fruit; *tuberosum*, therefore, is one of those polymorphic vegetable types of which we have examples in the Old World in *Rosa canina*, *Rubus fruticosus*, *Narcissus Pseudo-Narcissus*, and *Nephridium Filix-mas*. The case is very similar to what we have in England in the genus *Rubus*. *Chamaemorus*, *Idæus*, and *saxatilis* are well marked, definitely bounded, and clearly characterised types. In the tuberous *Solanums*, *Commersoni*, *cardiophyllum*, *Jamesii*, and *oxycarpum* are the distinct types, and *tuberosum*, like *Rubus fruticosus*, a comprehensive species in the sense of Bentham and Hooker, a group of closely allied species in the sense of Dunal and Babington. The extreme forms look very different from one another when they are placed side

by side, but if the whole series is taken there is no very decided gap to be found in any one character, but between the extreme types we get gradual intermediate stages of gradation. In the present case the principal differences between the sixteen forms lie in the robustness of growth and hairiness of the whole plant, the shape and number of the leaflets, the absence or presence of little leaflets intercalated on the leaf axis between the big ones; the shape of the calyx and segments, and the colour of the corolla. Although the Potato has been cultivated in Europe for 300 years, in point of fact we know extremely little that is trustworthy about the alterations that may be produced in these characters by change of climate and soil. On the present occasion I will enumerate them geographically, referring those interested in the matter for botanical details to a paper which I published in vol. xx. of the *Journal of the Linnean Society*, p. 489 to 507, with six plates.

CHILI.

The Chilean types are *Maglia*, *etuberosum*, *Bridgesii*, and *Fernandezianum*. We have had *Maglia* at Kew since 1862. It differs from *tuberosum* by its fewer leaflets, intercalated little leaflets absent or scarcely present, hispid peduncle, and white flowers. It is abundant on the coast, near Valparaiso. A closely allied form was found by Darwin in the Chonos Archipelago. *Etuberosum* is very little different from the cultivated Potato in leaf and flower. When it was first described it was said to have no tubers at all, but in a plant I saw last summer, grown at the Edinburgh Botanic Garden under the name, tubers were present. *Fernandezianum* comes from the island of Juan Fernandez. It looks very like the ordinary cultivated Potato. *Bridgesii* is a high Andine form with numerous narrow leaflets and obtuse calyx segments.

ANDES OF PERU, ECUADOR, BOLIVIA, AND COLUMBIA.

In Peru a plant is widely spread which quite agrees with the common cultivated Potato. This I will therefore call *eu-tuberosum*, as I think it best to keep the name *tuberosum* for the whole group, and have a separate name for each of the distinguishable forms. The drawing of it which I now exhibit was made from a plant gathered by Matthews on the rocky hills of Amancnes near Lima. Whether this *eu-tuberosum* is really native in Peru I am not able to say with certainty, but I should think this is most likely. The other named Andine forms are *Mandoni*, immitis, *columbianum*, and *valenzuelae*, none of which have been seen alive in Europe.

MEXICO.

The Mexican types are *verrucosum*, *suaveolens*, *stoloniferum*, *demissum*, *utile* and *squamulosum*. Of *verrucosum* I exhibit a figure copied from one of Schlechtendahl drawn from a living plant grown in Germany. This *verrucosum* was cultivated for several years on a large scale near Geneva, but was not able to compete with *eu-tuberosum*, and was abandoned. *Suaveolens* was once grown at Kew, but we have not got it now. *Demissum* was described by Lindley from specimens grown at Chiswick. Of *stoloniferum* I have seen plants grown at Leipzig. *Squamulosum* and *utile* I know from descriptions alone.

ROCKY MOUNTAINS.

Here we get *Fendleri*, the most northern of the *tuberosum* varieties. It is much dwarfier and weaker than *tuberosum*, with three to seven thin ovate subacute leaflets, intercalated leaflets few or none, and few-flowered cymes (as shown in an accompanying figure). What is the economic value of its tubers still remains to be tested.

I take the names as I find them in the botanical books. I do not mean to say that I can undertake to identify sixteen sub-species and varieties. Taking *eu-tuberosum* as the type, *Maglia* and *Fendleri*, the two geographical extremes, look to me to recede from it most. All that I know about their characters and localities I have given in the paper to which I have already referred. I wish much that some one would monograph these tuberous *Solanums* in the same thorough way that Mr. George Maw has just monographed the *Crocuses*. We do not even know clearly whether *eu-tuberosum*, the common cultivated esculent so freely displayed on the tables in front of us, be really an original type, or a form produced by the agency of man; and in investigating the relations to it of the other sixteen *tuberosum* forms, there is scope for the labour of a lifetime. I leave to those who are better qualified than myself the task of thinking out what are the practical deductions to be drawn from these facts.

* A paper read at the Tercentenary Conference, December 2, 1886, by J. G. Baker, F.R.S.

Orchid Notes and Gleanings.

MASDEVALLIA CUCULATA.

WHETHER destined to become popular or not, for garden purposes this is very distinct and good. It has not the clear, brilliant colouring of *M. Veitchii*, or *M. Harryana*, but is equally desirable in a collection where variety is of any importance. *M. cuculata* and *M. inflata* are said to be its nearest cousins, but its habit and general appearance are not unlike those of *M. Reichenbachiana* and *M. coriacea*, which are comparatively better known in the horticultural world. The colour, however, is described by Reichenbach in the *Gardeners' Chronicle*, vol. xix, n.s., p. 592, as of the darkest blackish-purple, is seldom (if ever) met with in the genus. In our sunless, foggy English winter climate its greatest intensity may not be developed, and some would prefer to consider the colour as a deep maroon. The foliage is leathery and handsome, forming a fine glossy green background for the conspicuous and moderately-sized flowers, whose spreading tails are 1½–2 inches in length. Being a native of Colombia, it delights in the temperature of a cool house, and may be grown to perfection in pots with peat and sphagnum, and plenty of drainage to carry off the superabundant moisture necessitated in the heavy waterings during the summer season. A healthy specimen has been flowering for some time in the cool Orchid-house at Kew, hung up near the glass. J. F.

LISSOCHILUS KREBSII PURPURATUS.

A deciduous terrestrial Orchid, native of South Africa, with pseudobulbs and plicate leaves. The flowers are borne in erect spikes, each bearing some twenty flowers. Sepals dark green at the back, maroon-purple in front, the margins revolute; the petals ovate, bright yellow outside and creamy-yellow within, faintly veined with red at the base; lip clear yellow, its lateral lobes chocolate-brown streaked with darker lines, and the spur is striped with pink. The plant flowers in July.

Pot culture, with good fibrous loam and abundance of water during the growing season. They should be kept dry during the resting season and require a warm temperature at all times especially during growth. The plants are best grown in full light. *Orchid Album*.

THE POTATO TRICENTENARY: THE CONFERENCE.

(Continued from p. 728.)

WE have already alluded to the proceedings up to the time of our going to press on Thursday, Dec. 2, in the afternoon of that day Mr. G. Murray, F.L.S., of the British Museum, read a paper on "The Potato Disease," his remarks being illustrated by a number of diagrams of the fungus in its various stages. He said that the history of the disease was a recent one as compared with the history of the Potato itself, notice having been first called to it in 1845, when it was probably brought to the country from Belgium. After describing the nature of the fungus, Mr. Murray said that he had satisfied himself that the disease was propagated by the spores being distributed by the wind. A number of glass slides, such as are used with a microscope, having been covered with glycerine and placed on the lee side of a field of infected Potatoes, when a slight breeze was blowing, it was found that after an exposure of a few hours the slides each contained a number of these spores. From continuous microscopic investigation it had been seen that the complete fungus was produced in three hours; and this fact accounted for the sudden and disastrous spread of the disease. No system of earthing up the Potatoes could, he believed, be efficacious in checking the disease, neither could confidence be placed in any legislative enactments regulating the planting of Potatoes.

Earl Cathcart said it would be interesting to know whether the Potato disease was an effect or a cause. With regard to the degeneracy of the Potato, he might mention that it was a fact that no supposed disease-resisting Potato had ever existed for more than about twenty years. That, in itself, he considered to be an argument in favour of the theory that plants are liable to degenerate when over-cultivated.

INTRODUCTION OF THE POTATO INTO FRANCE.

Mr. Henry Leveque de Vilmorin (of the French National Society of Agriculture) then read a paper upon "The Introduction of the Potato into France."

The second day's proceedings, if of less general interest than those of the previous day, were decidedly more practical, but the audience, though fit, was decidedly few.

THE PRODUCTION OF VARIETIES BY CULTIVATION.

Dr. Maxwell Masters, F.R.S., having prepared no paper, introduced this subject for discussion by a few general remarks.

After alluding to the objects sought, the speaker said that the question for discussion was whether the modes which we now adopted for the purpose of obtaining new varieties were sufficient to insure the attainment of the object worked for. On the whole he did not think they were, and he would take the opportunity of drawing attention to the want of precision that attended the efforts at the present time to raise new varieties of the Potato. A wider knowledge and a greater precision in scientific method were much wanted. As an indication of the present deficiency, the speaker alluded to the popular confusion between "seeds" and "tubers," and to the singular habit of speaking of the fruit or berry of a Potato, either as an "Apple" or a "Plum," when it was neither one nor the other, and presented but a remote resemblance to either! Dr. Masters then alluded to the possible methods of securing new and improved varieties, speaking first of selection either of tubers or of seedling varieties, but he was of opinion that nothing useful could be derived from this method.

Another process was that of cross breeding, or the production of new varieties by the application of the pollen of one variety to the stigma of another. This method had been practised for many years, especially by Mr. Fenn. The third method was that of hybridization proper, or the crossing of two reputedly distinct species. This process had not been much attended to in England until it was taken up by Messrs. Sutton at Reading. There was yet another mode by which new varieties might be obtained—namely, grafting. Many Potato cultivators absolutely denied the possibility of anything like grafting, but he believed it to be a practicable and realizable idea. He had himself ascertained that it was possible, and had seen or read of the results obtained by Mr. A. Dean, Mr. Maule, Mr. Fenn, Mr. W. C. Smith, and other experimenters. Remarkable results had been obtained by grafting the Potato on to the Tomato and other species, but these were matters of curiosity merely. These were all the methods at present practised for gaining new varieties of the Potato; there might be more, but he did not think it probable. What he would wish to emphasise was that all these modes, except that practised by Messrs. Sutton, were merely shifts of a kaleidoscope, or ringing the changes on the old varieties over and over again. If any really important result were to be obtained in the future in point of greater adaptability to our climate, power of resisting disease, or general robustness, we should have to infuse a new strain into our varieties, and the only way to do this was by hybridisation of species. It was not necessary to confine the experiments to tuberous Solanums only, but other hardy species of Solanum might be put under requisition to supply pollen or to supply seed, as the case might be. The process, however, would be very long and tedious, and would hardly be within the power of private individuals to undertake the experiments, which would require perhaps twenty years of constant attention.

Mr. A. Dean, who was announced to read a paper on the "Raising of New Varieties," criticised some of the statements made by Dr. Masters, especially as regards the production of varieties by selection, in which position he was supported by Mr. Arthur Sutton, but both these gentlemen were probably at the moment alluding to selection by tubers only, and not to the selection of seedlings. Mr. A. Dean has furnished us with the following note, which embodies the substance of his paper and the gist of his remarks:—

VARIATIONS IN POTATOS BY CULTIVATION.

The very interesting address delivered by Dr. Masters before the Potato Tricentenary Conference on the 3d inst. was based upon some notes which are

now before me, and upon which I wish to comment.

It was much to be deplored that papers and discussions so full of interest both to scientific and practical men should have had so poor an audience, for those who were absent were emphatically the losers. Now, Dr. Masters suggested that some variations in Potatoes were produced by selection, subsequently supporting his assertion by the unfortunately too well known fact, that some seed or Potato growers do not hesitate to publish sorts as improved forms of well-known varieties. That such improvements can be effected by selection [of tubers] so as to justify any such appellation as "improved" or other endeavour to show distinctness, is improbable, if not impossible. No Potato can, by any process of selection, be made better than it was when originally named, and in its pristine youth and vigour. A stock may deteriorate through bad culture, and, no doubt, does so often, or through bad storing, or through careless regard for the commonest requirements of a Potato depending for perpetuation upon tubers.

On the other hand, we have ample evidence that varieties will endure for long periods if carefully selected, cultivated, and preserved. The old Ashleaf—so old that its origin is hardly traceable—is a proof that with ordinary care any variety may be long perpetuated. The reason why the Ashleaf has been kept so long is, that we have not yet found a kind of its peculiar quality, and so early, to displace it; still it is now much less grown than was formerly the case. One reason why so many other forms have disappeared is, that we can easily raise, by cross-breeding, new varieties, which are even better croppers, equal or even better in quality, and, being new, invariably do what is done everywhere—push the older forms out of existence.

Sports, or bud variation, form a second suggestion, which, however, does not seem applicable to the Potato—at least, as far as my considerable experience has gone. One result, I trust, of the reference to these matters by Dr. Masters will be that we shall hear no more of undoubted impositions which have been found under the designation of improved varieties as applied to Potatoes.

Cross-breeding undoubtedly forms the chief, indeed the only means by which new varieties are obtained. The practice is simple, and so easy that we have numerous raisers of Potatoes by cross-breeding. Some kinds set their own flowers most abundantly, but that is due solely to a superabundance of pollen in the anthers. Others—and these are numerous—have very robust habit, but scarcely any pollen, hence it is difficult to employ them as pollen parents but most will make very good seed parents. On the other hand, when pollen can be obtained from them if ever so sparingly, it will fertilise as readily as will pollen from the most fecund sorts. Dr. Masters pointed out that the common appellations of Plum or Apple to the seed-ball of the Potato were botanically misleading; it will interest not only all Potato breeders but all interested in the Potato in any way, to learn that a more correct appellation would be berry. Some few kinds produce those berries in great profusion—Radstock Beauty and Woodstock Kidney have often given clusters of twenty or more, and literally by bushels.

The seed produce of these would, without doubt, being naturally fertilised, prove but reproductive of the parent [?]. It is only when actual cross-fertilisation takes place that variation is found and then often it is most remarkable, even two coloured sorts producing white ones. The application of other pollen to the pistil of the flower of the seed parent will produce a berry having probably some fifty seeds, and each one shall give a plant almost certainly diverse from its fellow in some way. What wonder, then, that we have so many new varieties of Potatoes and that older kinds get elbowed out of existence? Probably most Potato cultivators have noticed that whilst many varieties promise to bloom freely yet they fail in the promise, the blooms falling ere fully developed. There can be little doubt that such result is the corollary of want of pollen, in the flowers, because it is often found that application of pollen to flowers before they fall will not only retain the flowers, but cause seed-berries to form. It is rare, however, that such berries come so large as is seen on plants which naturally fertilise their own blooms. I have often had to gather berries so produced when apparently only half matured, and have invariably found the seeds fertile. Growers regard free berrying

to be objectionable, as tending to abstract from the plants strength which otherwise would go into the tubers. It is worthy of remark that, although I have had breadths of kinds which naturally fruit freely to leave considerable quantities of berries containing seed on the soil, yet I have never at any subsequent season found seedlings to germinate. The obvious thought is that cold or damp kills the seed—not an improbable result in the case of so tender an exotic as the Potato is.

With respect to hybridisation proper, between two species or progeny of species, I can but agree with Dr. Masters in the conclusion that it is work for some public body to take in hand. Without doubt the experiments so admirably conducted by the Messrs. Sutton at Reading, whilst full of interest and even of promise, will lack the importance which would attach to the actual hybridisation of two distinct species, or even of progeny of species. To employ pollen of a cultivated form upon the original tuberosum is at once a great leap, and yet but travelling over the old ground; and if the disease is to be checkmated there does not seem much hope of such an accomplishment by elements notoriously liable to disease. But to intercross the original *S. tuberosum* with *S. Magla*, or the latter with some other species, would be to make a really new departure, although it may take fifty years to solve effectually, and even then perhaps end in failure.

It is true we never had more prolific Potatoes than now, nor have Potatoes been more abundant for many years; still, we have been revelling in a succession of comparatively good Potato seasons, and that makes us optimistic—i.e., rather than despondent. With wet seasons—and seasons seem to run in cycles—we may have a return of the old evidences of devastation. Should such misfortune come, where shall we look for relief—to what straw shall we cling for help? If a new departure in the creation of Potatoes will not help us, what will? And if that departure is not really promoted, what hope is there in that quarter? Even the proposed introduction of varieties said to be void of disease in Chili to this often cold and inhospitable climate, in which the *Peronospora* spore seems exceptionally favoured, can hardly help in the solution of the problem.

I should like to add, in conclusion, that the recent Conference, poorly as it was attended, served to show how much of interest there is found clustering about the Potato, apart from its mere value as an article of food. Without doubt, its exceeding liability to disease has helped to bring these features into prominence, and it must be admitted that Potato culture in all its varied aspects may become a fascinating occupation and study.

Mr. Arthur Sutton (Reading) said that he did not wish to claim any of the credit for having originated the experiments referred to by Dr. Maxwell Masters. The idea had emanated from Lord Cathcart, and he believed that in its execution they had a pleasing example of the union of scientific and practical knowledge.

Mr. William Earley said that, while he did not assert the possibility of obtaining new varieties by the process of selection, the fact was not to be overlooked that by continually choosing the best specimens of a variety a better standard of excellence was maintained.

Mr. Charles Ap Thomas said that he had resided for twenty-five years in Chili and Peru, and was conversant with the Potatoes grown there. There were three principal varieties of the Potato, one of them, the yellow Potato, *Papa amarilla*, cultivated up to 2000 or 3000 feet, near Callao, and very suitable for introduction into England. [The Incas of Peru cultivated a similar variety, as was mentioned the day before in Mr. Markham's paper.] Its name was given it on account of the colour of its flesh; and it was very similar to the Rector of Woodstock variety. It was indigenous to the soil, and had been found in the country by the Spaniards when they first arrived. Other varieties grew near the coast. Mr. Ap Thomas suggested that these varieties should be introduced, and alluded also to the *Ullucus*. He had never heard of the existence of the disease in Peru.

Earl Cathcart expressed a hope that Mr. Ap Thomas' information might be put into a form available for future reference.

Papers were then read by Mr. Richard Dean, on "The Cultivation of the Potato;" by Mr. Alexander Dean, on "Raising New Varieties;" and by Mr.

Earley, on "The Advantage of Early Lifting of the Crop as a Preventive of Disease."

RAILWAY RATES.

In the evening a conference was held of Potato cultivators to consider the subject of the rates of transit of Potatoes. Mr. T. H. Bolton occupied the chair. In opening the proceedings he said that it was generally admitted that the railways had hardly answered the requirements of the public either as to accommodation or cheapness of transit. In the last Parliament a measure had been introduced, on the responsibility of Mr. Gladstone's Government, to place the railway companies under greater supervision, and to require that they should more fully discharge the duties which had, under Parliamentary sanction, been intrusted to them. The measure was not then carried through, but its passing into law was only deferred, and the railway companies would have finally to submit to Parliamentary control. We had had very great reason to complain of the unfair preference that was practically given to foreign producers in connection with the main trunk lines in the great cities. It was no use for the railways to plead that they could not afford to satisfy the demands of the public, for it could be seen from many returns that most of the chief lines were paying good dividends.

Mr. W. A. Hunter, M.P., then read a paper on the subject under discussion. He said the subject of railway charges for the carrying of Potatoes might be considered under the following heads:—1, Preferential charges in favour of foreign as against home-grown Potatoes; 2, irregularities in the charges compared with the service rendered; 3, charges by railway companies exceeding the maximum; 4, excessive proportion of the charges to the value of the article; 5, suggestions for cheapening the rates for conveyance. With regard to the last consideration, could cheaper rates be obtained? It was first to be remembered that as it stood now the law could do nothing to help the Potato grower. On the Brighton line the rate charged per ton per mile, exclusive of collection and delivery, varied between 4d. and 6d., while in America the Pennsylvania Railroad Company charged less than a halfpenny per ton per mile on the average of the whole goods traffic. This was lower than the English average for the coal traffic only. The secret of the low American rates was not in the unremunerative character of the work done, but in the mode of conducting railway business. What was required was a truck rate besides a tonnage rate. By such an arrangement the trader could have the option of sending by the present system or of having a truck and loading it as he pleased and with what he pleased up to the full carrying capacity of the wagon. At a rough guess he would say that an eight or ten ton truck ought to be charged about 6d. per mile for short distances (say under 40 miles), and a diminishing rate for long distances, so that for 200 miles it ought not to exceed 4d. per mile. It might be said that though this system would be beneficial to the large trader it would not be so to the small trader. Indirectly it would, however, for the moment a fair truck rate was established a class of carriers would spring up who would collect the traffic of small men and make their profit by sending full truckloads. Under the present system the independent carrier has been exterminated and the railway companies had established a monopoly; if a truck rate were fixed the business would be made more profitable to the companies and at the same time the railway monopoly would be destroyed.

After a discussion upon the paper the Conference closed with a vote of thanks to Mr. Hunter and Mr. Bolton.

IMPLEMENTS FROM IRELAND USED BY THE PEASANTS.

On the stand of Messrs. Hooper & Co., of Covent Garden, were shown some very interesting *souvenirs* of Sir Walter Raleigh's house in Ireland, sent by Mr. J. C. Buckley, of Savoy House, London. Amongst them were the following:—Potatoes grown in the garden of Raleigh's house at Voughal, Co. Cork, where the famous traveller first planted the Potato in these islands; these Potatoes were contained in an osier "kish," or basket used to collect the tubers in the field (see fig. 145). A curious spade used for planting and digging Potatoes in the Co. Cork as well as Waterford; this implement is prehistoric in make, its metal portion being fitted in the handle exactly in the same manner as the Reth bronze hatchets were attached to their handles (see

fig. 144). A drinking vessel of Beech-wood, called a "peggin," used in drinking buttermilk with their Potatoes by the peasantry. A three-legged iron pot, with its pointed "hangers" used for boiling the "praties" (see fig. 143). This pot (as well as the "peggin") is of antique form, being exactly similar to Irish bronze pots found in the bogs, said to be over 2000 years old. Some branches of Yew, taken off Yew trees of great age and size, which grow over the spot where Raleigh and Spenser the poet often met, by the borders of "Awneeguff" on the Blackwater, whilst Spenser was writing his *Faerie Queen*. A photograph of Raleigh's house at Voughal, Co. Cork. In this view was shown the "oriel" window whence many of Raleigh's letters are addressed ("From my Oriel in Yochel"). The room to which this window belongs is a most interesting apartment; it is wainscotted with dark Irish Oak, and has a beautifully carved chimney-piece of Elizabethan design, as well as tables and chairs of the same style, all belonging to Raleigh's time. Amongst other articles herein are leather drinking vessels, or "Black Jacks," said to have been used on the famous occasion of Sir Walter's smoking being seen by his Irish servants. The house is kept in excellent preservation, and is quite a museum of Elizabethan antiquities and reminiscences of Raleigh. It is now the property of Sir John Pope Hennessey, who has shown the greatest taste and care in all that regards this ancient abode.

Besides these *souvenirs*, Mr. Buckley also showed some of the staple food of the peasantry, consisting of Potatoes, herrings, salt, and buttermilk, a staple diet, which, unfortunately, was not always to be procured.

THE ALPINE GARDEN.

CORIS MONSPELIENSIS.

The older authors or writers recorded this shrub-like, bushy herb as a greenhouse biennial. Certainly the habit and general appearance of the plant would never suggest such an idea. The derivation of the generic name, adopted from Dioscorides, is also a stumbling-block, and having no apparent application here. The figure in the *Botanical Magazine*, 2131, has been taken from a pot-grown plant, where the branches were hanging over the sides of the pot, giving a false impression of the plant being procumbent in habit. Subsequent writers have employed the same figure to illustrate their description, thus propagating the error, and, as it were, arguing in a circle. When planted as it should be, in a dry, sheltered place, with full exposure, it forms a densely branching, upright little bush, fittingly clothed with small, linear leaves, revolute at the margin, and closely resembling a Heath, especially when seen in flower a short way off. Its habitat in Southern Europe—in barren sandy soils in maritime localities—should be a good indication of the treatment most suitable to it in our moist island climate, especially in winter. The bright lilac flowers are irregular, and produced in dense elongated heads all through the summer, even into November, when the weather is open, as it has been this autumn. Dry crevices should be selected for it on the rockery, with a little shelter if possible. It presents a striking contrast to *Hottonia palustris*, another member of the Primula family, and forcibly illustrates the effect of long-continued environment. Propagation is effected by seeds sown as soon as ripe.

GEUM MONTANUM.

Like *G. coccineum*, this species is a constant bloomer while summer and autumn offer favourable conditions. The neat pinnated leaves and short flower-stems, together with the large yellow flowers, give it at all times a refined appearance, and it in no way belies its specific name as an alpine subject. There is an uncoloured figure of the species in Jacquin's *Flora Austriaca*, iv, 373, which although otherwise faultless, gives but a faint impression of its real value for rockwork purposes. The largest leaves are those that spring from the base of the plant and carpet the ground, with a large terminal subcircular leaflet and several smaller ones, gradually getting less towards the base. The stem leaves are decidedly smaller and trifid or undivided, resembling bracts where they support the terminal solitary flower. This species is synonymous with *Sieversia montana*. The latter genus is now merged in *Geum*, and differed originally in generally possessing an unjointed awn to

the fruit. *G. pyrenaicum*, if not identical with the above, would seem to be a closely allied species with terminately pinnate radical leaves and a short stem interrupted by one to four nodding yellow flowers. It is figured in Lamarck's *Planches de Botanique*, iii., 443, and comes from the Pyrenees. Both are readily propagated by cuttings of the rootstock which do not increase very rapidly, at least in the case of *G. montanum*. Any good garden soil will grow them to perfection, but they give most satisfaction if planted in a moderately rich soil, on a well exposed part of the rocky.

HOW TO SOW SEEDS OF ALPINE PLANTS.

The society which was instrumental in founding our garden has in view the protection of the alpine flora against the acts of vandalism to which it is exposed, and to make the amateur public understand that the best way of introducing alpine flowers into their gardens is by means of seeds. For this purpose we raise plants in our garden from seed, and offer them to the public at a price which will cause them to give up their destructive habit and cause them to prefer the plants raised by us to those transplanted from their native spots, and of which the greater part either do not recover or grow badly.

Our seeds are collected for this year; they may be sown at once or kept back till spring. By sowing them towards the end of November time is gained, as they stratify during winter and germinate at the first signs of spring. In this case they should be sown in pots on soil on a very mild hotbed and but slightly watered. If it is desired to wait till spring the seed should be sown as early as possible in March or April, in the open ground, and in a light, porous, and permeable soil. What is to be particularly avoided is a heavy, wet soil; but on the other hand it must not be so light or sandy as to dry up too easily. If by adding sphagnum (sifted) it can be made spongy, it would be better for delicate species. The presence of this sphagnum in the soil maintains it at a more equal condition of moisture.

The compost which we employ is composed of one-third peaty soil, one-third leaf-mould, and one-third sand and sphagnum. For species requiring dryness we replace the sand by coke-dust. It is an advantage to drain the pots or beds by placing at the bottom a little coke, in order to keep out worms and woodlice. Regular light waterings should be given. When the seeds have germinated the young plants are pricked off into pots or pans. *H. Correvon, Directeur du Jardin Alpin d'Acclimation, 2, Chemin Daucet, Genève.*

EFFECTS OF TOBACCO ON LAND.

As the above-mentioned subject, especially taken in connection with the experiments in Tobacco culture in this country, is likely to attract public attention, perhaps you will be kind enough to allow me to say a few words as well as Mr. Boynton.

Now, as an "Old Virginian," my experience is just the very contrary of Mr. Boynton's. Tobacco takes the place in Virginia of Mangels in our four-course system, and I may say that the system adopted by the best farmers in Virginia is exactly that of our four-course rotation. If you were to tell a Virginian farmer that Tobacco "poisons the land," he would be too polite to call you a fool or to laugh in your face, but he would "calculate, stranger," that you knew but darned little of what you were talking about. Now, Tobacco has been grown for a hundred years or more in Virginia, and, contrary to Mr. Boynton's notion of its poisoning or exhausting the soil, it is regarded as the best preparation for a cereal crop, such as Wheat or Oats. Corn, *i.e.*, Maize, should never succeed Tobacco, and I should judge Mr. Boynton's neighbour is a novice at Tobacco farming, or he would not have followed Tobacco with that crop, and I am not surprised at his not getting his big crop of corn on that acre, but should have been much surprised if he had.

The rotation found to answer best in Virginia is as follows:—

- Maize, manured (farmyard manure).
- Oats.
- Tobacco, manured (farmyard and artificial).
- Wheat.
- Clover, top-dressed with gypsum.
- Wheat.
- Tobacco, manured (artificial and farmyard).
- Oats.

And under this system the lands in Virginia are improving.

Tobacco is not nearly so exhausting as some people try to make out, and I would ask any one to think the matter over carefully in his own mind and make comparison for himself before being led away by the foolish and unthinking remarks of those who know



FIG. 143.—IRISH POT: A SURVIVAL. (SEE P. 748.)

little or nothing of the subject. A fair average crop of Tobacco in Virginia is about 1000 lb. per acre (this is rather over than under the average). I believe, from experience in Norfolk and in Kent, this year, that we can grow rather more in this country than in Virginia, and put it at 1200 lb. per acre—say, rather more than half a ton of cured Tobacco. Now, this would weigh in its green state, say, at a rough



FIG. 144.—IRISH SPUD, FOR POTATO CULTURE: MUCH REDUCED. (SEE P. 748.)

guess, 5 tons; and compare it with a crop of Mangels of, say, 39 tons—and I know of a crop of 60 tons in this parish this year—and see which takes the most out of the land. "Yes," you will say, "but you sell your crop of Tobacco all off the land, and we consume our Mangels." Right you are, my friend, but do you not sell milk, beef, and mutton, &c.?—and as you will say, "Yes, but we buy in artificial foods, as

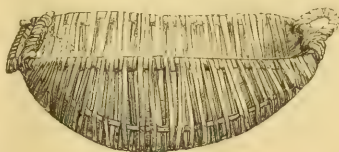


FIG. 145.—"KIMB," OR POTATO-BASKET. (SEE P. 748.)

oil-cakes, &c., to make up the deficiency." Now, buying oil-cakes and other feeding-stuffs is only another way of buying artificial manures; and so, as far as Tobacco growing is concerned we are quits on that score; and surely in the present depressed state of agriculture in this country the introduction of some crop that will sell at a profit greater than that now made by Wheat, Barley, beef, or mutton, and what is more, will keep the money we now have to pay for the 50,000,000 lb. of Tobacco we annually purchase

in this country, will do some good, or at least deserve the kindly support and encouragement of all interested in the welfare of the English farmer and agricultural labourer, instead of having cold water thrown upon it.

I think that the thanks of the British public are due to Lord Harris and those noblemen and gentlemen who have so kindly and generously supported him by carrying out expensive experiments in the public interest, and I am very pleased indeed to find that so far Tobacco culture is a great success in this country. I had the pleasure of taking to London the other day, and having cut up into fine smoking Tobacco, the first 10 lb. of English grown Tobacco, and I may tell you that the manufacturers were agreeably surprised at the size and quality of the leaves, and the cleanness and brightness of the cut sample, which was exhibited at the cattle show on the stand of Messrs. James Carter & Co., the growers. Further on, if you would like, I will send you a few lines on the cost of growing, &c. *John C. Wallis.* [Please do so. Ed.]

NEW PLANTS CERTIFICATED

BY THE ROYAL HORTICULTURAL SOCIETY DURING THE LAST HALF-YEAR OF 1886.

The following plants received First-class Certificates, except those marked B.C., to which Botanical Certificates of equal rank were awarded.

Adiantum Capillus-Veneris imbricatum ..	G. Masters, Oct. 12.
" cuneatum, Phillips var.	Phillips, Aug. 10.
Amaryllis Lady Mayoress ..	Jas. Veitch & Sons, Nov. 9.
Angelica aciculata ..	Sir T. Lawrence, Nov. 9.
" caulatum ..	Baron F. de Rothschild, Oct. 12.
Apheandra chrysops ..	W. Bull, July 13.
Araucaria excelsa Varietaria ..	B. S. Williams, July 1.
Asplenium marianum plumosum ..	"
"	Backhouse & Son, July 1.
Aster Dark Scarlet ..	Benary, Aug. 10.
Begonia Imperial ..	R. Owen, Aug. 10.
" Mrs. Plunket ..	Cannell & Sons, Oct. 12.
" Paul de Vioxy ..	C. R. S. Dickens, Oct. 26.
Bignonia Chamberlayne ..	Jas. Veitch & Sons, Nov. 9.
Carnation Terra Cotta ..	J. Douglas, July 27.
Cattleya Eldorado var. virginale ..	H. M. Poletto, Oct. 26.
" gigas, Hill's var. ..	C. G. Hill, July 27.
Cespedia discolor ..	W. Bull, Sept. 21.
Chrysanthemum (decorative) ..	"
" Adm. Sir T. Symonds ..	Cannell & Sons, Nov. 9.
" Buttercup ..	Jas. Veitch & Sons, Oct. 26.
" Carew Underwood ..	G. Stevens, Dec. 7.
" Coquette de Castille ..	W. Holmes, Nov. 9.
" Eylesford Gem ..	Cannell & Sons, Nov. 9.
" Flambeau Toulousaine ..	R. Owen, Oct. 26.
" gloriosum ..	Jas. Veitch & Sons, Nov. 9.
" (decorative) Jane ..	Cannell & Sons, Nov. 9.
" La France ..	Cannell & Sons, Nov. 9.
" Leucanthemum var. Pay de Dôme ..	Backhouse & Son, July 1.
"	Cannell & Sons, Oct. 26.
" Madame E. Dordan ..	J. Laing & Co., Oct. 26.
"	R. Owen, Oct. 26.
" (early) Mrs. Burrell ..	Miles, Aug. 10.
" Mr. William Holmes ..	Stevens, Oct. 12.
" Mrs. N. Davis ..	E. Martin, Dec. 7.
" Phœbus ..	Jas. Veitch & Sons, Nov. 9.
" White Ceres ..	Jas. Veitch & Sons, Nov. 9.
" W. Stevens ..	G. Stevens, Oct. 26.
Clerodendron nutans ..	W. G. Head, Nov. 9.
Crataegus Lalandi ..	Jas. Veitch & Sons, Sept. 21.
" pianatiffa var. major, shown as tartaricus ..	Jas. Veitch & Sons, Oct. 26.
Crimum Powell ..	Sir T. Lawrence, Sept. 21.
Croton aethiops ..	R. P. Ker & Sons, July 1.
" Newmann ..	R. P. Ker & Sons, July 1.
Cypripedium callosum ..	Jas. Veitch & Sons, Sept. 21.
" Sanderianum ..	W. Bull, Dec. 7.
Cyrtanthus hybrida rosea ..	Sir T. Lawrence, Sept. 21.
Dahlia Annie Harvey ..	Cannell & Sons, Oct. 12.
" Black Knight ..	Cannell & Sons, Sept. 7.
" Charming Bride ..	Cannell & Sons, Sept. 21.
" Cochine ..	T. S. Ware, Sept. 21.
" Colours ..	W. Williams & Co., Sept. 7.
" Don Juan ..	C. Turner, Sept. 21.
" (pompon) Eccentric ..	C. Turner, Sept. 21.
Empress of India ..	R. H. Munday, Sept. 21.
"	C. Turner, Sept. 21.
" Gazelle ..	Cheal & Sons, Oct. 12.
" Helena ..	C. Turner, Sept. 21.
" K. T. Rawlings ..	Rawlings Bros., Oct. 12.
" Lady E. Dyke ..	Cannell & Sons, Sept. 7.
" Lady M. Marshall ..	Cannell & Sons, Sept. 21.
" Mrs. Foster ..	C. Turner, Sept. 21.
" Mrs. Theobald ..	Rawlings Bros., Sept. 7.
" Queen of the Belgians ..	Rawlings Bros., Sept. 21.
" Squire Gamble ..	T. S. Ware, Aug. 10.
" The Quair ..	Paul & Son, Sept. 21.
" Valentine Humphries ..	G. D. Humphries, Sept. 21.
" (cactus) yellow ..	Constance, Aug. 24.
" Zephyr ..	C. Turner, Oct. 12.
" (single) Mr. Rose ..	Cannell & Sons, Aug. 24.
" Mrs. Linaker ..	T. S. Ware, Aug. 24.
" Mrs. Kennett ..	Cheal & Sons, Sept. 7.
Davallia retusa ..	Jas. Veitch & Sons, Sept. 7.
"	W. Bull, Sept. 21.
"	B. S. Williams, July 13.
Dendrobium Williamsianum ..	Wilmorin, Andreux & Co.,
Diaphanth chinensis Black Prince ..	"
"	R. H. S., Aug. 10.
Fuchsia triphylla ..	Kelway & Son, July 1.
Gaillardia Ormonde ..	Key & Son, Aug. 10.
Gladiolus Clarence ..	Kelway & Son, Aug. 24.
" Empress of India ..	Kelway & Son, Aug. 24.
" Lady MacFarren ..	Kelway & Son, Aug. 24.
" Lord Ashbourne ..	Kelway & Son, Aug. 24.
" Lord Salisbury ..	Kelway & Son, Aug. 10.
" Prince Edward of Saxe Weimar ..	Kelway & Son, Aug. 24.
" Sir Cunliffe Owen ..	Kelway & Son, Aug. 10.
" Sir M. H. Beach ..	Kelway & Son, Aug. 10.

<i>Gladioli hybrid</i> , hardy ..	Voltaire, Aug. 24.
<i>Gymnogramma schizophylla</i> ..	(R. P. Kerr & Sons, July 1.
<i>gloriosa</i> ..	J. Jas. Veitch & Sons, July 1.
<i>Hollyhock Crimson Gem</i> ..	Webb & Brand, Aug. 10.
<i>Primrose Gem</i> ..	J. Blandall, Aug. 10.
<i>Princess of Wales</i> ..	J. Blandall, Aug. 10.
<i>Reveler</i> ..	W. Chater, Aug. 10.
<i>Shi lei H bier</i> ..	J. Blandall, Aug. 10.
<i>Hymenophyllum picturatum</i> ..	Backhouse & Son, July 1.
<i>Impatiens Hawkei</i> ..	W. Bull, July 13.
<i>Lelia anceps virginica</i> ..	W. & J. Birkenhead, July 1.
<i>Laser a montana coronaris</i> ..	S. Courtauld, Nov. 9—B. C.
<i>Madrivallia adonis rhodonia</i> ..	T. S. Ware, July 27.
<i>Matriaria inodo a grandiflora</i> ..	W. Bull, Aug. 10.
<i>Nicotia spectabilis bicolor</i> ..	T. S. Ware, Dec. 7.
<i>Narcissus monophyllus</i> ..	W. & J. Birkenhead, July 1.
<i>Nephridium Sax. geveili</i> ..	Jas. Veitch & Sons, July 1.
<i>Nephrolepis rufescens tripin-</i>	
<i>natifida</i> ..	Tautz, Oct. 25.
<i>Odontoglossum blepharican-</i>	Baron Hruhy, July 13.
<i>thum</i> ..	C. R. man, July 13.
<i>crispum Hrubyanum</i> ..	J. Southgate, July 13.
<i>gata var.</i> ..	R. L. Mea ure, July 27.
<i>stell. erum Ernesti</i> ..	T. S. Ware, July 13.
<i>Papaver nudicaule minimum</i> ..	W. Reilly, July 13.
<i>Polygonatum pol. tust. ed.</i>	Sir J. Law, June, July 13.
<i>Marche</i> ..	Jas. Veitch & Sons, July 1.
<i>Phaet. ariolati</i> ..	Jas. Veitch & Sons, July 1.
<i>Phed. n. iron grandiflora</i> ..	Jas. Veitch & Sons, July 1.
<i>Phenylum juncundum</i> ..	J. Douglas, Aug. 10.
<i>P. cotes Alina</i> ..	C. Tu ne, Aug. 10.
<i>Annie Douglas</i> ..	
<i>Duchess</i> ..	Backhouse & Son, July 1.
<i>Polypodium vulgare tichom-</i>	
<i>anoides</i> ..	F. Ross, Nov. 9.
<i>Pontederia crassipes var. deli-</i>	G. F. Wilson, Oct. 25—B. C.
<i>cata</i> ..	
<i>Primula capitata major</i> ..	Naylor, July 13.
<i>R. ill</i> ..	Jas. Veitch & Sons, July 1.
<i>Pteris serrulata var. Naylor's</i>	
<i>crested</i> ..	Kelway & Sons, July 1.
<i>Py. ethrum Lawtenburgh</i> ..	Jas. Veitch & Sons, Oct. 12.
<i>quodendron amabile</i> ..	Jas. Veitch & Sons, July 1.
<i>Aurora</i> ..	
<i>jasmiflorum carmina-</i>	
<i>tum</i> ..	Jas. Veitch & Sons, Oct. 15.
<i>lu eum roseum</i> ..	Jas. Veitch & Sons, Sept. 21.
<i>Queen of Yellows</i> ..	Jas. Veitch & Sons, Sept. 21.
<i>Rajah</i> ..	Jas. Veitch & Sons, Sept. 21.
<i>K. nee Perfection</i> ..	Jas. Veitch & Sons, Sept. 21.
<i>Rose Mogul</i> ..	W. Bull, Sept. 21.
<i>Solignetta gracilis</i> ..	Jas. Veitch & Sons, July 13.
<i>tessellata</i> ..	Jas. Veitch & Sons, July 27.
<i>Stock (Ten-week) Showflake</i> ..	Backhouse & Son, July 1.
<i>Todola grandipinnula</i> ..	F. Ross, Sept. 21.
<i>Trichomanes meifolium</i> ..	Baron Schröder, Sept. 21.
<i>Umus Pittensis pendula</i> ..	Vilmorin-Andrieux & Co.,
<i>Vanda Dearei</i> ..	Aug. 10.
<i>Zinnia elegans (dwarf striped)</i> ..	Jas. Veitch & Sons, Nov. 6.
<i>Zygopetalum leopardinum</i> ..	

FRUIT.

Strawberry Noble .. T. Laxton, July 1.

VEGETABLES.

<i>Pei Empress</i> ..	Eckford, July 27.
<i>Fame</i> ..	E. Kford, July 27.
<i>Hickfield</i> ..	W. Widdow, July 27.
<i>President Garfield</i> ..	Jas. Veitch & Sons, July 27.
<i>Sharpe's Victor</i> ..	Sharpe & Co., July 27.
<i>Potato Bonnier</i> ..	T. Laxton, Sept. 2.
<i>Fyvie Flower</i> ..	Farquhar, Sept. 2.
<i>Maggie</i> ..	J. Murdoch, Sept. 2.
<i>Seedling A 1</i> ..	Harris, Sept. 2.

The following were given at Chiswick, and were omitted in our last list of Cerefrated Plants.

<i>Potato Favourite</i> ..	Jas. Veitch & Sons, March 30.
<i>King of Russets</i> ..	Lye, March 30.
<i>Bennett's Surprise</i> ..	Bennett, March 30.

The Herbaceous Border.

IMPATIENS FULVA.

EXOTIC plants more seldom get naturalised in this country than our weeds do in other countries, where the climate is favourable to their well-being; but strangers in this country are always of interest to the botanist, and more or less so to the horticulturist when the plants are of an ornamental character. Botanists are divided in their opinions as to whether the present species of *I. Noli-me-tangere* has the most right to be looked upon as truly wild or naturalised, although many are of opinion that the latter is indigenous. *I. fulva* occurs in some plenty on the banks of one of the numerous branches of the river Colne traversing the flat, moist, and partly wooded western parts of Middlesex. The flowers are large and showy compared with those of *I. parviflora*, a Siberian weed naturalised in many places near London, and it would well repay the cultivation in shrubberies and such places, where, when once established, it could take care of itself. The petals are orange-yellow heavily spotted with a deeper almost red colour, and the curious hooked spur of the larger sepal gives the flower a singular and unwonted appearance amongst the ordinary run of cultivated or garden plants. Its introduction to the better kept parts of the flower garden proper would be

fraught with a great deal of trouble and inconvenience, owing to the well known habit of all members of this genus—scattering their seeds far and wide on the bursting or exploding of the capsule by means of its strongly elastic valves. *J. F.*

TRITOMAS.

This genus is just now claiming a large amount of attention by cultivators of hardy flowers, and not without fully deserving it, the first of them beginning to flower about the middle or end of July, and others hardly past their best and November is even now with us. One great drawback, however, is the want of literature on the subject, for although Mr. Baker some few years ago published a faultless monograph, so far as types are concerned, the varieties or forms have been cropping up in such a way and in such numbers, each owner claiming a distinct origin for his particular form, that some kind of garden definition of them is imperative, else the existing chaos will widen, and confusion will multiply. Mr. Baker has gone so far as a botanist can go, and it now remains for some cultivator to take them up, collect all the varieties in cultivation, grow them in exactly the same conditions, and make his own deductions, adding his conclusions as a supplement to the above mentioned monograph. An example of what can be done with a popular genus may be seen in Mr. Maw's production, just published. *H.*

HARD AND FAST RULES FOR ORCHID GROWERS.

I THINK one of the greatest stumbling blocks an enthusiastic beginner in Orchid culture has to contend with is, what I may call the technical and hard and fast rules laid down for guidance by more experienced men.

No doubt Orchids do require a special treatment as regards season and temperature; this can all be learned in due time, but I think it is a mistake to follow too closely a decided line of treatment laid down by other people. If Orchids were treated more as other plants are, we should have fewer losses to mourn, and find our plants kept in better health. Take, for instance, the resting season. Novices in the culture of these plants—and in fact others besides novices—are apt to fall into the error of drying up their plants too much. They read in treatises on the subject, and in the gardening papers, that say "At such a time Orchids should be put to rest for the winter; water should be withheld and the temperature reduced." Following this advice in its literal sense, heat and moisture are too suddenly withheld, and many plants which have not finished their growths are checked and retarded, the consequence being immature and dwarfed growths, which drag on a sickly existence, neither resting, growing, nor flowering.

Another and hardly less disastrous result is, that plants which have finished their growth are dried up too much, present a wizened appearance, and hardly if ever recover their vigour. Here comes in the benefit of a common-sense method of treatment. Decidedly reduce the temperature and moisture, but do not starve. I speak emphatically from experience, bought by heavy losses through following a too rigid resting system. My practice at this season of the year is to keep one house separately for completing the growth of those plants which are later than usual, and in which a genial heat and moisture are kept up. As each plant completes its growth, remove into a cooler and drier house. This refers more especially to those requiring a warm treatment, such as *Cattleya species*, *Lælia*, *Dendrobis*, &c.

Odontoglossums I think we may treat far more uniformly. In the winter a house facing full south, and in which a temperature of 45°–55° is kept up, with a moist atmosphere, and constant bottom ventilation, is best. In summer most successful results are obtained by removing these plants into a sunken pit. This pit should be cemented inside and made water-tight, thus being kept half full of water. The plants are placed on a wooden staging about a foot above the water, and a shading, not too thick, kept about a foot above the glass. Syringed morning and night with a very fine spray engine these *Odontoglossums* make marvellous growths and foliage, and when transferred in the autumn to a house of south aspect they throw up sturdy spikes, giving promise of a rich harvest of flowers. In conclusion, I would not forget

to say that with all Orchids the more light and the more air that are given the greater will be the success. *J. H. T. Peck, Holly House, Blaby, Leicestershire.*

[This treatment would not suit some species, which are partial shade plants at home, the concentrated sun-heat in an English glass house being more than can be borne by the plants without injury. We have but to mention *Scaccolabium*, *Phalænopsis*, *Cypripedium*, *Vandas*, &c. Moreover, exposure to full sun means short-lived blossoms. Ed.]

FRUIT GROWING.

MR. CHARLES WHITEHEAD, in one of a series of articles on this subject, suggests the establishment of jam factories in the chief centres of fruit production by companies of fruit growers, who would be assured of getting the full value of their fruit without excessive commission charges and railway rates—for it is assumed that the factories would be within carting distance of the fruit farms—as well as the profit upon its manufacture into jam. Mr. Whitehead says:—"Two or three jam factories have been started. One, the notable one founded by Lord Sudely, is a typical instance of sagacious foresight. There is one in North Kent, and another, either in existence already, or soon to be formed, in East Kent. Until lately the growers could not see the good of local jam factories. This last extraordinary season has opened their eyes. Three years ago it was proposed to raise a jam factory in the neighbourhood of Maidstone, where there is a very large acreage of land planted with soft fruit bushes and Raspberry canes. The scheme was planned by three or four large farmers, thorough men of business, whose names carry weight. A prospectus was issued, and a circular sent to every fruit grower in the Kentish Directory, inviting assent to, or dissent from, the proposal. It will hardly be believed that not half a dozen answers were received, so that the ardour of the promoters was most effectually damped, and the scheme was abandoned. It is now felt that it would have been of inconceivable benefit to the whole of this locality, whose fruit crop has been amazingly abundant, if there had been a factory near to which fruit could have been consigned. With commission and railway charges saved, the growers would have been delighted to get a penny a pound, or less, for their fruit, and those who were shareholders would have received a good dividend besides. It is certain that no Plams and Damsons would have been allowed to spoil upon the trees had there been some such depot to receive them, either to be boiled up at once for jam, or to be simply pulped and kept in this state until a greater demand arose for fruit. It is rather astonishing that some of the enterprising growers did not improvise a jam factory, and use the copper in the wash-house to boil up some of the fruit cooper in the wash-house in the desert air. The Americans do these things better." *Berrow's Worcester Journal.*

THE LATE COLONIAL EXHIBITION.

TOBACCO CULTURE IN BORNEO.—At the conference on Tobacco held at the recent Colonial Exhibition, the samples grown in Borneo and exhibited by the British North Borneo Company were commented upon as being of exceedingly good quality and appearance, and the prospects of Borneo as a Tobacco producing country were considered very favourable. Under the head of Tobacco in a recent report on the trade of Rotterdam, the following facts occur:—"The kinds principally imported are the Sumatra and Java, the quality of the former being such as to entirely dwarf as regards value the Java produce, the respective crops of 1884 having realised £2,304,000 and £660,000, whilst the total quantity of Java Tobacco sold was only 2787 packages less than the Sumatra—the totals being respectively 125,660 packages and 125,477 packages. In view of the circumstances that the soil and climate of North Borneo appear to be as admirably adapted to the cultivation of Tobacco as those of Sumatra, it may not be out of place to record a few particulars with regard to the planting operations in the latter island, initiated in 1864 by a Rotterdam firm, for by bringing the circumstances under more general notice British enterprise may be stimulated to embark on a similar venture in British North Borneo with the prospect of obtaining as brilliant a

reward as has been reaped by the shareholders in the several Sumatra Tobacco companies. In 1863 a Dutch gentleman and manager of a Tobacco plantation in Java proceeded to Sumatra and obtained from the Sultan of Deli a plot of land on most favourable terms, for the purpose of growing Tobacco, and having obtained the consent of his employers in Holland, the manager started operations on a limited scale in the following year. He at the outset experienced serious difficulties, in consequence of his inadequate knowledge of the new country, and the inexperience of the labourers in his employ, the result being that the crop yielded only about fifty packages, which were sold at Rotterdam at the equivalent of 8*d.* per pound. In 1865 the cultivation was extended, and 189 packages were produced, which fetched at public auction an average price of 2*s.* 3*d.* per pound. The crops of 1866 and 1867 produced respectively 174 and 224 packages, the former selling at 1*s.* 8*d.*, and the latter at 1*s.* 0*d.* per pound; and after these experimental shipments for account of the Rotterdam firm, other parties commenced operations, resulting in the establishment at Amsterdam in 1869 of the Deli Tobacco Company. From that period dates the largely extended cultivation of the leaf, and the concurrent development and prosperity of Deli.



THE PLANTING SEASON.

WITH the unusually fine open weather of the past two months exceptional opportunities have been offered for the formation of new, or filling up of old plantations; and it is to be hoped that previous and timely advice given in these columns has been attended to, and that the bulk of the present season's planting is now all but completed.

The great advantages of early or autumn planting are now so well known and appreciated by practical arboriculturists, that it is quite unnecessary for me to occupy space in detailing them.

So few and peculiar are the cases, and these I entered fully into a previous communication, in which it is really necessary to defer tree planting until spring, when March weather tells so detrimentally on young forest stuff, that there can be no excuse offered by those who still allow the season to come upon them before they are prepared for it.

To unreasonable planting combined, sometimes, with badly performed work, may be attributed many of the failures in newly formed plantations, as well as disinclination on the part of proprietors generally to enter largely, if at all, into the reclaiming of the waste lands of our country by the formation of carefully laid out woods and plantations. *A. D. Webster.*

TREES AS FODDER FOR STOCK.

AT the risk of being accused of temerity I will, with your permission, once more advert to this interesting subject. I happened a short time ago to be spending a few days with an extensive stock farmer on the Cheviots, and one evening, when two farmers from the "other side" of the Border were present, the conversation turned upon the privations his stock had to undergo last spring, not only on account of the difficulty experienced in obtaining hay, but in getting the provender conveyed to them. It seemed from what I heard that Fir branches in many cases were cut and given to the sheep in order to preserve them from absolute starvation. Mr. Walter Clark, Blackburn, North Tyne, found both Scotch and Spruce Fir branches of great service when given along with hay. It was also stated that at Carolside, Leader Wair, Scotch Fir branches were extensively used when the hay supply seemed likely to run short. At Harbottle Crags, Coquetdale, Mr. Elliot's sheep would have been decimated but for a timely supply of Scotch Fir branches from the Clennell woods, close at hand. It was affirmed that Spruce Fir branches caused giddiness, if not downright intoxication, in the case of some of the sheep. Perhaps their weak condition was to blame for this. None of them died. *J. Thomson, Maxton, November 17, in "Live Stock Journal," December 3.*

TENDER FOR TREES AND SHRUBS.—The Parks Committee of the Newcastle Corporation have accepted the tender of Mr. W. J. Watson, Fenham Nurseries, Newcastle, for the supply of 10,000 trees and shrubs for the Nun's Moor Recreation Ground in that city.

The Flower Garden.

WALKS.

CONTINUE to sweep and roll lawns, &c., to maintain a tidy appearance. When there is so little else to be seen at this dull season walks may be made to look fresher by having the gravel turned, raked, levelled, and trodden firm, again raked, and then well rolled until it becomes perfectly hard and smooth. In making or remodelling walks the first essential is that surface-water must be got rid of as fast as it falls, and never allowed to accumulate in such volume as to make channels in the walks. The crown of the walk should therefore be some inches higher than the sides, and on steep declivities water grids should be placed every 10 or 12 feet. These need not be large—6 inches square is ample for a walk 6 to 8 feet wide. When the walk is from 10 to 12 feet wide a grid 8 inches square should be provided. The worst kinds of grids are those with wide openings, which allow the leaves to enter the drains, rendering them soon inoperative. Where heavy carting is done on broad walks they very soon get rutted by the wheels constantly running in the same place unless a good sound bottom be used. Very little gravel should be employed on such walks—they should be mainly constructed of flints or granite, with a blending of gravel. This will withstand any amount of wear.

BEDDING-OUT PLANTS.

Examine the stock of bedding plants. Pick all flowers and dead leaves off *Pelargoniums*. If in boxes they may want watering, but they are better on the dry side. See that mildew does not obtain a footing on *Verbenas*; if there be any indication of it, dust with flowers of sulphur instantly. With changeable weather greenfly is almost certain to manifest itself, and a watchful eye must be kept on all subjects which are liable to become infested. It is better to fumigate slightly for two or three nights in succession than to administer a strong dose. See that varieties of *Freesias* do not receive too much water at this dull season.

Keep *Tropaeolums*, *Mesembryanthemums*, and succulents generally, cool and rather dry. *Alternantheras* are better if kept on the move, but they should not be over-watered. See that mice do not get into cold pits among cuttings of hardy subjects. They often cut over cuttings wholesale, and carry them off to their nests to make their nests.

Remove all dead leaves from any cuttings striking in cold frames, and endeavour to maintain a healthy atmosphere. Clear away all dead foliage from *Lily* of the Valley beds, and give them a top-dressing of rich soil. *W. M. Baillie, Luton Hoe Gardens.*

PLANTS AND THEIR CULTURE.

BERRIED PLANTS.

THERE are no plants more cheerful looking in effect than these, and useful also in all sorts of decorations. *Rivina humilis* is attractive, and if some means could be adopted to preserve its brilliant berries from falling off, its value to the gardener would be much greater. The best way to retain them I have found to be, is to keep them close up to the glass, at the same time giving liquid manure freely, and on no account to allow the soil to become dry. *Ardisia crenulata* is another useful plant, possessing neat leathery shining foliage, and if treated properly it sets an abundance of red berries. When grown as small standards from 1 to 2 feet high; it is a very telling plant, stood among table decorations. *A. crenulata* alba, white-berried, is a fitting companion to the first-named. *Solanums* make charming objects; *Prince* and *Princess of Wales*, and *Williams' Little Gem* answer admirably for dwarf decorations; the latter variety grows to about 3 inches high and placed into small jars and set amongst flowers on the table, is much admired; the sort is free in fruiting. *S. capsicastrum*, of which *Weatherall's* hybrid is still one of the best. *Skimmia japonica* and *Aucubas* of several kinds, when fruited well (which there is no difficulty in doing), afford much variety in effect, the bright berries standing prominently from out of the fine foliage. *Aucubas* stand well the dry air of living-rooms, and are not injured by being stood in badly lighted recesses. *A. Evans, Lythe Hill, Haslemere.*

FRUITS UNDER GLASS.

STRAWBERRY FORCING.

WHERE ripe Strawberries are required at the end of February, no time should be lost in getting ready a batch of plants—*Vicomtesse Hericart de Thury*, or some other equally good kind. These in the first place should have the drainage seen to, and the surface-soil should be scratched over with a pointed stick, the soil loosened, removed, and the ball of earth and roots pressed down with the hands prior to top-dressing with a sifted compost of loam and horse-droppings in equal parts. This should be made moderately firm by the aid of a potting-stick, and a space of three-quarters of an inch below the rim of each pot should be left to hold water. If a pit is at command it can be filled with Oak or Chestnut leaves to within 9 inches of the top, it will be a very suitable place in which to bring on the plants. These should be plunged therein to the rims of the pots, afterwards allowing the soil to get moderately dry before giving tepid water at the roots. The gentle bottom-heat and moisture supplied by the fermenting leaves will, providing the plants have been well grown, and the pits kept closed by day, and a sufficient covering of Fern or other protecting material be put on at night to keep out frost, lead to the production of flower-spikes by the first week in January next. The pots should then be washed, and the plants removed to the top shelves of a forcing-house, and if they are near the ventilators so much better will be the setting and flavour of the fruit. A dry buoyant atmosphere at a temperature of 50° at night and 10° or 15° higher by sun-heat should be maintained in the flowering stage; and to assist the setting of fruit the pollen on the blossoms should be distributed by a camel's-hair pencil being passed over them every day when the flowers are dry. After this the night temperature should range from 55° to 60° according to circumstances, and 10° higher by day with fire-heat, running it up to 85° with sun-heat at closing time, when the plants should be damped overhead with tepid water, in addition to damping the house generally so as to promote a growing atmosphere. When the plants require water at the roots, give sufficient to moisten the whole ball, and from the time they have set their fruit until it begins to colour weak liquid manure at a temperature of 75° should be given when watering is necessary. Where pits are not at command the plants should be put on shelves fixed in an early viney or Peach-house as soon as they are got ready; syringing the plants overhead when damping the Vines until they come into flower, when it should be discontinued for the time being, and the plants treated as already advised. *H. W. Ward, Longford Castle.*

The Kitchen Garden.

FORCING.

Seakale and *Rhubarb*.—For those who have not the necessary accommodation for lifting and forcing indoors, forcing on the ground by means of fermenting material only, must be resorted to. The space between the plants having been forked over and cleared, suitable pots or boxes should be placed over the crowns. For *Seakale* all air and light should be effectually excluded, but for *Rhubarb* this is not essential; indeed, a little provision for the escape of rank steam and vapour is not only better for the development of the young growth, but the quality also is much improved. The fermenting material, consisting of leaves and stable litter, having been prepared beforehand, should be placed around the required number of pots or boxes in sufficient quantity to produce a steady heat of from 80° to 90°; this as the heat declines should be renewed from time to time, by being turned over and added to. In either case, before covering the crowns, a sprinkling of fresh slacked lime should be given, and afterwards a few straw leaves placed within to encourage and promote growth.

Asparagus.—Frames or pits that have been prepared for these, as advised in a previous Calendar, will now be ready to receive them, a few inches of light soil having been placed over the surface of the fermenting material; the plants should be carefully lifted with as many of the roots, and as much of the soil attached as practicable, placing them as close together as possible, filling in and covering the crowns with fine soil to the depth of from 3 to 4 inches. A gentle watering should then be given, sufficient to settle the whole mass, and the frame kept closed until the "grass" shows, when liberal soakings of tepid water must be administered, and air given when necessary. *John Austen, Witley Court Gardens.*

Appointments for the Ensuing Week.

SALES.

MONDAY, DEC. 13.	Sale of Dutch Bulbs, at Stevens' Rooms.
	Sale of Dutch Bulbs and 2000 Liliun auratum, at Protheroe & Morris' Rooms.
WEDNESDAY, DEC. 15.	Sale of Standard and Dwarf Roses, Fruit Trees, Shrubs, Dutch Bulbs, &c., at Stevens' Rooms.
	Sale of 3000 Liliun auratum, Plants, Bulbs, Roses, &c., at Protheroe & Morris' Rooms.
THURSDAY, DEC. 16.	Sale of a Collection of Orchids in Flower and 10,000 Liliun auratum from Japan, at Stevens' Rooms.
FRIDAY, DEC. 17.	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY, DEC. 18.	Sale of Standard and Dwarf Roses, Fruit Trees, Shrubs, Dutch Bulbs, &c., at Stevens' Rooms.

The
Conferences.

ONE excellent feature introduced into the proceedings of the Royal Horticultural Society of late years has been the institution of Conferences on various horticultural matters. An amount of vitality and energy has been infused into these meetings which has in many ways been productive of excellent results. Something has been attempted and something has been done—and not unworthily done either. The interests of Orchid growers, Narcisso-maniacs (we intend nothing disrespectful), Auricula lovers, Primrose growers, and pomologists, have all been studied; but much more requires to be done in the same direction, and we trust we may see the Society taking up such work as that which it has allowed special societies to undertake to its detriment. We hear now and then of a proposition to found an Orchid Society or a Potato Society, but we look upon all such schemes with regret. It would be preferable that all special societies of this kind should be incorporated with the parent society. That body should exercise imperial, though not despotic sway, and allow each special society as large a measure of Home Rule as might be consistent with the maintenance of the central authority. The Royal Horticultural Society under this idea, would be like the central government of the United States of America, while the several committees and the special societies would resemble the several States of the Union, each with its independent local legislature, but subordinate to the central body for all "imperial" purposes. The present state of subdivision weakens the main body without any corresponding advantage that we can see, and that just at a time when union is most desirable. We do not, at this moment, intend to discuss this subject in detail, but we may cite one illustration of the way in which the central body may gratify its Fellows and establish a firm bond between itself and the committees of special societies, and that illustration is afforded by the publications of the Society. We doubt whether any literary document more generally acceptable to the horticultural public has been issued of late years than the publication drawn up by Mr. BARRON, of "British Apples," and which was the direct outcome of the Apple Congress. The Orchid Conference Report, too, is most valuable. Where can anything of its kind, for instance, be found to equal in importance Mr. VEITCH's paper on "Hybrid Orchids"? The last publication of the kind, and one just issued, is the Report of the Primula Conference, held last April, and that of the second Orchid Conference, held at Liverpool in July. The Primrose Report, we venture to say, contains an amount of varied information on subjects relating to Primroses never before got together, and likely to be of great service to florists and Primrose lovers of all kinds and degrees. In this direction, then, the Society has been, and is doing, thoroughly good work,

justifying its existence, giving something of permanent value to its Fellows, something of which it need not be ashamed, but, on the contrary, concerning which it may well feel some complacency. A conference on similar lines—devoted to Vines and Vine-culture, to Fern-culture, to Potato-growing (if that is not for the moment overdone), or to Tree-planting whether for timber or ornament—would be acceptable. On any one of these subjects much

to seek the same accommodation elsewhere. The first proposal may at once be dismissed; the Society is far too useful to be dissolved. In some shape or other it must be maintained, if only by and for the horticulturists. The second and third proposals urgently demand instant and most careful consideration. We shall not attempt on the present occasion to discuss the matter further than to say, that if the Society remains at South Kensington, the business office at least must not be in the cellars of the Albert Hall.

The National Chrysanthemum Society and the Potato Tercentenary have shown that South Kensington is not the only available site; and that if a proper place can be found for offices, meeting rooms, library and reading-room, as we doubt not can be done, the question of a larger hall for occasional great exhibitions could easily be solved.

—DECORATIVE GROUPS.—In our next issue we shall give a supplementary illustration showing a group of plants arranged for effect by Messrs. R. VEITCH, of the Exeter Nurseries.

—THE BOTANICAL DEPARTMENT, JAMAICA.—We understand that Mr. FAWCETT, assistant in the Botanical Department, British Museum, has been appointed to the post in Jamaica lately held by Mr. D. MORRIS, now the Assistant Director, Royal Gardens, Kew.

—THE VINTAGE.—Later reports confirm our previous announcements as to the excellent quality of the vintage in most of the wine growing districts of France, especially in Burgundy.

—"FAMILIAR GARDEN FLOWERS."—In the last number Mr. SHIRLEY HIBBERD discourses of the Chrysanthemum and the Cactus; while in *Familiar Trees* Mr. BOULGER treats of the Holly. In both cases the letterpress is interesting.

—HOOKER'S "ICONES PLANTARUM."—Two parts of this have lately been issued, the one containing the drawings and descriptions of various flowering plants from Tropical Africa, Central China, Australia, and elsewhere. Dr. KING describes a new species, or perhaps variety, of the Mahogany, differing from the ordinary form in habit, size of leaf, period of flowering, and in the fact that at Calcutta this variety produces seed freely, while the common form rarely forms seed at all. Another part is entirely filled with illustrations and descriptions of new or rare Ferns, from the pen of Mr. BAKER.

—"THE ROSARIAN'S YEAR BOOK FOR 1887"—(tenth year of issue)—edited by the Rev. H. H. D'Ombain, Honorary Secretary of the National Rose Society, will be published on January 1, 1887. Its contents are announced as follows:—1. Mr. George Prince (with photograph), by the Editor. 2. A Symposium on Orange Fungus (illustrated), by Worthington G. Smith, F.L.S.; D. T. Fish; Rev. J. A. Williams; W. J. Grant; J. T. Burrell. 3. Champion Roses, by Ben R. Cant. 4. Twelve Years' Experience of Rose Growing in Scotland, by Alexander Hill Gray. 5. The Rose and National Rose Society in 1886, by the Editor. 6. Species of Roses, by T. W. Girdlestone. 7. The Rose Weather of 1886, by E. Mawley, F.M.S., Honorary Secretary of the National Rose Society.

—AN ALBUM OF CHRYSANTHEMUMS.—At a meeting of the Floral Committee of the National Chrysanthemum Society, held on Wednesday, December 8, it was announced that an Album of the queen of autumn flowers has been prepared for publication by Mr. HERMAN PAYNE, and which we shall notice more fully in our next issue.

—MR. MAW'S MONOGRAPH OF CROCUS.—This is about the best illustration we could point to of a conscientiously executed, beautifully illustrated, and thoroughly well got-up Monograph. We shall have occasion to speak of it more at length on another occasion; but we cannot help at once alluding to it as an example of what such a book should be. Nothing seems to have been omitted that came at all within the scope of the volume—nothing has been taken for granted that it was possible for the author to verify by personal research—nothing has been



FIG. 146.—SHOOT OF ABIES LOWIANA.

information might be pleasantly got together and interesting exhibitions made. We should have added the various groups of florists' flowers—Dahlias, Chrysanthemums, Roses—but these are now taken up by special Societies, and the Royal Horticultural Society could now only take up these questions by arrangement with the minor bodies, as indeed was done with

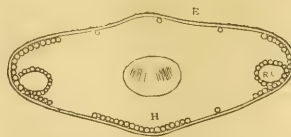


FIG. 147.—ABIES LOWIANA: SECTION OF LEAF MAGNIFIED.

excellent result in the case of the Auricula Society.

The larger and more urgent question—What is to become of the Society?—we are quite aware has to be settled. We hope some measures may have been taken by the Council during the vacation, but if so, nothing has reached the public ear. There are the Gladstonian three courses—to dissolve the Society; to come to some arrangement with the Commissioners or the managers of the Albert Hall to secure proper offices, committee-rooms, a meeting room, and room for the library; or

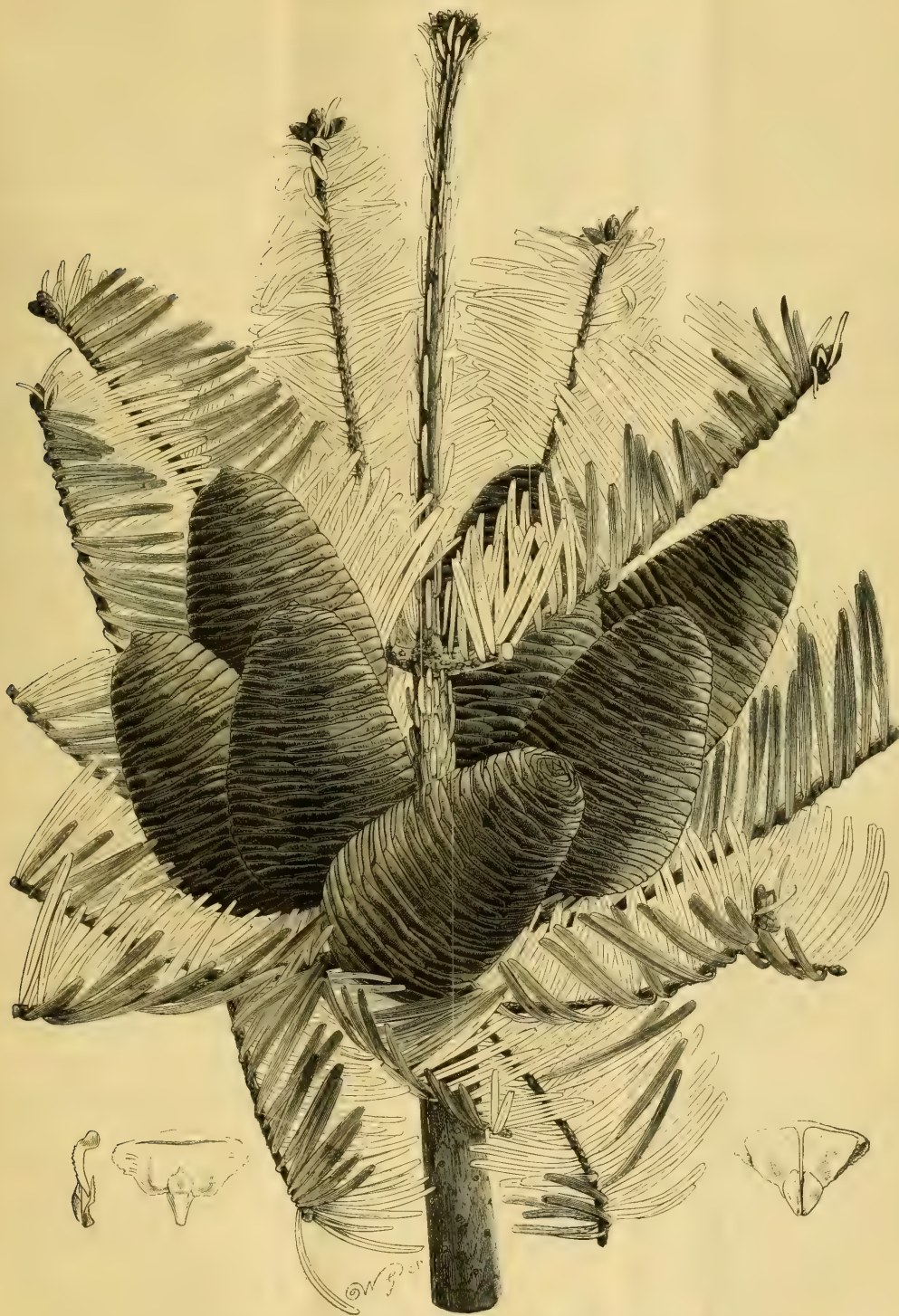


FIG. 148.—*ABIES LOWIANA*, OR *PICEA LASIOCARPA* OF GARDENS: CONES CHESTNUT-BROWN. (SEE F. 755.)

cited at second-hand without acknowledgment, and citation of chapter and verse.

— **REPORT ON THE DISEASES OF APPLES AND PEARS.**—MR. FRAZER S. CRAWFORD has published, under the direction of the South Australian Government, a report on the fungi and insects affecting Apples and Pears, together with the reports as to the best means of combating these plagues. The report is thoroughly practical, containing the most recent available information. Would that our cultivators could be brought to appreciate the loss they experience from want of knowledge. It is disheartening for students of fungi and entomologists to give, as they mostly do, their time and their services, and to see that small heed is paid to their recommendations.

— **VEGETABLE TUMOURS.**—In a paper by Mr. ROGER WILLIAMS on vegetable tumours in relation to bud formation (*Lancet*, November 20, p. 973), he describes these outgrowths, whether consisting of woody nodules, continuous tumours, or excrescences, presenting a surface thickly studded with shoots and stunted branches, as essentially due to an excessive formation of buds from over-nutrition (hypertrophy). He considered excess of nutrition to be the chief factor in the production of these growths. Like animal tumours, they originate in remnants of undifferentiated embryonic tissue.

— **"INSURANCE YEAR BOOK."**—MESSRS. SIMPKIN, MARSHALL & CO. have published a complete list of the insurance offices of this country, with much information concerning annuities and insurance of various kinds.

— **THE SKIN OF THE LEAF.**—M. VESQUE is continuing his researches on the functions of the epiderm, or skin of the leaf, in various plants. This layer consists usually of flattened cells, destitute, or nearly so, of colouring matter, but containing water, and serving as reservoirs for that fluid, the evaporation of which is prevented in many cases by the thickened wall of the exposed surface of the cell by the exudation of waxy matter, the presence of hairs, &c.

— **A POTATO SOCIETY.**—A suggestion was thrown out at one of the meetings of the Potato Conference that means should be taken to establish a Potato Society. We think it is a great pity that the Royal Horticultural Society does not render such suggestions unnecessary, by inaugurating, if not a Potato Committee, at least one or two special Conferences annually, after the fashion of the Orchid Conference. MACAULAY, contrasting the Church of Rome with that of England, stated that the latter drove JOHN WESLEY from its pale, and so laid the foundation of the now powerful Wesleyan body. Had such a man appeared in the Romish Church his ecclesiastical superiors would have had astuteness enough to place him in some position where his great zeal and abilities would have been turned to good account for the benefit of the Church. We always lament the frittering of energy and the narrowing of aim that are inseparable from special societies, whether for Roses, Orchids, Chrysanthemums, Auriculas, or what not. If the Royal Horticultural Society were less supine than it is, it would, while giving all these bodies home rule, take care that they were all in federal union with itself. What possible need would there be for a separate Potato Society if the Royal Horticultural Society would rise to the level of its duties?

— **THE TREE TOMATO.**—In the *Proceedings* of the Agri-Horticultural Society of Madras Mr. D. MORRIS adverts to this fruit, which he occasionally see in Covent Garden under the wholly erroneous name of Granadilla. It really is the fruit of a Solanaceous plant not remote from the Tomato and Egg-plant, and is of an oval form and bright orange colour. It has never made much way in this country, but is much appreciated in the West Indies. Mr. MORRIS, with his usual energy, has distributed the plant widely, and gives the following directions for its cooking:—The fruit should be allowed to ripen thoroughly on the tree. For cooking purposes all the seeds and the outer skin should be removed; the pulp of the fruit should then be cut into quarters and stewed, or cooked like Apricots, or made into jam or jelly. If too acid it may be steeped in boiling water for a few minutes before using. On the Nilgiris the fruit is highly esteemed. It is curious that the plant

is so seldom mentioned in popular books. It was, however, figured long ago in ANDREWS' *Botanical Register*.

— **CLASSIFICATION OF POTATOS.**—In addition to the ordinary classification according to colour and form, M. HENRI DE VILMORIN has, as we announced at the time, propounded one according to the colour and general appearance of the shoots as they emerge from the tuber when in a dark place and not exposed to the action of light. This is, of course, an hereditary character, not influenced by external accidents so long as the tubers are kept in the dark, and therefore a character of great importance as regards constancy and trustworthiness.

— **LINNEAN SOCIETY OF LONDON.**—The next meeting of the Society will be held on Thursday, December 16, at 8 P.M., when papers will be read:—1. "On Apospory and allied Phenomena," by Professor F. O. BOWER. 2. "Experiments on the Sense of Smell in Dogs," by Dr. G. J. ROMANES. 3. "On a new instance of Apospory in *Polytrichum angulare*," by C. T. DRURY.

— **POTATOS FOR FORCING.**—One of the prettiest exhibits at the late Potato Tercentenary consisted of some sets of the Marjolin or kidney Potato, neatly packed in hay, like eggs, in a basket, and with a solitary purple shoot at one end. In the neighbourhood of Paris, says M. DE VILMORIN, it is customary to cause the sets to sprout by placing them in an erect position on hurdles in a dry place where frost cannot burn them. At the time of planting the hurdles with the sprouting sets are carried to the garden, and each is carefully deposited in the hole made for it. Potatoes thus treated have an advantage of ten to fifteen days over others not so treated, hence the advantage for frame culture and early forcing generally. The baskets exhibited by Messrs. VILMORIN were intended for transit by rail, a little hay or other protective substance being placed over the tubers.

— **THE POTATO EXPERIMENTS AT MESSRS. SUTTON & SONS.**—We are requested by Earl CATHCART to insert the following communication:—

"I am sorry to observe in the horticultural Press that in relation to recent Potato experiments some reflections have been made in regard to the authorities at Kew. With Mr. BAKER, F.R.S., of Kew, I have to-day visited the Reading collection. We have been vastly interested, and I am allowed to say for both of us, instructed. Messrs. SUTTON and myself are the persons most interested, and I beg to add we are grateful to the Kew authorities for unvarying attention and kindness, and we have nothing but appreciation to express in regard to that invaluable national institution. CATHCART."

Messrs. SUTTON, we know, took great pains to avoid any offensive imputation on Kew, and are not responsible for what was said by others. The querulous tone of the remarks, and the imputations made on Kew and its management were unfair and uncalled for. Of all our public institutions there is scarcely one so well managed as Kew, and this is proved by its being almost the only public institution in which we are not surpassed by other countries. We have indeed reason to be proud of Kew, but of course mistakes may be made there as well as elsewhere.

— **ROSES IN DECEMBER.**—MR. MCGHEE, the gardener to A. D. BRYCE DOUGLAS, Seafield House, Ardrossan, Ayrshire, sends us blooms cut from plants in the open border, fresh and fragrant, with no trace whatever of injury from frost. The sorts were Gloire de Dijon, Jules Margottin, and a bud of apparently Captain Christy. With our experience in the South of 15° of frost, followed by a mild rain, flowers of almost all kinds have now perished.

— **NATIONAL AURICULA, CARNATION, AND PICOTEE SOCIETIES.**—The annual meeting of the above Societies was held in the East Crush-room of the Royal Albert Hall, on Tuesday, December 7. Harry J. Veitch, Esq., presided. Present: Rev. H. H. D'Ombraim, and Messrs. Laing, James, Cannell, Dean, Duffield, Hill, Turner, Pearson, Paul, and J. Douglas, Hon. Sec. The Presidents, Vice-Presidents, and committee were unanimously re-elected. Messrs. T. Fife and C. Phillips, both of Reading, were elected members of the committee of the Auricula Society; and Mr. T. E. Henwood, of Reading, and

Mr. M. Rowan, of Clapton, were elected members of the Carnation Society. Mr. Rolt has resigned his post of Treasurer to both societies, and Mr. Shirley Hibberd was unanimously elected in his place. Mr. Douglas was re-elected as Secretary; Mr. Veitch was re-elected as one of the auditors, and Mr. Moore elected as co-auditor with him, in the place of Mr. Hibberd resigned on his appointment as Treasurer. It was decided to hold the Auricula show on April 26, 1887, and the Carnation and Picotee show on July 26. It was also unanimously decided to alter the name of the Auricula Society to that of the Auricula and Primula Society. Owing to the illness of the Treasurer, the statement of accounts was not presented to the meeting.

— **ADIANTUM FARLEYENSE.**—Several fronds have been sent to us with indistinct indications of spores under the recurved edges of the frond as customary in *Adiantum*. Hitherto we have not seen any perfect spore-cases, though from the evidence lately published there is no doubt that they may occur now and then.

— **ALOES.**—The December number of the *Revue Horticole* contains a coloured figure of *Aloe Dyckiana*, A. roseo-cincta, and A. plicatilis, all three producing massive spikes of brilliant crimson flowers like those of a *Tritonia*, but with spikes more than a yard high, and produced from a rosette of fleshy, lanceolate leaves forming a crown to the stem 3 feet or more in height. A. *Dyckiana* forms a conspicuous ornament out-of-doors in the gardens of the Riviera, but is amply worth cultivating under glass here.

— **PINANGA DECORA** is a handsome stove Palm lately received from Borneo by the Compagnie Continentale of Ghent. According to the figure of the young plant given in the *Illustration Horticole*, t. 614, the stems are spineless, the leaves sheathing at the base, with long stalks, and pinnately divided blades, the segments of which are lanceolate acuminate, of a deep green colour, flushed with bronze.

— **NORTH OF SCOTLAND HORTICULTURAL ASSOCIATION.**—The following is the programme for the forthcoming meetings (at Aberdeen):—Feb. 18 (7 P.M.): "Herbaceous Plants," by WM. CUNNINGHAM, Kintore Nurseries; and "Botanical Geography," by Mr. MAITLAND, Cawdor Castle Gardens. March 18 (3 P.M.): "Worms," by Professor NICHOLSON, University. This lecture will be delivered in Professor NICHOLSON's class-room, Marischal College. April 15 (8 P.M.): "The Formation of Lawn Tennis Grounds," by A. GILES, Union Place; and "Amateur Grape Growing," by JAMES SCOTT, Deemount Road. May 20 (8 P.M.): "Bees," by L. TAIT, Foveran.

— **THE ROOTS OF PULSES.**—The existence on the roots of Peas, Beans, and Papilionaceae generally, of small tubercles or nodules has long been known, and the growths in question have excited much attention on the part of botanists. It now appears probable that these little growths, which the purely practical man would deem of no importance, are of great consequence in connection with the absorption and digestion of nitrogenous food, and the conversion of insoluble and inert nitrogenous matter into soluble food by means of minute organisms. Such facts could never have been guessed by the most experienced practitioner in any length of time, and yet they are matters of cardinal importance to him.

— **EUCALYPTI.**—Our correspondent, "J. W.," of Bradfield, Collumpton, in respect to these species of Australian plants, writes:—"I have been testing the hardness of some of the Eucalypti from seeds of the more robust sorts given me by my friend M. NAUDIN, of the Jardin Thuret, Antibes. Last winter was a very severe one. E. viminalis stood it well; E. sideriflora, E. rostrata, E. rudis, and E. botryoides, were killed to the ground, but are sending up strong shoots; all the others were quite killed. E. coccifera is well known to be hardy, and did not suffer at all. I got the plant some two years ago from a nurseryman, but out of six since purchased I have only saved two, and these were greatly injured by having been kept in small pots instead of being planted out and transplanted. It is of no use to plant a tree with corkscrew roots, and one may as well kill it at once by attempting to unwind their tangle, which has been the fate of all mine but two. I wish I knew where I could get seed of this variety."

— PUBLICATIONS RECEIVED.—*Proceedings of the Agricultural and Horticultural Society of India for October, 1886.* (Calcutta: T. S. SMITH, 12, Bentinck Street).—*Journal of the Royal Horticultural Society, vol. vii., No. 2: The Report on the Primula Conference at South Kensington, and on the Orchid Nomenclature Conference at Liverpool.*—*Live Stock Journal Almanac, 1887.* (London: VINTON & Co., Limited.)

— GARDENING APPOINTMENTS.—Mr. HEARD, late Gardener to M. J. FREEMAN, Esq., of The Grange, Exmouth, Devon, has been appointed Head Gardener to T. F. E. FAY, Esq., Clay Hill, Enfield, Middlesex.

LOW'S SILVER FIR.

We gladly avail ourselves of the opportunity afforded us by Mr. Heale, of the Cranston Nurseries, Hereford, of figuring the cones of this much coveted Silver Fir (fig. 148, p. 753). As to the genus to which it belongs, some persons place it in Abies, some in Picea, and others, more comprehensive in their views, range it under Pinus. So long as we know, or are told, in which sense they use the particular word, it does not matter which generic name be adopted. As to the specific name there has been even greater diversity of practice. Some say it is a distinct species, some say it is not. Some think it is a variety of concolor, others deem it a concolor itself, while yet others range it under grandis.

Professor Sargent, to whose authority all deference is due, while criticising some remarks of our own, suggests that there may only be one very variable form extending from Oregon to South California, and thence inland to Utah and the Rocky Mountains of Colorado. Under this view Abies grandis of Lindley would include—1, the typical form so common in gardens together with the Vancouver Island form (Gordoniana); 2, the Californian form, that is now under consideration; and 3, the variety concolor, found in the Rocky Mountains and Utah.

For garden purposes these three forms are usually distinct enough to be kept separate and so, in garden catalogues, we are recommended to recognise A. grandis, the coast form; A. Lowiana, the Californian form; and A. concolor, the Utah and Colorado form with the pointed leaves glaucous on both sides and the relatively large buds. We are inclined to think this is as satisfactory an arrangement as any that has been proposed.

Now as to the name of this particular species, variety, or form, it has been called lasiocarpa and is perhaps most widely known in gardens under that name. It has been called Parsoniana, and it has been ticketed as Lowiana. The name lasiocarpa is, no doubt, quite wrong as applied to this plant, and so that must be abandoned in that connection. The name Parsoniana is a mere catalogue name published without description or figure, and therefore not worthy of being permanently retained in any authentic register. There remains only Lowiana, and whether the reader chooses to call it Abies Lowiana (as we should do), or Picea Lowiana, or Pinus Lowiana, as any one else is at liberty to do, is of no great consequence, so long as it is clear by which name the Silver Fir, the Spruces and the Pines respectively are meant. Meanwhile, for popular or garden usage, the phrase Low's Silver Fir, obviates all difficulty. Having so recently and so frequently referred to the botany of this tree, we forbear to inflict any further technicalities on our readers. It must suffice to say, that it was introduced into commerce from California in the first instance by Messrs. Parsons, of Flushing, United States, and imported into England in 1855, by Mr. Stuart Low, so that in some sense Messrs. Parsons might seem to have some claim to priority; but as this is only accorded to plants authentically named, described and registered, their name is displaced in favour of a name technically correct. Mr. Barron, of Elvaston Nurseries, has repeatedly told the story of the origin of this tree in our columns (see specially vol. v., 1876, p. 78), and one of the originally imported plants is in his nursery. Leaving debatable matters, we shall all agree that Low's Silver Fir is a handsome tree; it is massive-looking, pyramidal in outline, with close tiers of rather stiff, horizontal, or pendulous branches. The young shoots are generally flexible, glabrous, olive-brown in colour, and with long spreading leaves in two or more ranks, and generally pretty uniform as to length. The leaves are usually blunt at the tips, occasionally

notched, channelled on the upper surface, and with a projecting midrib beneath. The colour varies considerably in different specimens, but an olive-green hue above and a silvery lustre beneath are the most common conditions. Breathing pores, or stomata, exist on both surfaces. Usually the leaves spread on either side of the shoots in one horizontal plane, but sometimes they are more or less upturned. The buds, especially those at the ends of the shoots, as was originally pointed out to us by Mr. Barron, afford a good means of discrimination from those of the true concolor. The buds of Low's Silver Fir are usually relatively smaller, chestnut-brown, more or less bluntly-conical, or even pyramidal at the base, while those of concolor are larger, paler, rounder, or more cylindric, according to the stage of growth, and less often smeared with resin. Low's Silver Fir, like the true grandis, does not stop growing in autumn so suddenly as does concolor; the consequence is that, while in concolor there is a well-marked interval between the ordinary leaves and the bud-scales in grandis proper, and in Lowiana the ordinary leaves are often more or less mixed up with the bud-scales. Of course we are speaking of specimens cultivated in this country. How it is in the wild state in this respect we do not know. In this country, moreover, Lowiana does not begin to grow so early in the spring as either grandis or concolor. The cones of A. grandis (a figure of which was given in our columns, vol. xxiv., 1885, p. 561, fig. 128, and which should be compared with those now given) are of an apple-green colour ripening into a bronzy-green, both in the wild and in the cultivated plant—quite a different hue from the rich chestnut-brown of the cones of Lowiana here figured. In grandis the cones grow sometimes singly, sometimes in groups, as in the Lowiana now figured. The timber of grandis and of concolor is not of any great value in its native country, the wood being soft, hence it is probable that the trees in question will not be of much value in this country for other than decorative purposes.

Floists' Flowers.

THE SHOW AND FANCY PELARGONIUM.

THE more quiet these can be kept the better it will be for their future healthy growth and free flowering. The most frequent cause of failure to produce healthy well-developed plants is due to the fact that the atmosphere is kept too close, and the temperature too high, in winter; the plants at the same time being overdone with water at the roots. The months of December and January are the most critical. The plants should be placed close to the glass roof, and not in close contact with each other. As to watering, it requires an experienced cultivator to do it well. If they receive too much water with a higher than cool greenhouse temperature the growths will be watery, the head of bloom irregular, and not of the best quality; if the temperature is low, with too much water the leaves become infected with a disease usually termed "spot," if they do not get enough water, and the soil becomes dusty-dry, the lower leaves on the shoots will become yellow and drop off. Let the soil become dry, but judge by its appearance that it contains some moisture. In applying water, see that the whole mass of roots is thoroughly moistened with rain-water as warm at least as the atmosphere of the house. The small-flowered, or "fancies," require the temperature to be about 5° higher than the cool greenhouse usually receives. By a cool greenhouse temperature I mean one from which frost is just excluded by a fire when the temperature is likely to fall below 35° on frosty nights. The large-flowered varieties are not injured if it should get as low as the freezing-point, but the "fancies" would be. For large specimens intended to flower in June, 35° to 40° in frosty weather is a perfectly safe minimum temperature. Not much work will be required amongst them during the next few months, except to keep them clean, and probably some of the growths will require to be tied out; this must be done very gradually. Small plants in 5-inch pots do not require anything like so much care in watering, or attention in other respects as specimens do.

THE AMARYLLIS.

As I write these lines we are mixing the compost. This is as simple as possible; two parts good turfy loam to one of leaf-mould, one of turfy peat, and one

of decayed manure; some rough sand may also be necessary. I like the compost to lie out-of-doors for about two months before using it. The manure in that case becomes more thoroughly incorporated with the remainder of the compost. The plants are now thoroughly at rest. All the decayed matter has been picked from the crown of the bulbs, and as thrips were found on some of the leaves we dusted the crown of each with some tobacco-powder, and as a further precaution the houses were well filled with tobacco-smoke. This can be applied in sufficient density to kill the thrips without injuring the resting bulbs. Seedlings of last season ought to enjoy a rather warmer temperature, and must not be quite dried up; the leaves remain green all through the winter. J. Douglas.

Foreign Correspondence.

GREEN FROGS.

Now that these creatures are so frequently kept in hothouses in England, I may inquire whether it has been remarked that they adapt their colour to the objects on which they may find themselves, precisely like chameleons? I have had the opportunity of observing both in my Orchid-houses. The frogs are generally of a bright grass-green, but they vary their colour to an almost green-black, to a pale yellow-green, and to a deep brown-black. On *Cypripedium neivium* I mistook one lately for a crumpled leaf, so closely did its colour assimilate to that of the plant; another I thought was a fungus, so closely did it resemble the rotted sphagnum on which it stood; whereas others on sallow-leaved Orchids had taken precisely their colour. H. J. Riss, Florence.

MASSACHUSETTS HORTICULTURAL SOCIETY.

At the show of the Massachusetts Horticultural Society held at Boston recently, the flowers and plants were excellent; some seedlings of American origin as well as French and English varieties being amongst them. Harvard University Gardens contributed a fine collection, not for competition; and the others came from gardens in the locality. Mr. F. T. Ames' collection of plants consisted, amongst others, of the following:—*Cattleya gigas imperialis*, a very large and finely coloured flower; *C. Fausta crispata*, a new hybrid; *Renanaetha coccinea*, *Oncidium varicosum* Rogersi, larger and of brighter colour than the type; and *O. Jonesianum*, new, and promising to be very fine. There were also two plants of the Pine-apple family—*Tillandsia Lindenii* var. (rare), and *Vriesia brachystachys*.

Charles F. Evans, of Philadelphia, exhibited the new white Rose Puritan, one of Bennett's hybrids. Norton Brothers had a small collection of beautiful Roses. Mrs. Francis B. Hayes had a collection of Camellias, Roses, Laperagias and other cut flowers; and Edwin Sheppard a variety of Pelargoniums. Mrs. P. D. Richards had a large collection of native plants, among which the richly-coloured fruit of the Black Alder and Bitter-sweet were conspicuous.

The prize Beurré Diels, Glou Morcaus, and Beurré Langley were excellent, and the show of Apples was fine.

VEGETABLE PRODUCTS OF MEXICO.

In a recent report from Mexico the following vegetable substances are referred to as products of the country. After coined silver, it is said, the most important article in the list of Mexican imports is now Henequen, a fibre produced from the leaves of the *Agave sisalana*, of Yucatan. According to figures furnished by the exporters, upwards of 93,000,000 lb. weight of this fibre were exported in 1884-5, producing a value on board ship of more than £550,000. In the course of the five years between 1879 and 1884 the export of this plant more than tripled its value. Ixile is another important fibre which is beginning to attract notice; it is extensively used for making brushes, and certain portions of it are spun into thread. It is derived from the *Agave ixile*, and recently from the *Agave or Magvey* (*Agave americana*), from which Pulque is made, and which is produced in great plenty in the valley of Mexico, and other parts of the country. Pulque is consumed in vast quantities, but until lately the outer leaves had been regarded as waste. The invention of effective processes for detaching and cleansing the fibre will now enable it to be produced on a very large scale.

The exportation of Ixile reached in 1884-5 a value of £112,000. The next agricultural product on the exportation list is Coffee, of which during the year 1884-5, Mexico exported about £200,000 worth, as against upwards of £260,000 in 1883-4. In the five years between 1879-80 and 1883-4, Mexico exported to the United States alone nearly 60,000,000 lb. of Coffee, valued at somewhat less than £1,200,000. From the foregoing figures it appears that the United States are the chief consumers of Mexican Coffee, which berry is one of the very few products which pay no Customs duty on entering the Republic. Uruapan, in Michoacan, produces Coffee of the most delicious flavour, which took a 1st prize at the United States Centennial Exhibition of 1876; many judges consider it equal to the best Mocha, Martinique, and Java Coffees. The cultivators of Cocoa in 1886 have not realised the sanguine expectations of M. Basto, for some £8000 to £10,000 worth of the pods still comes from abroad. It is said that the culture of Cocoa is an operation of considerable delicacy, and that after picking it requires extreme attention in the handling not to lose much of its colour and flavour. The quality of the Cocoa grown is excellent, but before it can be made an article of exportation it will be necessary to cultivate it on a large scale, and so to reduce its price by the use of labour-saving machinery as to enable it to compete with the Cocoa exported by Venezuela, Réunion, Ecuador, and Central America. The consumption of Chocolate, if not as a beverage at all events for confectionery purposes, is said to be steadily increasing in Europe and the United States; one of the great makers of "Chocolates" in the latter country declared recently that within the last five years he has increased his annual consumption from 24,000 to 50,000 bags.

DISEASE OF CELERY. PUCCINIA BULLATA.

CELERY is very liable to a disease caused by a fungus now generally known as *Puccinia bullata*. It is possible that some Celery growers may have had no experience of this ailment, but other growers, and especially during the present season, have seen every Celery plant fall rapidly into loathsome putridity from the attacks of the fungus before us. *Puccinia bullata* has been very rife this autumn and we know of more than one instance where every plant in a market garden has been completely swept off by it.

The accompanying illustration (fig. 149) will explain something of the habit of the pest. At A is shown, natural size, what should be one of the smaller leaflets of a Celery leaf, but the disease which is preying upon the leaf has caused it to distend itself to an abnormally large size; it is also thick and leathery in proportion to its superficial expanse. It is thickly covered all over on both sides with projecting black disease spots. At B is shown, also natural size, a fragment of the upper portion of the "stick" or leaf-stalk of the Celery plant blotted on both sides with disease spots identical with those seen on the leaves.

In an attempt to understand something of the nature of the disease a small piece should be cut from one of the leaves through the disease spots, and from this small piece a minute and very thin slice should be cut from the exposed surface. If magnified fifty diameters the transparent fragment, thus removed, will appear much as shown in the centre of the illustration, which has been engraved direct from Nature. At C the upper epidermis of the leaf is seen peeling away, or sloughing off from the flesh of the leaf. At D the lower epidermis is sloughing off in a similar fashion. At E, stomata, or organs of transpiration may be seen on the epidermis, which is peeling off; and at F, G, H, and J the fungus itself, or *Puccinia*, may be seen growing within the leaf, and bursting from within outwards. Everywhere amongst the constituent cells of the interior of the leaf the spawn or mycelial threads of the fungus may be seen. It is evident that a leaf so disorganised, with epiderm everywhere burst and cells abnormally swollen, can no longer perform its vital functions. As the "stick" or leaf-stalk is in an identical condition with the leaf the whole plant when badly attacked by the fungus must of necessity soon fall into putridity.

In its early stage of growth the red spores—*Uredo* spores—consist of a single cell as shown enlarged 400 diameters at K; these spores by germination rapidly and as soon as formed extend the disease. Later on,

spores of two cells—*Puccinia* spores, potentially resting spores—are produced as shown enlarged 400 diameters at L.

No *Æcidium* has yet been suggested for *Puccinia bullata*, although a good number of old species and synonyms as P. Apli, P. Conii, P. Æthuse, P. rubiginosa, P. Anethi, P. Silai, P. bullaria, &c., have of late been all rolled into the one before us. The *Uredo* condition also has at least six different names. All species of *Puccinia* found on umbelliferous plants are, however, not of necessity the P. bullata of Celery. Some men appear to do nothing but invent new names for fungi and parts of fungi; other men knock all the new names down (like nine pins) as soon as erected. Both sets of men think this child's play is Botany or Mycology, and become disturbed if they get laughed at as mere hucksters of hard words.

The Celery fungus is not confined to Celery, as it grows upon Parsley, Fool's Parsley, Seseli, Pepper-Saxifrage, Silaus, Archangelica, Fennel, Hog Fennel, Peucedanum, Hemlock and other Umbelliferae.

The fungus should be destroyed in its early stages of growth as soon as seen, and a good look-out kept for any *Puccinia*-infected examples of the umbelliferous plants just mentioned. *Worthington G. Smith, Dunstable.*

HOME CORRESPONDENCE.

Wasps and their Habits.—Your correspondent, "F. W.," is wrong in stating "that there are never any of these hanging nests seen in the South of England." They are certainly not common, but far from uncommon. Only this last summer a very perfect nest was found suspended from a branch of a small *Acubia japonica* in a pot, and formed an interesting exhibit at the Royal Southampton Horticultural show in August. The nest still remains intact on the plant, and is placed in a greenhouse for further preservation. It is about 4 inches in diameter, and a marvel of insect skill. Many nests of a similar character have frequently been found in this locality. Two years since one was found upon a small branch of a *Cedrus Deodora* on my lawn. There are several species of wasps in England. The one that suspends its nest to branches is different from the common too well known species which makes its nest within the ground. *W. H. R., Southampton.*

The Gardeners' Royal Benevolent Institution.—I am glad to see there is one gardener—Mr. Greenfield—who approves of the suggestion I made in favour of the above. As Mr. Greenfield says, the collection taking place in the Queen's jubilee year it is almost sure to be a success. Mr. Greenfield's idea, that a good representative committee be chosen in the various districts is a capital one. Perhaps other gardeners will give their opinion, for now the ball is set rolling it is best to keep it going. I have been thinking whether it would not be best to partly re-name the above Institution by calling it the Royal Horticultural Benevolent Institution. It would then be more in character with the R.A.B.E. *J. Perkins.*

Severe Frost in East Anglia.—On the morning of the 2d and 3d, Thursday and Friday last, our thermometer registered 17° of frost, and on the 4th, 8°. We just managed to fill our ice-house. *J. Perkins, Thornham Hall.*

Adiantum Farleyense.—I believe it is very rarely that this beautiful Fern produces fertile fronds. I have availed myself of every opportunity to search for them, and have examined plants of all sizes, and those that have been grown under various conditions, but have never succeeded in finding any. Having expressed an opinion that it never produces fertile fronds, a friend of mine brought me a frond to convince me that it does. The frond which was given me was a very young one, and although there is some semblance of fertility, the spore cases are very imperfectly developed. I have some doubt if they would have developed sufficiently to bring spores to maturity. Enclosed find portion of frond. I shall be glad to know if you have seen well-developed fertile fronds. *A. Hemley. [No. Ed.]*

—I might have said when I wrote my query at p. 692, that I am of opinion that this seedling *Adiantum* might have been the product of a cross between *A. macrophyllum* and *scutellum*. It is well known to cultivators of Ferns, that by sowing two or more varieties of the same species together, some very fine varieties have been obtained. Why should it not have been so in this case? If my memory serves me right, *Farleyense* was an importation from Jamaica, but as Mr. T. M. Shuttleworth says, it may still have been a hybrid. Has it ever been known

to come up in any stove that has never had an established plant of the true *Farleyense* in it, and where such varieties as *scutellum*, &c., have been grown? If so this would establish the fact of its being a hybrid. *W. G.*

Plants for Bees.—In answer to the inquiry of "T. B. S." (p. 729), apiarians having garden space, or suitable ground, will do well to avail themselves of the list of seeds of choice "bee plants" offered below, as we feel sure that their "take" of honey will be much improved both in quantity and quality. There are many other varieties beyond those we mention which are recommended as suitable for bees, but a long and careful observation at our seed grounds confirms our opinion that those named may be considered the very best amongst annuals for the purpose, and, we may add, the most easily cultivated. With the exception of *Mignonette*, which should not be sown out-of-doors before April, all are quite hardy, and sown freely at intervals from early in March to the middle of June, will produce an abundant succession of bloom from May to October. *Gillias*, *Nemophilas*, and *Limonas* Douglasi will bloom much earlier if sown in August or September in a sheltered spot, but the soil must not be freshly manured, or the plants will make too much growth to stand the winter:—*Borage*, *Clarkia pulchella*, C. p. alba, *Cyanus minor*, *Erysimum Perofskianum*, *Gilia tricolor*, G. t. alba, *Limonas Douglasi*, *Mignonette* New Giant, *Nemophila insignis*, N. i. alba, *Gnetha bistorta Veitchii*, and white Dutch Clover—splendid for bees, and producing the finest quality of honey. *Daniell Brothers.*

—In answer to "T. B. S." on bee plants, there is a little book on the above subject, written by Mr. H. Dobbie, of Cingleford, Norwich, published by Jarrold & Son, London and Norwich. Mr. Dobbie also supplies the seeds and plants. Messrs. Carter, of Holborn, have a special list of bee plants for the flower garden and kitchen garden. This list has been carefully selected and contains the very thing "T. B. S." requires, and I would strongly advise him (or her) to apply for this list, and make a selection from it. *Walter Chitty, Penney.*

Cape Woods.—It may interest your correspondent, Mr. D. Webster, as well as other readers of the *Gardeners' Chronicle*, to know that the Cape Boxwood referred to by him (p. 715, *Gardeners' Chronicle*, December 4) is furnished by the new species of *Buxus* recently described by Professor Oliver as *Buxus Macowani*, and an account of which I published in the *Journal of the Society of Arts* for March 1886, p. 465. The Catalogue of Cape exhibits at the recent Colonial Exhibition, referring to this Boxwood, says:—"North-eastward of Bathurst are the more important forests of East London, containing the Boxwood recently brought to notice and not known to exist in any other forests in the colony." And again, in another place, it says:—"Its natural reproduction is very good. The seasoning of this wood has been under observation for not little more than a year and appearances indicate that it will become one of the most valuable woods per cubic foot in the colony. When Cape Boxwood is better known in the English market it is anticipated that an export trade will be established. Small shipments have already been made to introduce the wood, which is very favourably reported on for engraving purposes. The *Timber Trades' Journal*, of August 22, 1885, states this wood to be one of the best woods yet put forward as a substitute for the ever decreasing supply of true Box." While on the subject of Boxwood it may be well to state that the *Kuepua Boxwood* or *Kamassi* (*Gonioma Kamassi*) has also attracted some attention of late as a substitute for Box, in consequence of which it is more strictly preserved in the forests than hitherto. Quoting again from the Cape Catalogue we find that a London firm of wood engravers thus report on this wood:—"Suitable for the finest mechanical engraving, such as machinery of all descriptions, also adapted for ordinary engraving purposes." This wood is stated to be considered by some as superior to the East London Boxwood, and it is anticipated that further trials with lead to an export trade in *Kamassi* wood. Good specimens of these woods, together with the fine plank of yellow wood referred to by Mr. Webster, have been presented by the Cape Commission to the Museum of the Royal Gardens, Kew. *John R. Jackson.*

Transmission of Seeds from the Tropics.—In the *Gardeners' Chronicle* for October 16, 1886, is a note from my friend, Mons. Thury, the Director of the Botanic Garden, Martinique, in reference to the vitality of seeds in the tropics. I can fully confirm what Mons. Thury asserts, as, from an experience extending over eleven years, I have had frequent opportunities of testing the truth of the statements advanced. Many tropical seeds, especially Leguminous ones, also soon lose their vitality unless they are specially "fitted to survive" by possession of a hardened exterior coating—a fact occurring in Nature

which ought to show us the way to preserve seeds in these climates with success. Measures are now adopted by many of our leading seedsmen to hermetically seal all packages of seeds coming to the tropics, and this plan would be adopted by all without doubt did they know how the quality of these goods is depreciated by being kept for a few weeks in the paper bags in which they are often forwarded. *J. Hart, Acting Director, Botanical Department, Jamaica.*

Rose Lady Mary Fitzwilliam.—I am sorry that Mr. Henry Bennett feels aggrieved about my statement concerning that very beautiful Rose, Lady Mary Fitzwilliam, but I am equally sorry that I cannot retract what I have said. Mr. B. mentions its female parent, but what was its male parent?—that is the first point. But even if he crossed it with another Tea, there must have been some body, in the shape of bee, moth, or insect of some sort, beforehand. He announced "Her Majesty" as a cross between two H.P.'s, I believe, although I never happened to see his announcements; but it is anything but perpetual, and something must have interfered with the hybridising. I believe he acknowledges so much himself. For my statement that it is not a Tea I rely on the catalogues, and also on its habit of growth; in fact, whatever may have been its supposed parentage, it is as much a Tea as La France or Captain Christy, and I am convinced that if any exhibitor is weak enough to put it into a Tea stand he will inevitably be disqualified. *Wild Rose.*

Tobacco Culture and Harvesting.—In my notes on "Tobacco Culture in North Wales" I promised later on to let you know the final results—in other words, how the Tobacco turned out. After repeated and fair trials on the part of persons well competent to judge, I must say that the result is almost everything that could be desired, the Tobacco smoking pleasantly and well, but, of course, being to a great extent destitute of the rich aroma that is so characteristic of the finer and more expensive brands. This, however, can only be imparted to it by, as stated in the notes on Messrs. Carter's crop, subjecting it to the necessary process of fermentation or curing for aroma and flavour. From Carlisle southwards it is now quite evident that Tobacco culture is a branch of industry well suited for the British farmer, and if such success as that generally reported has attended the culture and harvesting of it in a season like the present, which for sunniness and excessive rainfall is almost unprecedented, what further success may we not expect during even an ordinary English summer? It now rests entirely with Government to grant favourable terms for Tobacco culture, when there is but little doubt hundreds would turn their attention to so easily managed and profitable a crop, more particularly at a time like the present, when, do as they will, farmers cannot make, even with the most frugal and expert management, the ordinary farm produce give even a remunerative return. The value of Tobacco culture for an ordinary farmer is very much enhanced by the fact that the final curing or imparting of the pleasant aroma is not necessarily required to be engaged in by him, for the raw or unmanufactured crop finds a ready market at 6d. or 8d. per pound, and as, according to Messrs. Carter's experiments, 15 cwt. can be produced on three quarters of an acre of ordinary farming land, the grand total of nearly £75 to the acre, although startling, is in reality a fact that actual experiments, conducted by one of our leading nursery firms, and under the very eyes of the Excise authorities, fully bear out. Even although a fair taxation is levied on British grown Tobaccos, and due allowance made for the impoverishing nature of the crop, there would still be a handsome margin of profit left for the person who most deserves it—the cultivator. *A. D. Webster, Llandegai, Bangor, North Wales.*

Potatos for Salad.—We are so accustomed to eat the tubers of this plant in such a condition that we lose sight of the fact that on the continent of Europe—where, indeed, the root does not happily form the chief vegetable at any one's table—the Potato is very commonly eaten cold, cut up in slices, just as we serve the Cucumber, and oil, vinegar, and other condiments are added. It is seldom consumed by itself, sliced Celeric or Beetroot being usually mixed with it. For this particular use long kidney-shaped varieties with a close firm texture, are chosen, our floury kinds being unsuited owing to their crumbling nature. *X.*

Horticultural Exhibitions.—Once again the exhibitions for the year may be said to be over, and members of committee are holding meetings to arrange schedules for the coming year. I have been connected more or less with horticultural exhibitions of all sorts and sizes, from judging at Internationals to taking the gate money at a cottagers' show, so that my acquaintance with the subject ranges over

many years, and I am tolerably conversant [with everything in the show way; and this I have great pleasure in saying, that gardeners as a class are honourable and straightforward, but in this, as in everything else, there are exceptions, some exhibitors sometimes placing on the tables articles not of their own growing. Now this in my judgment should not be; all exhibits ought to be the growth of or have been in the possession of the exhibitor two months previously, because if one has only sufficient friends there is no difficulty in taking high honours when this rule is systematically disregarded. It is grievous when one is giving, say, a 1st prize to a collection of fruit to see, it may be, a Pine-apple or a Melon which from their appearance makes one wonder if they have not done duty elsewhere; or perhaps a prize is offered in August for Pears, and one comes to a fine dish of Williams' Bon Chrétien, but their appearance gives one the idea that they were

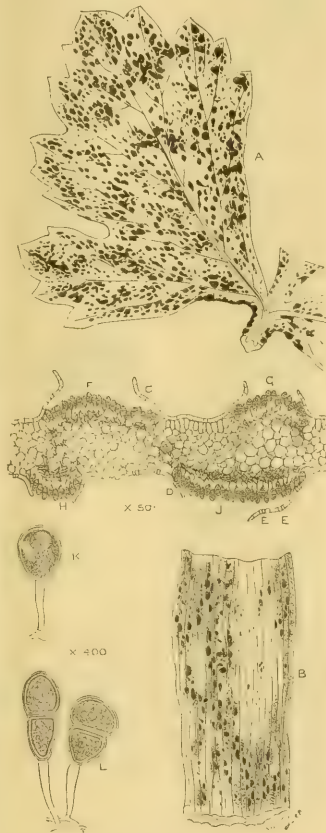


FIG. 149.—CELERIC FUNGUS: PUCCINIA BULLATA (SEE P. 750)

grown over a water, and only perhaps bought the day before in the first-class fruiterer's. This surely is wrong, because if such practices are allowed, it is a case of the long purse winning, and not cultural skill. A manager of a show not 20 miles from London said when I spoke to him on this subject, "We don't care a rush, provided we get a good show." I consider this mode of conducting a show to be very distasteful to young exhibitors, and often causes their heartening to grumble at their want of success. I need not mention that it is of vital importance that there should be good judges. Of course, it matters not at all to those who kindly send "not for competition." I have no motive in writing this beyond a true love for our profession, for one is deeply grieved to see a falling off of both exhibitors and visitors to nearly every show in the country, and it behoves us to do all that in us lies to keep the bark afloat, for what has so refining an influence on our people generally as a good horticultural show? and which affords a holiday to as praiseworthy a class of men as

can be met with as my brother gardeners. *J. Rust, Eridge Castle.*

Eupatorium Weinmannianum.—As we are having it in quantity just now, both for plant furnishing and cut flowers, it may not be out of place to make a few remarks about it. I do not know of anything at this time of year that gives equal returns for labour expended. It deserves a place in the garden of the amateur and cottager, as well as in more extensive gardens. It has nice heads of flower that are first white, then turn a very light pink, having a fine fragrance resembling that of the Meadow Sweet. As a cut flower it endures about a week, except in cases where the vases are near to the heat of the room fire or lamps. It is planted outside all summer and autumn, where it grows well, and sets its flowers freely, being taken up some time in September according to the weather, and potted. Our smallest sizes are in 3-inch and the largest in 7-inch pots. By lifting it with a small ball there is no perceptible check observed, if it be kept in a temperature of from 40° to 50°; under this treatment it comes into flower about the first week of December. We have had it in flower since the second week of November, but these were forced plants. Those standing in cold pits look as vigorous as the others, and will come into use later, making a good succession. Judging by the manner in which the plants keep in unheated pits, I should not hesitate to keep them out-of-doors for a considerable portion of the year in the mild parts of the kingdom. *J. U., Shibo Gardens.*

Pruning and Switching Hedges.—I would ask whether there is any difference in the constitution or other circumstances surrounding trees, whether growing in hedges or in plantations or forests, that should cause different seasons to be considered most favourable for pruning them respectively? As to hedges Mr. Grigor (in his prize essay on fences, *Journal of the Royal Agricultural Society of England*, 1st series, vol. vi., p. 214) directs "If a hedge is not vigorous, and an increase of strength be desirable, pruning should be performed during the latter part of October, because the sap and sustenance which the roots attract from the earth during the winter will go then to the remaining branches, causing them to push next spring with unusual vigour." The late Professor Low, of Edinburgh University, in his *Elements of Practical Agriculture*, writes, p. 742, "In all cases of pruning the proper season is when vegetation is inert, and not when the sap is ascending." Again, p. 782, "This (November) is the fitting season for pruning hedges and performing other operations upon the live fence." The Highway Act, 5 and 6 Will. IV., c. 50, s. 66, enacts "No person shall be compelled, nor any surveyor permitted, to cut or prune any hedge at any other time than between the last day of September and the last day of March." Thus far as to pruning hedges; as to Forest tree, Mr. Brown in *The Forester*, 3d ed., p. 419, writes, "All pruning operations should be done in the spring or summer months, observing to leave all Maples till the summer season. I would not advise to prune after August 1, for after that time the motion of the sap becomes slower, and the wounds are consequently longer in healing up. I observe that those trees which were pruned in May or June heal up in their wounds much faster than those done in July or a week in August. My impression therefore, is, that the month of June is to be preferred to any other month in the year for this operation." It is remarkable that the season recommended to agriculturists for the pruning operations of the hedge, to which season, permission to the parish surveyor to prune such hedges as have been neglected by the owner is restricted by statute, is precisely the season during which *The Forester* advises that no pruning should be done. It may be that the arrangements for other operations on the farm may make it more convenient to prune the hedges in October, or in some of the months intervening between October and the following March; but leaving that consideration out of the question, and regarding only the health of the trees, I would ask whether the time for pruning that has been found best to suit the health of forest trees is not likely to be found equally favourable to the same operation on hedges? *Dis.* I would object to summer pruning as tending to restrict root extension, although it does favour the healing of cut surfaces. When important limbs must be amputated from large trees, there is the best of reasons for performing it in the season when the sap is active. No bad results have been noted from the use of the shears or the switch-knife on deciduous plants in the period from September to February, provided the work be performed in mild weather. *Ed.*

Pteris tremula var. grandiceps.—A very distinct and elegant variety of one of the most useful Ferns for general decorative purposes. It is of a dwarf and more compact habit of growth than is the normal form of *P. tremula*; the pinnae are narrower, the fronds terminate in a tasselled crest of multifold growths; the side pinnae are also lightly crested, the

terminal crest bearing the fronds down, and giving them a gracefully arched appearance. Plants of this variety were exhibited at South Kensington on October 26 last by Mr. H. B. May, of Edmonton, by whom it was raised. A. H.

Chrysanthemums at Trueloves, Ingatestone.—The public shows now being over one has time to look round a bit at what may be called the private shows, and one of the best certainly that I have seen is in the gardens of E. Caldecott, Esq. When I arrived there I found a very pretty place situated on a hill, the grounds of which are laid out very tastefully, and well kept up. The object of my visit, however, was to see the Chrysanthemums, and I was most gratified at what I saw. Mr. Harris, Mr. Caldecott's gardener, deserves high praise, both for the judicious selection as well as for the excellent cultivation and general condition of his plants. He is well to the fore also in new varieties, incurred and Japanese, whilst at the same time not forgetting the older but not less beautiful kinds. There were certainly some hundreds of plants in full bloom in the finest condition when I was there, all showing that Mr. Harris would be a formidable competitor at any show, some of his blooms being quite equal to many of the prize-winners at the Crystal Palace, or Aquarium. I may also mention that the Chrysanthemum does not absorb all Mr. Harris' care, for he is a good all-round man, his stove and greenhouse plants, Grapes, &c., being most excellent. J. Wright, Middle Temple Gardens.

Gaultheria procumbens.—I do not know whether this plant has ever been suggested as an edging for a border, I tried a year ago at Oakwood round a bed containing principally deciduous plants and now at this dead season the bright red berries and glossy green leaves have a very pretty effect: I was struck by the frost-resisting power of a *Veronica* with narrow leaves and white flowers, which I have as *V. salicifolia*, but which a good authority tells me is wrongly named. The thermometer at Oakwood last night went down to 23° Fahr., yet I could cut sprays from plants in full exposure, perfectly untouched. The narrow leaves and feathery white flowers made a useful addition to a table nosegay chiefly consisting of *Ferns* and with different coloured berries and the open seed-pods of *Ris foetidissima*, both very pretty but rather solid. George F. Wilson.

Reports of Societies.

ROYAL HORTICULTURAL:

Tuesday, Dec. 7.

The small meeting, terminating the public doings of this Society in 1886, took place in a room of the Albert Hall, on the date given.

But few objects of any kind greeted the visitor, but amongst the few were some excellent examples of Pine-apples, a few Orchids, Aroids, Chrysanthemums, and winter flowering Carnations.

Scientific Committee.

Present: Dr. M. T. Masters, F.R.S., in the chair; Mr. W. G. Smith, Mr. G. Maw, Professor Church, Mr. O'Brien, Mr. Bennett, Mr. Michael, Mr. G. F. Wilson, Mr. McLachlan, Hon. and Rev. T. Boscawen, and Rev. G. Henslow.

VERONICA SALICIFOLIA.

Mr. Wilson exhibited sprays from this New Zealand species grown at Wisley which had perfectly withstood a temperature of 15° in exposed situations. He described it as seeding itself very freely. *Choisya ternata* was, however, cut by the same degree of cold.

JASMINUM ODORATISSIMUM.

A yellow species, exhibited by Mr. O'Brien, is said to be a native of Madeira; but being of an Indian type, it was suggested by him, and corroborated by Mr. Maw, that it had been introduced there. He also exhibited flowers of *Corynthes speciosus* var., from Major Lundy; *Maxillaria cucullata*, and a *Pleurothallis*, suggested by Mr. Kidley to be near *P. ophecephala*.

MASDEVALLIA WITH LARVE.

Mr. O'Brien also exhibited specimens of a species of *Masdevallia* attacked by the larva of some Noctua.

XIPHION RETICULATUM, DISEASED.

Mr. Maw showed specimens which were referred to Mr. Murray for examination and report.

NARCISSUS, PHOTOGRAPHS OF.

Mr. George Maw exhibited photographs of living *Narcissus* made in the Riviera in 1870. He afterwards

gave a short account of the North African and South Spanish *Narcissus* observed by him in a journey made lately thither. *N. papyraceus* extends as far as Fez in Morocco, south of which N. sub-Broussonetii takes its place, extending from Saffi to Mogador. Allusion was made to the smallest of the white forms of *N. Tazetta* in the island of Tenerife. Of the autumnal species reference was made to *N. viridiflorus*, which had been lost sight of for half a century, but which Mr. Maw rediscovered in 1883 in the neighbourhood of Gibraltar, and again lately near Tangier. A hybrid between *N. viridiflorus* and *N. serotinus* was found by him near Gibraltar, and a series of hybrids between *N. viridiflorus* and *N. elegans* were got in North Morocco. Mr. Maw observed that *N. serotinus* was limited to the South of Spain, and *N. elegans* to the Morocco coast; the latter plant bearing true leaves. The *N. viridiflorus* and *N. serotinus* he considers leafless, the scape appearing without leaves, and what seem leaf-organs he assumes are flowerless scapes. Mr. Maw also referred to the abundance of a small Amaryllid, *Tapeinanthus humilis*, Herbert (= *Pancratium humile*, Cav.), about 8 miles south of Tangier, and which he collected both in flower and fruit.

PARMELIA ESCULENTA. (SEE FIG. 150.)

Mr. Maw showed specimens of this so called "Manna," an edible lichen found in little rounded masses on the surface of the soil and obtained from the country about 100 miles south of Algiers.

ARAUCARIA EXCELSA.

Mr. Maw exhibited leaves attacked by a form of mealy-bug, which first appeared in consequence of the heat and moisture on board ship on the voyage from Bombay.

A vote of thanks was given to Mr. Maw for his interesting communications.

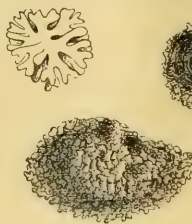


FIG. 150.—*PARMELIA ESCULENTA* THE EDIBLE LICHEN.

EARLY LINEN PAPER.

Professor Church exhibited specimens of the earliest known linen paper made in Europe. It was a portion of an episcopal register of 1273, from Auvergne; another, dated 1289, consisted of entries of revenues, in which some of the original rag could be detected. It consisted of six strands of warp, and six of wool. The size used was entirely starch, which appeared to be from Wheat. The earliest authentic linen hitherto known is from a memorandum of the fourteenth century, now in the British Museum. The Moors are said to have made linen paper in the thirteenth century, all earlier paper being made of cotton.

VARIEGATED FOLIAGE.

Professor Church described some analyses he had made of Oak foliage, taken from a tree at Kew Gardens, which bore one albino branch, about 20 feet from the ground. A full account will be found in the December number of the *Journal of the Chemical Society*, 1886. The following is the analysis:—

	Albino Foliage.	Green Foliage.
Water	73	58
Organic matter	24	40
Ash	2.7	1.6
Potash	50	29
Iron	0.82	1.2
Phosphoric acid (same in both)		
Lime	8.25	24.5
Manganese	2.1	2.36

He found starch, but no dextrine in the green spots on the variegated leaves; but erythroid dextrine in the white parts, probably derived from the green by migration.

SEAKALE WITH SCLEROTIA.

Mr. W. G. Smith exhibited specimens in which large oval black bodies were attached to the stems. The fungus to which they belonged could not be determined from them in that condition.

PREHISTORIC WHEAT.

He also read a communication upon and exhibited several specimens of carbonised Wheat from Salisbury and elsewhere, to show the comparative sizes of these ancient grasses and of average English Wheat; while those regarded as Romano-British appeared to be somewhat smaller, others were quite equal in size to living kinds, as also those derived from the tombs of Thebes in Egypt. [We shall shortly give an illustration of this. Ed.]

FUCHSIA WITH PETALIFEROUS SEPALS.

Mr. Henslow exhibited a specimen of a semi-double *Fuchsia* remarkable for its thick red sepals bearing small dark purple petals at their very apex. He suggested as an interpretation of this unusual occurrence, that the fibro-vascular cord of the petals had become fused with the midrib of the sepal, so that instead of the petals being produced at the normal position it had become carried up somewhat as are the anthers in *Primroses*, the filaments of which, or rather their vascular cords, are combined with those of the petals to which they adhere, and are superposed.

Floral Committee.

Present: G. F. Wilson, Esq., F.R.S., in the chair; and Messrs. W. Wilks, J. Laing, H. Herbst, H. Bennett, T. Baines, R. Dean, J. Walker, J. Hudson, W. Holmes, H. Gannell, G. Duffield, G. Noble, H. Ballantine, W. B. Kellock, J. Duminy, H. M. Pollett, Major Lundy, E. Hill, H. Turner, J. O'Brien, H. Low, J. Douglas, and G. Paul.

The pretty dwarf white *Narcissus monophyllus* was shown by Mr. T. S. Ware; the neat habit and beautiful, almost translucent flowers make this rare bulb a desirable subject for the winter flora. Other plants shown from the Tottenham Nursery were an improved form of *Helioscopia niger*, maximum with an abundance of flowers, white interiorly and pinkish on the reverse of the sepals—its chief merit lies in the larger blooms and their profusion; *Primula obconica*, in bloom; a small piece of the rare *Cypripedium macranthum* bearing one flower; and a yellow sport from *Chrysanthemum Ethel*, named Mrs. H. J. Jones—it has straight flat broad florets, and is of a clear yellow hue.

Mr. G. Stevens, St. John's Nursery, Putney, exhibited a salmon and yellow Japanese *Chrysanthemum*, *Carex Underwood*, that has in it the making of a flower of some merit.

Another *Chrysanthemum*, this time from Guernsey, named Governor of Guernsey, was exhibited by Messrs. C. Smith & Son, Caledonian Nursery, Guernsey; it was of a fine yellow colour, and belonged to the incurved section.

Mr. G. F. Wilson showed a flower-spike of *Veronica angustifolia*, which having withstood 15° of cold in an exposed spot at Wisley, was held by him to be a plant of mark. How it would behave with a greater degree of cold is a matter for further proof. The flowers are white, and the habit of the plant and size of the foliage is slender.

A solitary cut bloom of *Amaryllis equestris*, with crimson petals, the throat being green-coloured for half its depth, came from Mr. W. Smythe, gr. at Basing Park, Alton.

Mr. Hans Niemand, of the Royal Nursery, Harbottle Road, Birmingham, exhibited *Poinsettia pulcherrima variegata*, the claim to merit lying in the creamy-white blotched foliage.

A plant of *Cypripedium callosum* in bloom was shown by Mr. W. Bull, New Plant Nursery, King's Road; the flower was large and well developed, showing the bold distinct markings of the various parts to perfection. The dorsal sepal is the finest feature, it being broadly marked with deep purple radiating lines, and the upper margin ornamented by a white margin of half an inch in width.

Mr. F. J. Paul, gr. to J. C. Bowring, Esq., Forest Farm, Windsor, showed a seedling *Cypripedium* × *C. callosum* and insignis intermedium. It did not appear to possess sufficient distinctness to be of much interest, the flowers being precisely those of insignis. The habit is dwarf, and the flowers are much varnished in appearance.

From that rising garden, Studley House, Hammer-smith, Mr. J. C. Cowley, gr. to F. G. Tait, Esq., sent *Anturium Taitianum* s. another plant wanting in distinctness from existing varieties; and *Spathoglottis Augustorum*, a plant bearing a few pale mauve Calanthe-like blooms on a long flower-stalk.

A handsome Nerine, supposed to be × *corus* major and *flexuosus*, came from Mr. E. Peters, gr. to J. L. Mansell, 2, Somerset Terrace, Guernsey. The large cyme is composed of flowers of a rosy-crimson colour.

The gr. to C. J. Partington, Esq., Mr. B. Seaziege, Heaton House, Chester, contributed a very fine *Odonoglossum crispum*, the spike being of an extraordinary size, and the flowers the pink of perfection.

Mr. H. Heims, gr. to F. A. Philbrick, Esq., Oldfield, Bickley, exhibited *Laelia anceps* *virginialis* bearing two flowers of the purest white, and of evidently great substance, promising long endurance either cut or on the plant. This is doubtless the most entirely white variety of *L. anceps* in existence.

Mr. E. Marzin, East Field Nursery, Mitcham, showed the yellow *Chrysanthemum* Mrs. N. Davis, an incurved variety.

Some excellent heads of bloom of zonal *Pelargoniums* were shown by Messrs. H. Cannell & Sons, Home of Flowers, Swanley, and were so fine for the season as to secure a Cultural Commendation.

A very strong growing *Calla æthiopica* was shown by Mr. J. King, Rowham, Aylesbury; a fine crimson *Primula sinensis*, Lord Wolsely, coming from the same place.

Messrs. Hooper & Co., Covent Garden, had a hamperful of winter-flowering *Carnations*, consisting of most of the most admired kinds.

Fruit Committee.

Present: H. J. Veitch, in the chair; and Messrs. J. Burnett, W. Warren, J. Woodbridge, G. T. Miles, S. Ford, Harrison Weir, J. Smith, T. B. Heywood, F. Mason, G. Norman, C. Ross, F. Rutland, W. Denning, R. D. Blackmore, W. Paul, R. Hogg, G. Bunyard, P. Crowley.

An apparently fine robust *Celery*, Veitch's Standard Bearer, was exhibited by Mr. W. R. Strong, gr., Wellington College; it was insufficiently blanching.

Mr. J. Harris, gr. to Mrs. Vivian, Singleton, Swansea, showed six *Pine* apples, *Reichenbachii*, *Reichenbachii*, and *Smooth Cayenne* kinds; these were of good finish and size, but most excellently by three fruits of the latter kind from Mr. T. Coomber, of the Hendre Gardens, Monmouthshire.

Seeding Apples were shown by several persons, but which the committee failed to prove were worthy of retention.

THE LINNEAN SOCIETY: Dec. 2.

CEYLON PLANTS.—As a chapter in the history of East Indian botany, Dr. Henry Trimen gave a paper at the Linnean Society meeting, on the above date, entitled "Hermann's Ceylon Herbarium and Linnaeus' *Flora Zeylanica*." The collection of dried plants and the drawings of living ones made in Ceylon by Paul Hermann in the latter half of the seventeenth century possess a special interest as being the first important instalment of material towards a knowledge of the botany of the East Indies; but Trimen, himself, who died in 1695, published very little of this material. Some of his MSS. were subsequently printed by W. Sherard, including a catalogue of the herbarium as then existing, under the title of *Museum Zeylanicum* (1717). This herbarium was lost sight of till 1744 when it was recognised by Linnaeus in a collection sent to him from Copenhagen. After two years work at it, Linnaeus produced in 1747 his *Flora Zeylanica*, in which all the plants that he could determine are arranged under his genera. At that date Linnaeus had not initiated his binomial system of nomenclature, but in his subsequent systematic works he quoted the members of the *Flora Zeylanica*, and thus Hermann's specimens became the types of a number of Linnaeus' species, for the most part additional to those in his own herbarium now in the possession of the Linnean Society. Hermann's herbarium is now in the botanical department of the British Museum, having been purchased by Sir Joseph Banks, from Professor Treschow, of Copenhagen; the specimens are in very fine preservation, but some were originally scanty or imperfect. The paper consists of the results of a critical examination of the whole of the collection, and a catalogue is given of all the *Flora Zeylanica* species as named by Linnaeus, along with the determinations of Hermann's species of each as now identified. Not a few difficulties, ambiguities, and misapprehensions of Linnaeus' species have been thus recovered and cleared up, and the most important of these are discussed in a series of short, critical notes which form the conclusion of the paper.

NATIONAL CHRYSANTHEMUM; Dec. 8.

A MEETING of the Floral Committee of this Society took place at the Royal Aquarium on Wednesday, and considering the lateness of the season, a good number of *Chrysanthemums* were staged. Only one First-class Certificate of Merit was awarded—to Japanese White Ceres, so named because it is considered to be a sport from the old type under that name: a flower of a delicate bluish tint, but so different in build are the flowers that it seems scarcely possible that one can be a sport from the other. Mr. N. Davis stated that he had always had the bluish form and in the name of Ceres; others said they had the white one; but the balance of opinion inclined to the opinion that the two were essentially distinct, and it was thought best to name it White Ceres.

A dozen grand flowers were shown by Mr. Beckett, Aldenham Park Gardens, Epsom, large, full, reflexed, broad petalled, pure white flowers of great beauty. Some blooms of the delicate pink form were also shown. Mr. Beckett also had Japanese Prince Leopold, the flowers reflexed, the bases cinnamon and gold, the centre golden amber: a little confused, and

scarcely up to exhibition form, but promising. (Commended.) Also a singular looking pompon, named *Kylie Bellew*, orange-brown, thread-like petals, the reverse golden-buff.

From Mr. E. Owen, nurseryman, Maidenhead, came a number of good blooms, which, however, received no award.

To a collection of cut blooms from Mr. Beckett a vote of thanks was awarded.

Other exhibits came from Mr. Smith, Caledonian Nursery, Guernsey; Mr. Bittesworth, Cheshunt; Messrs. Henry Cannell & Sons, nurserymen, Swanley; Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, who had Mrs. H. J. Jones, a golden sport from Eubel, valuable on account of its late blooming; Mr. G. Stevens, St. John's Nursery, Putney.

ROYAL CALEDONIAN HORTICULTURAL.

THE annual meeting of this Society was held in Edinburgh on the 3d inst., Mr. John Dowie presiding. After the usual preliminary business, the Treasurer read a statement of the finances of the Society for the past year, which showed that the receipts amounted to £1140 4s. 11½d., and the payments to £1101 12s. 2½d., showing a balance in favour of the Society of £339 12s. 9½d. on the year's transactions. The total funds of the Society amounted to £1037 17s. 10½d., being an increase of £35 0s. 2d. during the past year. The accounts submitted having been duly audited by A. Davidson Smith, chartered accountant, were unanimously approved. The Marquis of Lothian was re-elected President; the Duke of Buccleuch, Earl of Selkirk, and Earl of Rosebery, were re-elected Vice-Presidents, and Sir Thomas Clark, Bart., Lord Provost of Edinburgh, was elected in room of one retiring. Messrs. Alexander Milne (Messrs. Dickson & Sons, nurserymen), and John Paterson, gr., Millbank, were elected councillors in the place of two retiring by rotation. The Secretary, John Stewart, Esq., W.S.; Treasurer, P. Neill Fraser, Esq., Rockville; and the auditor, J. D. Smith, Esq., C.A., were duly confirmed in their respective offices. The Secretary then intimated that it had been arranged between the council of the Society and the National Rose Society of England to hold a grand Rose show in connection with the usual summer show which is to be held on July 13, 1887, in the Waverley Market, when it is expected that the leading growers of Roses in the United Kingdom will send contributions and compete in the open classes. Gold and silver cups are to be awarded in the leading Rose competitions, and the Council have already received intimation from several gentlemen of their intention to present each a cup. From the fact that the National Rose Society is the most important society of the kind in this country, and that this is the first show under its auspices held in Scotland, it is sure to cause a considerable stir in the horticultural world, and be one of the great attractions at Edinburgh during the Jubilee Year.

Scotsman.

ABERDEEN CHRYSANTHEMUM SHOW.

THE annual winter show of *Chrysanthemums*, held under the auspices of the North of Scotland Horticultural Society, was opened in the Music Hall Buildings, Aberdeen, on Friday, the 3d inst., and continued until Saturday evening, the 4th inst. This is the fourth display of the kind which has been promoted by the Society. This year the show was in many respects superior to any of its predecessors. Compared with last year's exhibition the entries were much about the same, but there was a decided improvement in the quality of the exhibits, indicating that advances are being made in the cultivation of this flower in Aberdeenshire. The past season has been regarded as being very favourable for the growing of *Chrysanthemums*, with the consequence that the exhibition of Friday and Saturday was more satisfactory than was the case last year. The distinguishing feature of the collection was the cut blooms, of which there were some exceptionally fine specimens brought forward; and there was also shown a number of *Primulas* and *Ferns* which reflected great credit on the growers. Japanese varieties of *Chrysanthemums* were exceptionally good, while *Chrysanthemum* bouquets have never been shown here in greater numbers, or in better bloom.

Pot plants were few in number, and this was said to be due to the inclemency of the weather, many intending exhibitors having decided not to forward their specimens, in case they might get nipped with the frost. Mr. Ogg, Morken, had an easy 1st in most of the classes for professional gardeners, while Mr. A. Grigor, Fairfield, Mr. W. Scorgie, Forester Hill; and Mr. R. Grigor, Sunnybank, gave good accounts of themselves. In the amateur classes Mr. James Minty, Mr. A. Gillespie, and Mr. J. R. Whyte, all of Aberdeen, shared the principal honours.

Mr. Ogg, Morken, sent for exhibition a capital lot

of *Primulas*. A very creditable box of *Chrysanthemums* was also, for the same purpose, sent by Mr. Peter Harper, Duthie Public Park, Aberdeen; and another box of the same flower, which was deservedly very highly commended, was sent by Mr. M'Leod, Ardmiddle.

Messrs. W. Smith & Son, nurserymen, Aberdeen, sent for exhibition a stand of *Diacenas*, *Palmes*, &c. *Ferns*, in both the professional and amateur classes, were as creditable a display as could be looked for.

BANBURY SHOW.

At the Exchange Hall a good show of *Chrysanthemums* and other autumn flowers took place on the 24th ult., groups, pot plants, and cut flowers being of considerable merit. Fruit was likewise in abundance; but *Onions* of various kinds, which have become special subjects of cultivation at Banbury, were of extraordinary quality and weight.

The 1st prize for the best twelve was awarded to Mr. Neal, Banbury, for a dozen extraordinary bulbs of the Anglo White Spanish variety, scaling 16½ lb.; Mr. Doherty, gr. at Wroxton Abbey, being awarded 2d honours, for twelve of the famous Rousham Park Hero.

For the best six, Mr. Wingrove carried all before him, with marvellous bulbs of the Rousham Park Hero, weighing 5½ lb.; Mr. Clarke, gr. to the Earl of Eilesmere, being awarded the 2d prize, for Anglo White Spanish, weighing 7½ lb.

Mr. Deverill, of the Royal Seed Stores, Banbury, staged a grand collection of his new *Onions*, not for competition, including the *Jubilee* and the *Alisa Craig*, both distinct, and of fine shape and quality.

SMITHFIELD CLUB SHOW.

THE annual exhibition of this Club has come to be regarded by Londoners and their country cousins as being of as certain recurrence as the Lord Mayor's Show or a Bank Holiday.

The present show at Islington exhibits all the various items that have for years appeared there, serving to mark the progress made in agriculture; and for the delectation of the general public; the same fat oxen, pigs, and sheep inside the building, to be rivalled on the other side of the way by still fatter specimens of humanity in the show booths.

The great seed establishments of Messrs. Carter & Co., Sutton & Sons, Webb & Son, Harrison & Son, Raynbird, Caldecott & Co., and several more, exhibited roots of all kinds, growing grasses, cereals, seeds, both farm and garden, and the other different articles that go to make an exhibition on a large scale.

Roots were particularly fine and clean, especially Mangel Wurzel, Swedes, and Belgian Carrots.

The novelty of the season, seen in the stands of Messrs. Carter & Co., Messrs. Sutton & Sons, and Webb & Sons, was home-grown Tobacco, in leaf, as cured, and also cut up ready for smoking. If the flavour of the weed should equal its excellent appearance, the successful cultivation of the plant in this country has become an accomplished fact.

The Commissioners to the late Colonial Exhibition had a stand artistically got up with cereals and prairie grasses, exhibiting the varied productions of the farm and garden in the north-west province of Canada. Amongst these were Potatoes of this season's growth, the kinds being such as are well known here, but which had grown to such large proportions as to be hardly recognisable.

Mr. Kerr, of Damfries, showed an extensive collection of Potatoes suited to Scotland—very fair, usable tubers.

The Horticultural and Agricultural Company made a fine display with roots, cake, and meal, for feeding stock, artificial manures, &c.

Ensilage was in abundance, the peculiar pungent odour of the stuff forcing one's attention to it.

FRUIT REGISTER.

KAISHA APRICOT.

A SYRIAN variety, introduced into this country in 1842 by Messrs. VITCH, then of Exeter. The fruit is of excellent quality, medium size, slightly downy, pale yellow, passing into dull orange, reddish on the exposed side. Flesh yellow, translucent, sugary, perfumed. A coloured figure is given in the last number of the *Bulletin d'Arboriculture*.

AMERICAN APPLES versus BRITISH GROWN.

Are American Apples superior or not to those produced in our own country? I think it is generally believed that the Americans are ahead of us in Apple culture, but I would like to have the statement verified or not by those competent to judge. A. D. W.

SCOTLAND.

CHRYSANTHEMUM SHOW OF THE SCOTTISH HORTICULTURAL ASSOCIATION.

THE Scottish Horticultural Association opened the first show that has been held under its auspices on the 7th inst., in Dowell's Rooms, Edinburgh. It was opened by the Lord Provost, Sir James Clark, Bart., who, in an appreciative speech, showed that he knew and admired the Chrysanthemum, and thanked the Association for its intelligent enterprise in general in the interests of horticulture, and particularly for coming forward in the interests of gardeners and the public on this occasion. This is a new departure for the Scottish Horticultural Association, whose function is rather the fostering of the literary than the exemplary agencies that tend to the advancement of horticulture in the North. But it has been forced upon them by the attitude of the Royal Caledonian Horticultural Society. That Society, considering that it had lost a considerable sum by its Apple Congress in November last year—in connection with which it made its first attempt at holding a Chrysanthemum show—decided to have nothing further to do with Chrysanthemum shows. That the Society lost money by that venture there is no doubt; but that it was due to the Chrysanthemum element that was thrown into it for the first two days of the six during which it lasted, is not quite so undoubted. At any rate the Society declined to hold a Chrysanthemum show this year, notwithstanding urgent appeals to do so. The Scottish Horticultural Association was approached on the subject, only six weeks ago, by local and distant lovers of the Chrysanthemum, and the Council of the Association agreed to issue a schedule at once. This appeal was responded to beyond their expectations alike in the numbers and the quality of the exhibits sent in. Over 130 entries were received and many exhibits were declined in consequence of the limited space at the disposal of the Council. The show considering the very short time that has elapsed since it was decided upon, may be pronounced a success, and will, we hope, lead to a continuance annually of like meetings with increasing success—a consummation which will be assured if the same energy is brought to bear on future occasions as has been exerted on this.

Plants were numerous, but evidently brought forward without any preparation for exhibition purposes. They were on the whole well-bloomed, but in the main they were more remarkable for the numbers than the size and high culture of the flowers.

PLANTS.

Following the schedules, the best six pots, large flowered sorts, came from Mr. McHattie, Newbattle, Dalkeith; and the 2d prize lot from Mr. Cockburn, Coltbridge Hall. In the class of three pots of large flowered varieties, Mr. McHattie again took the lead, with Mr. D. Jardine, Ravelston, a good 2d. In single pots of the same class, Mr. J. Cowan, Dunedin House, was 1st, and Mr. D. Jardine, 2d. Six pompons were well shown by Mr. Foote, Parson's Green, who had no competitor; three pots pompons were competed for by Mr. J. Cowan and Mr. D. Jardine, and others. The gentlemen named took the honours in their order. For the prize offered for one pot pompon there were several competitors, the prizes being taken by Mr. McHattie and Mr. Dougall, Talbot House, respectively.

CUT FLOWERS

There was a considerable display of these. It may be remarked that some little confusion appeared to have possessed some of the exhibitors in regard to the definitions Japanese and reflexed, these two classes being considerably "mixed" in nearly every stand in each of the two classes. The 1st prize in the class of twelve incurred was awarded to Mr. McHattie, his stand including enormous and well finished blooms of Golden Queen, Mrs. G. Rundle, and Isabella Bland. Mr. Carruthers, Hillwood, Corstorphine, made a very good 2d with a much more equal lot, including beautiful flowers of Lord Alcester, Golden Empress, and Mrs. Dixon. With twelve Japanese blooms Mr. Carruthers was an easy 1st, his stand comprising very fine samples of Criterion, Marguerite Marrouch, Source d'Or, Madame Rendatler, and others; and was followed by Mr. McHattie, with a very good

stand, containing a few enormous flowers, but not equal throughout, which had no doubt decided the judges in passing over the merits of the few grand blooms set up by this exhibitor.

In the class for six incurred Mr. Carruthers again took 1st prize, and Mr. Durward 2d.

Mr. Rushton, Clerewood, Corstorphine, took 1st prize in the class of twelve reflexed blooms, with a very meritorious lot; Mr. J. Carruthers being 2d.

Pompons were a poor show, the best twelve coming from Mr. J. Durward.

Of bunches of six blooms in three sorts there was rather a large display, the best being set up by Mr. R. Muirhead, Edinburgh; and the second best by Mr. J. Durward.

Mr. Muir, gr. to Miss Nesbit Hamilton, Beil, was awarded a special prize for an exhibit of eighty-five varieties of Chrysanthemums, set up in excellent taste, in bunches dressed with Maidenhair Fern.

Messrs. Laird & Sons exhibited a splendid lot of cut blooms of Japanese incurved and reflexed varieties, and also a very attractive selection of miscellaneous blooms, made up in triangular bouquets, dressed with Fern in a tasteful manner. Messrs. Jas. Dickson & Sons, Inverleith Nurseries, Edinburgh, had a very excellent collection of cut blooms in variety, as had also Mr. Sinclair, North Berwick; and Mr. McFarlane, Kingsburgh, Prestonpans. Mr. Robertson Munro exhibited a very fine wreath in white Chrysanthemums which attracted general admiration.

Messrs. Dicksons & Co. exhibited a few special varieties of Apples, such as they can recommend for Scotch growth, including Warner's King, Emperor Alexander (the latter very fine), and others grown in their own grounds. Communicated.

THE WEATHER AND FLOWERS IN SCOTLAND.

If what we have read lately in some Northern newspapers of the extreme mildness of the season and the great profusion of flowers in some districts widely apart is an indication of absence of frost, then this season hitherto has been mild. Here in a central county, abundance of flowers from outside may be cut; Roses, which seem to have done extra well everywhere this season, are at present very abundant, enabling us to cut several goodly basketsful every week, and there is an abundance of flower-buds formed and opening. Old Général Jacqueminot holds his own with many others; on two small plants which have flowered freely all the season we can count from thirty to forty opening flowers. Gloire de Dijon has done better on open borders than ever we saw that kind in the North; but out of more than 100 varieties, mostly hybrid perennials, there are none which are entirely without opening flowers. Wallflowers (sown last April), Stocks (sown fourteen months ago), Mignonette, and choice Polyanthus, are the sweet-scented kinds which are very serviceable at present. Bedding plants such as Pelargoniums, Calceolarias, Lobelias, are still uninjured. We notice some single Dahlias struggling against the rains (somewhat copious) to open their flowers. Ampelopsis Veitchii is still in fine condition on buildings and has been as fine in the North this season as ever we saw it in the most favoured parts of the South. Caledonian.

TREES AND SHRUBS.

THE GOLDEN LARCH.

Some time since we published a page illustration of the cones and catkins (till then unknown) of the very beautiful and singularly interesting Golden Larch, *Pseudotsuga Kämpferi*, and gave a summary of its history (see vol. xxi., May 3, 1884, p. 584). Thanks to the courtesy of Messrs. Rovelli, of Pallanza, we were enabled to complete the history of the tree, and vindicate its claims to be included in a separate genus. Messrs. Rovelli have now sent us a photograph of their parent tree, which was planted about thirty years ago. In autumn the leaves, which closely resemble those of the Larch, assume a brilliant golden colour.

The tree itself is about 15 metres in height (49 feet), the diameter of the head being 11 metres, and the girth of the stem 1 m. 30. This is much the largest tree of the kind that we know of, though there is, or was, a large specimen in the nursery of the Compagnie Continentale at Ghent. We mention this to show

that the tree will withstand a North European climate, and is not restricted to the favoured climate of the Lago Maggiore. Messrs. Rovelli have succeeded in obtaining a large quantity of well-ripened seed, which they offer at moderate rates.

SEEDING OF VERONICA TRAVERSI.

It may interest some of your readers to know that a large plant of Veronica Traversii in this neighbourhood has this season ripened seed, self-sown seedlings being now to be seen growing up around the base of the parent plant. The garden in which this Veronica is growing is situated on high ground about three miles inland. The plant occupies no sunny, sheltered nook, where the effects of cold winds are tempered, but stands fully exposed to the severity of the biting north wind that blows across the Tay from the snow-clad hills of Angus, and also to the furious nor-easters that sweep in from the North Sea. It stood without any protection! but that afforded by the snow through the severe frosts of last winter, when the thermometer ranged as low as 10° Fahr.; and this summer it did not seem any the worse, being quite healthy and vigorous, and profusely covered with its pretty white flowers. It is a plant which I am sure only requires to be better known to ensure it being largely used as a hardy ornamental shrub. J. Wilson, jun., Florist, &c., St. Andrews, N.B.

COLONIAL NOTES.

PEA WILLIAM HURST IN NEW ZEALAND.

In August, 1884, I imported from London 1 quart of this Pea, which cost me 8s., and I have no hesitation in saying that it was the best investment I ever made in Peas, even including Stratagem. The way it races McLean's Little Gem is a treat to see, besides lasting longer than the last named or American Wonder. Another superior property it has is, the pods contain seven, eight, and nine Peas; and it is a heavy cropper. I could have gathered green Peas from it eight weeks from the time of sowing; but, of course, my object was stock. It is also said here by some (but of this I have not yet sufficient evidence) that even the birds refuse to touch it; if this turns out correct it is indeed a wonderful variety, for so voracious are they here that they positively devour and pull up young plants of Mangel Wurzel and Turnips, which I never knew them to do in England. Numbers are destroyed every year, a rate being levied for the purpose of obtaining poisoned grain, and so much per dozen is given for eggs. Still they seem to multiply with amazing rapidity. I am now writing about the imported small European birds, which by the bye, I sometimes think must have degenerated like some of the bipeds after they have crossed the equator southwards into things other than their original; although it must be conceded they (the latter) left behind them some of the same species as faulty commercially as themselves. But to return to the text. It would be interesting to hear the experience of others who have grown this Pea. This earlier property ought not to be attributed to our climate being superior for Pea growing, for although we are about 10° nearer the sun than you in England—our position here being 42° S. lat.—yet the difference between our day and night temperature—sometimes as much as 20° and 30° even in summer—seriously checks the growth of plants. From this cause we sometimes experience great difficulty with the ripening of sub-tropical fruits in the open air; even Tomatos grumble about it occasionally, although they do not object to our hot winds, which sometimes push the glass (thermometer) up to 140° Fahr., and one day last summer up to 160° in the sun. All things considered this must be a very early variety of Pea. T. Smith, Timaru, N.Z.

STATE OF THE APPLE CROP IN CANADA.

Mr. G. Gibb, of Abbotsford, Province of Quebec, sends us the following note on this subject:—"You asked me when in London in August last to let you know the state of the Apple crop in this part of Canada. Of Apples Duches Alexander and Russets have borne good crops of fine quality. Fameuse, St. Lawrence, and Apples of that type spoiled, and the widest failure throughout the different parts of the province that we have had for many years. Our spring was unusually early, yet fruits like St. Lawrence

Apple or Flemish Beauty Pear, which usually ripen the first week in September, ripened September 25 to 30. Hence Grapes (outdoor), though they were good and eatable in some places, were a total failure in others."

Variorum.

JOHN GOULD.—We extract the following particulars relating to this celebrated ornithologist, and who began life as a gardener, from the second volume of Mr. Roach Smith's *Retrospections*:—"Mr. John Gould, one of the celebrated naturalists of the age now passing, when first I knew him, was a journeyman gardener, working for 12s. a week; and when I and a friend went to Windsor to see a bed of Tulips in bloom, young Gould accompanied us to see them, and did not disdain to take the half-crown offered him. A dozen years after, meeting him at a Tulip sale at Hampton Court, he referred to it. The circumstance that set him up in the world was this: the ostrich at Windsor died, and the young gardeners stuffed it, and placed it in the greenhouse to dry. George the Fourth, walking through, drew attention to it, thinking it to be living; but being told it was a dead bird stuffed by the gardeners, asked to see one of them. Young Gould was presented to the King, and after answering some questions, was sharp enough to say, 'May I put on my card Naturalist to your Majesty?' The request was granted; and this was the circumstance that started him. Half a century after, he left behind him when he died, between £70,000 and £80,000."

REMARKABLE COFFINS.—A touching circumstance in connection with the recent funeral of Sir John Harpur-Crewe, Bart., is told by one of his tenants. The shell which enclosed his body was made from a Cedar tree which had been blown down in the park of Calke Abbey, and the noble Oak coffin from an aged Oak tree which, like its owner, had also fallen before the winter's blast. This pathetic incident reminds us of the late Mr. Lucombe, founder of the Exeter Nursery, who, in rearing seedling Oaks of *Quercus cerris* in 1762, found one plant which kept its leaves on during the winter. From this plant he propagated thousands by grafting, and sold them all over the kingdom as *Quercus cerris* Lucombeana. When the original tree in 1782 had attained a circumference of 3 feet, Mr. Lucombe, being then far advanced in years, had it cut down for the purpose of having his coffin made out of it. He, however, lived so much longer than he anticipated, that several years before his death he had another much larger and older tree cut down and sawn into planks, and carefully deposited under his bed, in readiness for the above purpose, and inside those planks, over which for many years he had reposed, he was at last put to rest, at the advanced age of 102 years. *The Timber Journal*, October 9.

Obituary.

MR. EDWARD POHLMANN, the well known Auricula grower and cultivator, of Halifax, died at his residence, Parkinson Lane, in that town, on November 27, at the age of sixty-one years. It will be remembered that he acted as one of the judges at the National Auricula (Southern Section) Show at South Kensington in April last.

Mr. Pohlmann was born at Halifax in the year 1825, where he received his education, and afterwards learned his father's business of a piano manufacturer.

On his father's retirement the business was transferred to his two sons, William Henry and Edward Pohlmann, and was carried on by them for some years under the title of Pohlmann & Son. From his early years Mr. Edward Pohlmann was attached to flowers, and sought relaxation from business in tending them. Eventually the two brothers dissolved partnership, and the younger, Edward, took up the cultivation of plants as a means of livelihood, the Auricula being his pet flower, and at the date of his death he had cultivated it for forty years. He raised and sent out Cumbaldi, a black self; another dark self of his raising was Helen Lancaster. This he sold to Mr. Roys, florist, of Rochdale, who sent it out. Mr. Pohlmann had a large collection of the finest named varieties, and he has left behind him some thousands of seedlings, some of which are very valuable, and will, it is expected, take high rank at

future exhibitions. He has also left a fine collection of seedlings of alpine varieties, of which he had a very high opinion.

Carnations, Picotees, Polyanthus, and Primroses of the best variety were also grown in his garden at Parkinson House, in addition to many other choice plants. So attached was he to his garden that he was to be found in it in all weathers, and it was there he took a severe cold, which terminated in his death. Among florists he was known as an amiable, high-minded, and honourable man, and his presence at Auricula, Tulip and Carnation and Picotee exhibitions will be greatly missed. His son Edward succeeds to the business.

—We regret to announce the death, on the 4th inst., at 42, Ovington Square, of ARTHUR GROTE, F.R.S., F.L.S., late of H.M.'s Indian Civil Service, aged 72. Mr. Grote was a member of the Council of the Royal Horticultural Society, and Vice-President of the Scientific Committee.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, DECEMBER 8, 1886.

MONTH AND DAY	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DE- DUCTIONS FROM GLAISHER'S TABLES 5th Edition.	WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Difference from Average of 10 years.	Highest.	Lowest.	Range.	Mean for Day.			
Dec. 2	29.75	-0.01	35.0	27.5	7.5	31.2	66	N.W.	0.10
3	29.91	+0.20	33.0	22.0	11.0	28.0	70	S.W.	0.00
4	29.60	-0.15	34.5	23.0	11.5	30.5	92	S.W.	0.05
5	29.87	+0.12	34.0	20.0	14.0	33.5	6	S.W.	0.00
6	29.57	-0.19	34.0	20.0	14.0	33.5	81	S.W.	0.01
7	29.31	-0.43	34.0	21.0	13.0	31.5	82	N.W.	0.06
8	28.31	-1.43	37.5	16.0	21.5	34.5	81	S.W.	0.41
Mean	29.49	-0.27	34.33	24.8	9.58	31.4	86	S.W.	0.74

Dec. 2.—Fine, but slight snow fell at 1 P.M.—the first snow this season.

—3.—Fine, and occasionally bright; sky overcast generally.

—4.—Wet and dull morning, fine but overcast in afternoon, fine night.

—5.—Fine and bright in morning, dull and overcast in afternoon.

—6.—Slight showers in morning, dull and overcast generally.

—7.—Fine and bright in early morning, occasional showers about noon, fine afternoon.

—8.—Gale of wind; hailstorm at 9.30 A.M.; barometer reading decreased rapidly to 28.15 by 9 P.M., and continued almost steady at this reading throughout the night.

LONDON: Atmospheric Pressure.—During the week ending December 4, the reading of the barometer at the level of the sea decreased from 30.49 inches at the beginning of the week, to 29.6 inches by 1 P.M. on the 30th of November, increased to 30.13 inches by the afternoon of the 3d of December, decreased to 29.74 inches by 1 P.M. on the 4th, and was 29.87 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.93 inches, being 0.63 inch lower than last week, and 0.02 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 49° 8' on the 29th of November; the highest on December 3d was 34°. The mean of the seven high day temperatures was 41° 7'.

The lowest in the week was 22° on December 3; the lowest on November 29, was 41°. The mean of the seven low night temperatures was 31° 4'.

The greatest range of temperature in one day was 14°, on December 1; the smallest was 6° 8' on November 28. The mean of the seven daily ranges was 10° 3'.

The mean daily temperatures were 43° 1' on Nov. 28, 46° 1' on Nov. 29, 38° 6' on Nov. 30, 35° 6' on Dec. 1, 31° 9' on Dec. 2, 28° on Dec. 3, and 36° 9'

on Dec. 4. These were all below their averages with the exception of Nov. 28 and 29, which were 1° 5', and 4° 4' above, by 3° 1', 6° 1', 9° 9', 13° 8', and 4° 9' respectively.

The mean temperature of the week was 37° 2, being 2° 6' lower than last week, and 4° 6' below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 73° on Nov. 29. The mean of the seven readings was 58° 6'.

Rain.—Rain-fell on two days, to the amount of 0.30 inch.

ENGLAND: Temperature.—During the week ending December 4 the highest temperatures were 54° at Truro, 53° at Plymouth, and 51° at Brighton; the highest at Newcastle was 46°, at Preston 47°, and at Bradford 47°. The general mean was 49° 5'.

The lowest in the week were at Nottingham and Hull 21°, and at Blackheath and Wolverhampton 28°; the lowest at Liverpool was 31°, at Plymouth 22°, and at Preston 27°. The general mean was 24° 6'.

The greatest ranges of temperature were at Nottingham 29°, at Truro and Hull 28°; the least ranges were 18° 6' at Liverpool, and 20° at Preston and Newcastle. The general mean was 24° 9'.

The mean of the seven high day temperatures was highest at Truro, 50° 4', at Plymouth 48° 3', and at Bristol 45° 1; and lowest at Newcastle, 39° 8', at Wolverhampton 41° 3, and at Hull 41° 6'. The general mean was 43° 7'.

The mean of the seven low night temperatures was lowest at Wolverhampton and Hull, 30° 6', and at Blackheath 31° 4; the lowest at Truro was 38° 4, at Liverpool 36° 9, and at Plymouth 36° 4. The general mean was 33° 7'.

The mean of the seven daily ranges was greatest at Truro and Bristol, 12°, and at Plymouth 11° 9; and least at Preston 6° 4, at Liverpool 7° 5, and at Newcastle 7° 8. The general mean was 10°.

The mean temperature was highest at Truro, 44° 2, at Plymouth 42° 2, and at Liverpool 40° 5; and lowest at Newcastle, 35° 7, at Wolverhampton 35° 8, and at Hull 35° 9. The general mean was 38° 6'.

Rain.—The largest falls were 0.96 inch at Truro, 0.77 inch at Preston, and 0.66 inch at Liverpool; the smallest falls were 0.19 inch at Hull, 0.21 inch at Bristol, and 0.22 inch at Newcastle. The general mean fall was 0.45 inch.

SCOTLAND: Temperature.—During the week ending December 4, the highest temperature was 58° 8 at Paisley; the highest at Aberdeen was 47° 8. The general mean was 50° 3.

The lowest temperature was 17° 6, at Aberdeen; the lowest at Greenock was 28°. The general mean was 22° 9.

The mean temperature was highest at Paisley, 39° 8; and lowest at Aberdeen, 34° 7. The general mean was 37° 7.

Rain.—The largest fall was 1.71 inch, at Greenock; the smallest fall was 0.20 inch, at Dundee. The general mean fall was 0.62 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, December 6, 1886, issued by the Meteorological Office, 116, Victoria Street, London, S.W. :—The weather has been cloudy or dull generally, with frequent falls of rain, sleet, or snow. In many parts of Scotland the rainfall was rather heavy.

Temperature has been about equal to the mean in "Ireland, S.," but in all other districts it has been below, the deficit varying from 1° to 2° over the more western parts of the kingdom, and from 3° to 4° in the south-east and north. The highest of the maxima, which were generally recorded either on the 5th or 6th, varied between 48° in "Scotland, N.," and 56° in the "Midland counties," "England, S.," and "Ireland, S." The lowest of the minima were registered in most places on the 3d, when the thermometer fell to between 15° and 18° over eastern, southern, central, and north-western England, to 17° in "Scotland, E.," and to between 21° and 26° in most other parts of the kingdom. In the "Channel Islands" the lowest reading was 34°.

The rainfall has been rather less than the mean in "England, N.E.," the "Midland Counties," and

"Ireland, S.," but elsewhere it has generally exceeded the normal value; in "Scotland, N.," and "Ireland, N.," the excess has been considerable.

Bright sunshine shows a slight increase in most districts, the percentages of the possible amount of duration ranging from 16 in "Ireland, N.," and 17 in "Scotland, N.," to 36 in "England, S.," and 47 in "England, N.E."

Depressions observed.—During this period pressure has been comparatively high in the south-western and southern parts of our area, while some large depressions have appeared over Scandinavia, and some small subsidiary disturbances over the more northern parts of our islands. Fresh or strong north-westerly winds were general over the United Kingdom during the earlier part of the period, and on our western and northern coasts they occasionally blew with the force of a gale. Towards the end of the week, however, south-westerly and westerly breezes became prevalent, and were generally moderate in force.

Answers to Correspondents.

TO THE TRADE.—Members of the Trade will oblige by sending notes of matters of Trade interest, Cultural or Commercial. Short notes of daily experience are what are most useful.

ARTICHOKES. *G. S.* These, at the price named, would be the Globe Artichokes, which are quoted in the autumn and winter at even higher figures.

BOOK ON TABLE DECORATION. *R. Park.* The best book on this and kindred subjects is *Domestic Horticulture*, by F. W. Burdidge. (W. Blackwood & Sons, Edinburgh and London.)

BOOKS. *O. M. Gendbrugge.* You may obtain the Catalogue of the National Chrysanthemum Society from E. W. Allen, 4, Ave Maria Lane, London, E.C.; or W. Holmes, Frampton Park Nurseries, Hackney. —*W. R.* We know of no book on aquatic plants.

CALYARY CLOVER. *Quillon.* It is interesting to find this plant should succeed in the open air at Cheltenham. The ball does not usually untwist so much as you describe.

CHRYSANTHEMUM SPORT. *C. C.* Both the blooms sent are poor specimens, and it is impossible for us to form any opinion upon the sport.

CLIMBERS. *A. B.* To cover the trunk of the tree, you may plant strong growing Ivy, as Regner's or the Irish; *Ampelopsis tricuspidata* (Veitchi), *Aristolochia Sipho*, Honeysuckles of sorts, *Jasminum revolutum*, Clematises, climbing Roses, and *Bignonia radicans*: all of these are of strong growth, but must have special preparations made for the roots.

CORRECTION: LIVERPOOL SHOW. At p. 727, instead of Mr. H. Tait, jun., gr. to J. Edwards, Esq., the names should have been reversed.

GRUBS ON PRIMULAS. *J. T.* Your plants are attacked by some weevil, the grubs of which you sent. Your only remedy is to start with fresh plants, soil, &c.

IMPORTERS OF FOREIGN FLOWERS. *B. L.* Try Messrs. Hooper & Co., or Mr. Buck, Centre Row, Covent Garden, London.

MEDLARS AND RASPBERRIES. *Y. W. A. M. C.* *M. D.* The unseasonable appearance of these is due to the warmth of the late summer and early autumn months. The effect of this in the Medlar has been to cause the bud which should have been developed next spring to expand prematurely, while the Raspberry, which produces flowers from the young wood, was enabled to continue its growth without the usual check.

MR. EDWARD SPARY.—We have to acknowledge the receipt of a Post-office order for 2s. 6d. from C. O., and from K. W. & Co. 5s.

NAMES OF FRUITS. *J. C.* 1, Winter Nels; 2, Napoleon.

NAMES OF PLANTS. *J. N.* Eupatorium Weinmannianum.—*D. D.* Eucyonium europaeum.—*S. D.* Goldfussia isophylla.—*S.* 1, Ophiopogon japonicus, var. *Wallichianus*; 2, we do not recognise; 3, *Fuchsia microphylla*; 4, *F. fulgens*.

*. All communications intended for publication should be addressed to the "Editor." Such communications should be written on one side only of the paper and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

INTELLIGENT READERS, DO PLEASE NOTE.—*Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the PUBLISHER, and not to the Editor.*

FOREIGN SUBSCRIBERS sending Post-Office Orders are requested to send them to the Publisher of this journal, 47, Wellington Street, Covent Garden, and to make them payable to William Richards, at the Post-Office, Drury Lane, London, W.C.

CATALOGUES RECEIVED.

JOHN R. BOX, 118, North End, Croydon—General Catalogue.
G. STEVENS, Upper Richmond Road, Putney, S.W.—Chrysanthemums.
PAUL NEIDHARDT, Erfurt, Germany—Seeds.
HANS MAKART, Christensen, Erfurt—Decorative Grasses, &c.
B. R. CANT, Colchester—Roses.
WAITE, NASH & Co., 79, Southwark Street, London, S.E.—Wholesale Seed List.
H. & F. SHARPE, Wisbech, Cambridgeshire—Wholesale Seed List.

COMMUNICATIONS RECEIVED.—M. Franchet, Paris.—Car. Ancona, Florence.—M. Buysmann, Middelburg.—Dr. Bonavia, Elavah.—Mrs. Davidson (with thanks).—Earl Cathcart.—P. T. I. next week.—J. Webster, Gordon Castle.—F. W. B.—Nano Harvey—Messrs. Sutton.—W. S. M.—C. O.—C. F.—R. D.—W. O.—W. B. (many thanks); it will be received.—W. S.—A. H.—W. C.—G. B.—E. W.—R. P.—J. F. A.—C.

Markets.

COVENT GARDEN, December 9.

[The subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. Ed.]

STILL further consignments of Nova Scotia and Canada Apples to hand, 15,000 barrels reaching this market during the past week, and making fair values at slightly lower rates. Grapes slow trade at last week's quotations. A fresh cargo of St. Michael Pines to hand. *James Widdier, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	<i>d.</i>	<i>s.</i>	<i>d.</i>
Apples, 5sieve ..	1	6	3
— Nova Scotia, lbrl.	8	0	10
Grapes, per lb. ..	0	6	2
Kent Cobs, 100 lb. ..	15	9	7

VEGETABLES.—AVERAGE RETAIL PRICES.

	<i>d.</i>	<i>s.</i>	<i>d.</i>
Artichokes, per doz.	4	0	0
Beans, Kidney, lb.	1	0	0
Beet, red, per dozen	1	0	0
Brussels Sprouts, lb.	0	2	0
Carrots, per bunch	0	6	0
Cauliflowers, per doz.	3	0	0
Celery, per bundle	0	2	0
Cucumbers, each	0	6	0
Endive, per dozen	2	0	0
Herbs, per bunch	0	4	0
Leeks, per bunch	0	3	0
Lettuce, per dozen	1	0	6
Mushrooms, punnet	1	6	2
Mustard and Cress, punnet	0	4	0
Onions, per bushel	0	4	0
Parsley, dozen bunch	3	0	0
Potatoes, per cwt.	4	0	0
Kidney, per cwt.	4	0	0
Shallots, per pound	0	3	0
Spinach, per bushel	5	0	0
Tomatoes, per lb.	1	0	6
Turnips, bunch	0	4	0

POTATOS.—Kent Regents, 8s. to 10s.; Schoolmasters, 7s. Reauty of Hebron, 10s.; Magnum, 6s. to 8s. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	<i>d.</i>	<i>s.</i>	<i>d.</i>
Amalia Sieboldi, doz.	6	0	10
Arun Lilies, doz.	18	0	0
Benliss, per dozen	6	0	10
Bouvardias, doz.	9	0	12
Chrysanth., per doz.	4	0	18
Cyperus, per dozen	4	0	12
Dracena terminalis, per dozen	30	0	0
viridis, per doz.	12	0	4
Epiphyllum, dozen	18	0	0
Erythraea, doz.	9	0	12
Heliotropis, doz.	12	0	4
— regerians, doz.	8	0	12
— various, dozen	9	0	24
Eunonymus, in var., per dozen	6	0	18
Evergreens, in var.,	6	0	24
Ficus elastica, each	1	6	0
Ferns, in var., dozen	4	0	18
Flange Plants, various, each	2	0	0
Marguerite Daisy, per dozen	6	0	18
— scarlet, per dozen	6	0	18
Myrtles, per dozen	6	0	18
Palms in var., each	2	0	12
Pelargoniums, scarlet, per doz.	3	0	6
Primula sinensis, doz.	4	0	6
Solanums, per dozen	9	0	18

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	<i>d.</i>	<i>s.</i>	<i>d.</i>
Arun Lilies, 12 blms.	4	0	6
Azaleas, 12 sprays	0	9	6
Bouvardias, per bunch	0	6	0
Camellias, 12 blooms	2	0	6
Carnations, 12 blms.	1	0	3
Chrysanth., 12 blms.	0	6	0
— 12 bunches	3	0	0
Eucharis, per dozen	4	0	8
Gardenias, 12 blooms	4	0	6
Heliotropis, 12 spr.	0	1	2
Jasmine, white, bun.	0	6	0
Lagerflora, 12	1	0	2
— white, 12 blooms	2	0	4
Marguerites, per bunch	3	0	6
— 3 bunches	3	0	6
Mignonette, 12 bun.	1	0	3
Pelargoniums, per 12 trusses	1	0	1
— scarlet, 12 trusses	0	4	0
Primulas, single, 12 bunches	4	0	6
Pyrethrums, 12 bun.	2	0	0
Roses, Tea, per 12	1	0	3
— red, per French, doz.	1	0	2
— red, per French, doz.	1	0	2
— Safrano, 12 spr.	0	6	2
Stephanotis, 12 spr.	4	0	8
Tropaeolums, 12 bun.	1	0	2
Tuberose, 12 blms.	1	0	2
Violets, 12 bunches	1	6	0
— Parme, French, per bunch	3	6	0
— Cear, Fr., bunch	1	6	0

SEEDS.

LONDON. Dec. 8.—Messrs. John Shaw & Sons, Seed Merchants, of 37, Mark Lane, E.C., describe to-day's market as being quiet but firm. Red Clover seed especially, although inactive, keeps exceedingly steady; higher prices are asked on the Continent. Choice Trefoil is remarkably scarce, and advanced rates are in consequence demanded. In perennial and Italian Ryegrasses there has been a better trade at hardening quotations. There is no change to note in the value of

bird seeds, Canary being dear, and other varieties very cheap. Feeding Linseed tends in favour of sellers. Mustard and Rape seed sell on former terms. Blue Peas and Haricot Beans are unaltered on the week.

CORN.

MARK LANE. Dec. 6.—English Wheat, the supply of which was small, ruled fully 6d. higher on the week for white, and in some cases 1s. higher for red, but there was not much done. Foreign Wheats were also less in demand than on Friday; holders, however, were firm, and the previous advance was generally sustained, except for Indian, which sold 3d. under the highest point. For flour the market was firm at a rise of 6d. to 1s. per sack, and the top nominal price of town flour advanced 3s., making 37s. per sack, the present quotation. Barley of all kinds was dull. Beans met a steady sale at an improvement of 6d. per quarter and Peas from scarcely brought firm prices. Maize was quoted 6d. dearer for ground and 1s. for American flint, which is quoted 23s. per quarter. Oats were 3d. higher, with a small business doing.

Dec. 8.—The trade all round has been quiet, but without much change in prices. English Wheat was firmly held, and for retail quantities Monday's rates were paid. Foreign Wheats met only a limited inquiry. The flour trade was slow. Maize was firm. Barley and Oats were quiet and unchanged. Beans and Peas tended against buyers.

Average prices of corn for the week ending Dec. 4:—Wheat, 32s. 7d.; Barley, 27s. 2d.; Oats, 17s. 1d. For the corresponding period last year:—Wheat, 31s.; Barley, 30s. 1d.; Oats, 18s. 10d.

FRUIT AND VEGETABLES.

COLUMBIA (East London). Dec. 8.—The demand for vegetables was fair, but low rates offered. Quotations:—Cabbages, 2s. to 2s. 6d. per tally; Savoys, 1s. 6d. to 3s. 0d.; Cauliflowers, 1s. to 2s. per dozen; Spinach, 1s. 6d. to 2s. per sieve; Brussels Sprouts, 1s. to 1s. 6d. per half sieve; Greens, 1s. to 1s. 3d. per dozen bunches; Turnips, 1s. 6d. to 2s. 0d.; Carrots, 1s. 6d. to 2s. 0d.; Beetroots, 2s. to 2s. 6d.; Onions, 3s. 6d. to 4s. per cwt.; Carrots, 20s. to 22s. per ton; Mangels, 16s. to 18s. 0d.; Apples, 3s. 6d. to 7s. 6d. bushel; Pears, 4s. to 10s. 0d.

STRATFORD. Dec. 7.—Supplies and trade have been good at the following quotations:—Savoys, 4s. to 5s. per tally; Greens, 1s. per dozen bunches; Turnips, 2s. 0d. to 2s. 5s. per cwt. per ton; Carrots (household), 26s. to 35s. 0d. per cwt. (cattle feeding), 20s. to 22s. 6d. 0d.; Parsnips, 1s. per score; Mangels, 16s. to 17s. 6d. per ton; Swedes, 15s. to 22s. 0d.; Onions, 80s. per ton; Watercress, 6d. per doz.; Celery, 10d. to 1s. 2d. per roll; Apples, 3s. 6d. to 4s. per bushel.

POTATOS.

BOROUGH AND STATFIELDS. Dec. 7.—Moderate supplies of good qualities came to hand, for which steady rates were paid. Inferior sorts met little or no demand. Quotations:—Regents, 70s. to 105s.; Magnum Bonums, 50s. to 95s.; Victorias, 60s. to 90s.; Champions, 60s. to 80s. s. per ton.

COLUMBIA (East London). Dec. 8.—The trade still very dull. Quotations:—Victor, 40s. to 50s.; Lincoln Magnums, 60s. to 70s.; Regents, 70s. to 80s.; Essex Magnums, 55s. to 70s.; Cambridgeshire Regents, 65s. to 70s.; Magnum Bonums, 55s. to 65s. per ton.

STRATFORD. Dec. 7.—Quotations:—Magnums, 65s. to 75s.; Regents, 70s. to 80s.; Scotch do. 70s. to 80s. per ton.

Imports.—The imports into London last week consisted of 3798 bags from Hamburg, 3657 Ghent, 4 Rotterdam, 8 Ostend, and 2 cases Bremen.

HAY.

WHITECHAPEL. Dec. 7.—For moderate supplies there was a slack trade, at the following prices:—Clover, prime, 88s. to 100s.; inferior, 70s. to 84s.; hay, prime, 70s. to 90s.; inferior, 30s. to 65s.; and straw, 28s. to 40s. per load.

Dec. 9.—The trade was rather short supply on sale. The trade was very dull at previous prices.

CUMBERLAND (REGENT'S PARK). Dec. 7.—There was a large supply of meadow hay, with a fair trade, but slow for Clover. Prices:—Clover, best, 84s. to 100s.; second, 70s. to 80s.; hay, best, 75s. to 85s.; second, 50s. to 70s.; and straw, 28s. to 38s. per load.

STRATFORD. Dec. 7.—Quotations:—Hay, 70s. to 85s.; Clover, 70s. to 90s.; and straw, 28s. to 32s. per load.

Government Stock.—Consols closed on Monday at 100½ to 101 for delivery, and 101½ to 101½ for the account. Tuesday's figures were 100½ to 100½ for delivery, and 100½ to 101 for the account. The figures of Wednesday were as on the previous day for the account, and 100½ to 100½ for delivery. Thursday's final record was 100½ to 100½ for delivery, and 100½ to 101 for the account. These quotations are ex div.

SPECIAL NOTICE.

THE
GARDENERS' CHRONICLE

FOR

SATURDAY, DECEMBER 25,

WILL CONTAIN A BEAUTIFULLY

COLOURED ALMANAC

(18 inches by 13 inches),

FROM AN ORIGINAL DESIGN.

PRICE FIVEPENCE; POST-FREE, FIVEPENCE-HALFPENNY;

OR WITH

ALMANAC MOUNTED ON OAK ROLLERS,

READY TO BE HUNG UP, AND ENCLOSED IN CASE,

SEVENPENCE; POST-FREE, EIGHTPENCE-HALFPENNY.

Purchasers are specially recommended to order the Almanac in a Case,

TO PREVENT INJURY FROM FOLDING.

The Publisher cannot be responsible for injury to the Almanac unless it is so protected.**NOTICE TO ADVERTISERS.**

*As a large Extra Sale of this Number is guaranteed, it will be a very
valuable medium for Advertisements.*

APPLICATIONS FOR SPACE SHOULD BE SENT IN AS EARLY AS POSSIBLE.

W. RICHARDS, 41, WELLINGTON STREET, STRAND, W.C.

SPECIAL NOTICE.—

On and after Jan. 1, 1887,

the Price of the

"GARDENERS' CHRONICLE"

will be

Reduced to Three Pence.

LAURELS, &c., cheap to clear:—
CAUCASIAN, 12 to 18 inches, 7s.; 2 to 3 feet, 12s.;
COLCHIC, 1½ to 2 feet, 10s.; 3 to 4 feet, 20s.; 4 to 5 feet,
Common, 12 to 18 inches, 5s.; LATIFOLIA, 12 to
18 inches, 12s.; 2 to 3 feet, 16s.; PUNDFOLIA, 12 to
18 inches, 5s.; 2 to 3 feet, 16s.; PRIVET, oval-leaved, 2 to
3 feet, 1s. 1V, Irish, 2 to 3 feet, 5s.; All per 100.
ALDER, 2 to 3 feet, 20s. ASH, Common, 2 to 3 feet, 22s. 6d.
BIRCH, 2 to 3 feet, 16s.; 3 to 4 feet, 18s. 6d.; 4 to 5 feet, 22s. 6d.
2½ feet, 20s. QUICK, 2 to 2½ feet, 22s. 6d. SYCAMORE,
2 to 3 feet, 20s. All per 100.
Good stout transplanted stuff. Samples on application.
J. J. MAKRIOTT, Walsall, Staffordshire.

LAIN'S GOLD MEDAL BEGONIA
TUBERS, free by Post.
NAMED SINGLES from 12s. to 42s. per dozen.
UNNAMED SEEDLINGS, selected to colour for pots, from
BEDDING, selected to colour, 9s. per dozen. (12s. per doz.)
mixture colours, 3s. to 6s. per doz. CATALOGUES gratis.
JOHN LAIN and CO., Nurseries, Forest Hill, S.E.

LIMES—ELMS—LIMES.
STANDARDS for Avenue or Street Planting, straight
stems, fine heads, good roots.
LIMES, best red-twigged variety, 12 to 14 feet, and
14 to 16 feet.
ELMS, English, true, 12 to 14 feet, and 14 to 16 feet.
Very cheap by the dozen or hundred.
JOHN PERKINS and SON, Bulring Road Nurseries,
Northampton.

PRUNUS MYROBALANA, or **CHERRY**
PLUM.—The best stuff for Fence-planting.
Making New Ones. Grows fast in poorest soil. Much stronger than
Whitehorn. It is also an excellent Scour for the Plum.
A sample hundred, 2 to 3 feet, sent on receipt of 6s., 50 for 3s.
Full further particulars of.
EWING and CO., Sea View Nurseries, Havant, Hants.

DOUBLE AFRICAN TUBEROSES.
Unprecedented Offer.
The Bulbs are of excellent quality, and to clear consignments
are offered at 30s. per 1000, free on rail. Samples may be seen at
my Office, or free by post to intending buyers. Terms,
cash with order. Address,
WM. WATSON, 191, Upper Thames Street, London, E.C.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.

4s. per bushel; 100 for 2s. 1 truck (loads, about 3 tons),

4s. 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack;

5 sacks 22s. 4 sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack; 5 sacks 22s.; sacks,

4d. each.

COARSE SILVER SAND, 12. 6d. per bushel; 12s. per half

ton, 26s. per 2-ton bulk.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-

MOULD, 12. per bushel.

SPHAGNUM MOSS, 4s. 6d. per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, TO-

BACCO CLOTH, RUSSIA MATS, &c. Write for
Price LIST.—H. G. SMYTH, F.R.H.S., 21, Goldenhill's
Street, Drury Lane (late called 177, Coal Yard), W.C.

KELP Kelp.
This powerful and stimulating Ash, made from the sun-dried
plants of Laminaria digitata and other selected seaweeds,
is especially rich in Potash, and Phosphoric Acid. Mixed with
three times its bulk of dry soil, its effect on Vine, Eiders,
Tomato Plants, and nearly all Pot. Plants, is marked and benefi-
cial, while no better dressing exists for Potatoes, Peas, Sea-
kale, and Celery. It is an excellent Renovator for Old
Garden Soil, and exhausts Lawns. Price
(per cash with order only), 8s. per bushel-bag, big included.
Carriage paid on orders of 25 bushels and over.

J. E. PRELEY, La. Postrestre, St. Martins, Jersey.
N.B.—As the Seaweeds selected for this Ash can only be
harvested during the spring tides of the four summer months,
and then at some distance from the mainland, the supply is
necessarily limited, and Orders will therefore be executed in
strict rotation.

BEESON'S MANURE is the best for all
Horticultural Purposes. Sold in tins, 12s., 2s. 6d., 5s. 6d.,
and 10s. 6d., or 1 cwt. bags, 12s., 13s. each. By all Nursery-
men or Seedsmen or direct from Carbrook Bone Mills,
Sheffield. Also pure CRUSHED UNBOILED BONDS, any
size, and guaranteed of the best quality.

THOMSON'S IMPROVED VINE and
PLANT MANURE.—This valuable Manure is made
up solely on our premises here. Every Bag and Tin has our
Name on it. It can be had from all Nurserymen and Seedsmen,
and direct from us, 1 cwt. and over carriage paid.
Our London Agent is Mr. GEORGE, 10, Victoria Road,
Putney, S.W.

WM. THOMSON and SONS, Clovenforbs, Galashiels, N.B.

COCOA-NUT FIBRE REFUSE.
Newly made. Truckload (2 tons) 12s. 40 bags, 25s. Free
on rail. Cash with order.—J. STEVENS and CO., Fibre
Merchants, 153, High Street, Battersea, S.W.



GARDEN REQUISITES.

TWO PRIZE MEDALS.

QUALITY, THE BEST IN THE MARKET. (All sacks included.)

PEAT, best brown fibrous .. 5s. per sack; 5 sacks for 22s. 6d.

PEAT, best black fibrous .. 4s. 6d. " 5 sacks for 20s.

PEAT, extra selected Orchard 5s. 6d. " 5 sacks for 25s.

LOAM, best yellow fibrous .. 5s. per sack; 5 sacks for 25s.

PREPARED COMPOST, best .. 12. per bush; 3s. per sack.

LEAF MOULD, best only .. (sacks included).

PEAT MOULD, ..

SILVER SAND, coarse, 12. 6d. per bush; 12s. 100 ton, 24s. 100 ton.

RAFFIA FIBRE, best only .. 12. per lb.

TOBACCO CLOTH, finest imported .. 8d. lb., 28 lb. 12s.

TOBACCO PAPER .. (Specialist) 8d. lb., 28 lb. 12s.

MUSHROOM SPAWN, finest Millarack .. 5s. per bushel.

SPHAGNUM MOSS, all selected, 22. per bush; 6s. per sack.

CHUBB'S "PERFECT" FERTILISER, the Best Food for

all kinds of Plants, Flowers, Fruits, Vegetables, &c. Tins, 12. 6d.

VIRGIN CORK, best quality only—24 lb., 3s.; 28 lb., 5s. 6d.;

50 lb., 10s. 6d.; 1 cwt., 12s.

COCOA-NUT FIBRE REFUSE (by Chubb's special process),

sacks, 12. each; 10 sacks, 9s.; 15 sacks, 13s.; 20 sacks, 17s.;

30 sacks, 22s. 40 sacks, 26s. Truck, 1000 lbs., 10s. 6d.

25s. Limited quantities of 6s., special quality, granulated, in

sacks only, 2s. each. Terms, strictly Cash with order.

WALKER and CO., Farnboro Station, Hants.

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AND

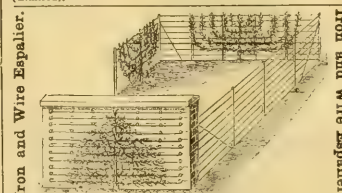
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RINGWOOD, HANTS.

GISHURST COMPOUND, used by leading
Gardeners since 1859 against Red Spider, Mildew,
Thrips, Green Fly, and other Blight. 1 to 2 ounces to the
gallon of soft water; 4 to 10 ounces, as winter dressing for Vine
and Orchard-house Trees; and in latter from the cake against
American Blight. Has outlived many preparations intended to
supersede it. Boxes, 12s., 3s., and 10s. 6d.

GISHURSTINE keeps Boots dry and soft on
wet ground. Boxes, 6d. and 12. from the Trade.
Wholesale from PRICE'S PATENT CANDLE COMPANY
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Catalogue of all kinds of Iron and Wire Fencing, Hurdles,

Gates, Wire Netting, &c. on application.

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GARDEN REQUISITES.—Sticks, Rubbers,
Virgin Cork, Raffia, Mats, Bamboo Canes, Lastic
Work, Manures, &c. Cheapest prices of
WATSON and SCULL, 29, Lower Thames St., London, E.C.

To Nurserymen, Seed Merchants, and Florists.

J. BLACKBURN and SONS are offering
Archangel MATS lower than any other house in the
Trade. Also Petersburg MATS and MAT BAGS, RAFFIA
FIBRE, TOBACCO PAPER, and Shading Materials. Prices
free on application.—4 and 5, Wormwood Street, London, E.C.

RUSSIA MATS,

FOR COVERING AND PACKING.

THE LARGEST ASSORTED STOCK IN LONDON.

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GARDEN RIGBY, WAINWRIGHT & CO.,

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SHADINGS, Cotton Wool and Wadding

TIFFANY, for Florists and Nurserymen.

Send for Samples and Prices.

ASTON CLINTON STRAW MATS.—The

Warmest Coverings for Pits and Frames. Sizes.—6 ft.
6 in. by 3 ft. 9 in., at 2s. 6 ft. 6 in. by 4 ft. 6 in. at 2s. 6d.;
6 ft. 6 in. by 7 ft. 6 in., at 3s. 6d. Apply to

Miss MOLIQUE, Aston Clinton, Tring, Bucks.

Russia Mats—Raffia.

NEW ARCHANGEL MATS, PETERS-
BURG MATS, of all qualities. RAFFIA FIBRE,
of best quality, &c. All these goods at Lower Prices than any
other firm. Supplied to the Trade only by
MARENDZ and FISHER, James St., Covent Garden, W.C.



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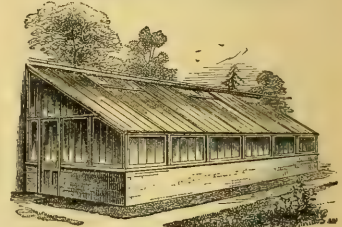
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HORTICULTURAL BUILDERS,

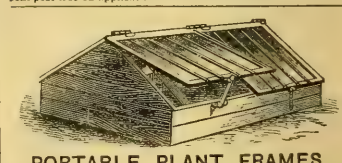
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every description of HORTICULTURAL WORK, free of
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LASCELLES' NEW ROCKWOOL material in various
colours. Samples can be seen and prices obtained at
121, Bunhill Row, London, E.C.

Illustrated Lists of Wooden Buildings, Greenhouses, and
Conservatories, and Concrete Slabs for Walls, Paths, and Stages,
sent post-free on application.



PORTABLE PLANT FRAMES.

The above are without exception the most useful kind of
Frame for Plant Growing, and every one with a garden should
possess one. The sashes turn right over one on the other, and
the boxes are put together with wedges, and can be taken apart
in a few minutes. Sizes and prices, carriage paid to any station
in England, ready packed and painted:—

6 feet long, 4 feet wide, packing cases free	£3 15 0
12 feet long, 4 feet wide, " "	4 15 0
6 feet long, 5 feet wide, " "	3 15 0
12 feet long, 5 feet wide, " "	6 10 0

The glass is nailed and puttied in.

B. HALLIDAY & CO.,

Hothouse Builders and Engineers,

ROYAL HORTICULTURAL WORKS, MIDDLETON,

MANCHESTER.

THE LOUGHBOROUGH GREENHOUSE

HOT-WATER APPARATUS.

This is the simplest,
cheapest, and most
powerful apparatus
made. It requires no
brick setting, no stoke-
hole, and no hot-water
filter for fixing. The
Boiler stands in the

Greenhouse, the front only being outside,
so that the whole of the heat from the Boiler
itself is utilised. It burns over twelve
hours without attention, at a nominal cost.

Price, as engraving, with Boiler, open

feed syphon, 12 feet of 4-inch hot-water pipe, and patent joints

complete, £4 4s. Delivered free to any station. Discount for

cash. Cost of apparatus complete for Greenhouses as below,

delivered free with pipes cut and fitted ready for fixing:—

10 x 6 feet .. £4 10 0 20 x 10 feet .. £6 0 0

15 x 8 feet .. 5 12 0 25 x 12 feet .. 6 10 8

15 x 6 feet .. 5 10 8 40 x 16 feet .. 12 12 4

Proportionate prices for other sizes. Estimates free.

Illustrated LIST, with full particulars of these and every

description of Fuel Oils, and Oil Heating Stoves free.

DEANE & CO.,

HORTICULTURAL BUILDERS and HOT-WATER ENGINEERS,

46A, King William Street, LONDON BRIDGE.

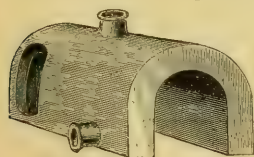
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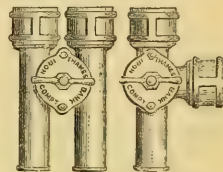
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1886.

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TELEGRAPH ADDRESS—"Commission, Sidcup."

Floral Commission Agency. A. HILL and CO., 52, Hart Street, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity. A. H. & CO., giving personal attention to all consignments, are thus enabled to obtain the highest market prices. All Cheques forwarded weekly. Bankers and good Trade references. Boxes and Labels supplied.

Growers wishing to Dispose of the following to advantage, should communicate with WISE AND RIDES, Covent Garden, W.C.: FLOWERS, for Double, Roses, Eucharis, TUBER ROSES, good White CHRYSANTHEMUMS, LILY OF THE VALLEY, and other Choice CUT BLOOMS; also good GRAPES.

Notice to Senders of Out Flowers. WANTED, in any quantity, Choice CUT FLOWERS, for Double, Account Sales sent daily. C. LAWRENCE, Office 6A, Vinegar Yard, Drury Lane, London, W.C.

MESSRS. HURST AND SON beg to state that their General CATALOGUES OF GARDEN and FLOWER SEEDS have been Posted to all their Customers, and if any have not received them, they will be glad to be informed of it and copies shall be at once sent. 152, Houndsditch, L. dno. E.—December 17, 1886.

Dissolution of Partnership. JOHN R. BOX, for ten years partner with JOHN LAING, at Forest Hill, now trades at East Surrey Seed Warehouse (established upwards of 50 years), North End, Croydon; also the Upper Tooting Park and Balham Hill Nurseries. CATALOGUES now ready.

Notice. King's Acre Nurseries, Hereford (Established 1885). JOHN CRANSTON begs to announce that, having PURCHASED THE BUSINESS, together with the most valuable portion of the stock, from "Cranston's Nursery & Seed Company (Limited)," these Old-established Nurseries will, on and after NOVEMBER 2, 1886, be carried on by him under the name of "JOHN CRANSTON AND CO." King's Acre, Hereford.—October 1, 1886.

Just Published. OUR SPECIAL IRIS LIST, No. 85; containing all that is best and most beautiful; offering great advantages to the purchaser. NEW PLANT and BULB COMPANY, Lion Walk, Colchester.

LILIAM AURATUM.—Good, plump, sound Bulbs, 6s., 9s., 12s., 18s., and 24s. per dozen; with the most valuable portion of the stock, from "Cranston's Nursery & Seed Company (Limited)," these Old-established Nurseries will, on and after NOVEMBER 2, 1886, be carried on by him under the name of "JOHN CRANSTON AND CO." King's Acre, Hereford.—October 1, 1886.

SPINARIA JAPONICA, fine Imported Clumps, 12s. 6d. per 100. LILY OF THE VALLEY (German Crown), very fine. Low offers on application. WATKINS and SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, W.C.

ROSES—ROSES—ROSES.—The finest Dwarf Plants of the leading Exhibition varieties at 6s. per dozen, package included. Special prices for quantities. The Trade supplied. A. U. GORRINGE, 75, Terminus Road, Eastbourne.

To the Trade. NUTTING AND SONS' Wholesale CATALOGUE OF GARDEN and FLOWER SEEDS for 1887 has been Posted to all their Customers. If not duly received please inform them, and another shall be sent. 105, Southwark Street, London, S.E.

To the Trade. WAITE, NASH and CO. have Posted their General CATALOGUE to all their Customers. If not received another copy will be forwarded on application. 79, Southwark Street, London, S.E.

THE GOLDEN LARCH (PSEUDOLARIX KAEMPERI). Good Seed is offered at the following price for cash: 1—1000 seeds for 25s. (2s. 1000 seeds for 20s. (2s. 1000 seeds for 15s. FRATELLI ROVELLI, Nurserymen, Pallaia, Italy.

Special Offer to the Trade. ROSES in extra strong dwarf Plants of leading varieties at 20s. per 100, 18s. per 1000, own selection. A. U. GORRINGE, 75, Terminus Road, Eastbourne.

To the Trade. ROBERT COOPER has now Posted his General Wholesale CATALOGUE to his Customers. In any case where it may not have arrived, another will be forwarded on application. 99, Southwark Street, S.E.

PRIVET.—A Large Stock of exceedingly fine bushy oval-leaved Privet, 4 to 6 feet high. Price on application. T. JACKSON and SON, Nurseries, Kingston-on-Thames.

H. G. TRENNMANN, Weissenfels, on the Saale, Germany, Kaiser of fine FLOWER SEEDS, offers the same at the cheapest prices. A CATALOGUE sent, post-free, on application.

Futney, London, S.W. WILLIAM ICETON begs to inform the Trade that he has a very fine Collection of all the leading PALMS and FOLIAGE PLANTS, at reasonable rate.

SPECIAL OFFER. PINUS AUSTRIACA, 2 to 3 feet, 3 to 4 1/2 feet; extra fine and good rooted, from 20s. to 75s. per 100. GOLDEN EUONYMUS, splendid colour, best variety, in pots, from 15s. to 30s. per 100; 2d. to 5s. per dozen. ELCOMBE and SON, Nurserymen, Romsey, Hampshire.

SALES BY AUCTION.

Monday and Wednesday Next.
HARDY PLANTS AND BULBS.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY, WEDNESDAY** NEXT, December 20 and 22, at half-past 12 o'clock precisely, each day, Standard, Dwarf, and Pot ROSES, in variety; Pyramid and Dwarfed FRUIT TREES, in LINES and CONIFERS, FOLIAGE PLANTS, for Table Decoration; BORDER PLANTS, and a great variety of DUTCH BULBS, &c.

On view mornings of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7397).

10,000 GRAND BULBS of LILIIUM AURATUM just received direct from Japan, in fine condition, 5 to 10 LUM DUM MATIUM, 300 L. HARRISII, an immense assortment of English grown LILIES, 120 fine imported clumps of CYPRIPEDIUM SPECIOSUM, 5000 young AFRICA TUBEROSES, 1000 tuberous rooted BEGONIAS, and a great variety of other Bulbs and Roots.

MR. J. C. STEVENS will sell the above by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY** NEXT, December 22, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7398.)

Twelve cases of ARAUCARIA EXCELSA (each containing a large quantity of plants) just to hand in splendid condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY** NEXT, December 23.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7398.)

ANGRÆCUM FLORENTINUM, new rare, CATTLEYA GASKELLIANA, large importation, ANGRÆCUM SANDESIANUM, new, ANGRÆCUM GERMANYANUM, new, ANGRÆCUM KIMBALLIANUM, new, ANGRÆCUM TRICHOPILLA species, SANDERIANUM, in splendid condition. The individual flowers are near Kotschy, but are borne more abundantly on spikes, often reaching twenty-five in number. The plants, white, including tails, 12 inches long. At the same time will be offered A. KIMBALLIANUM, a splendid novelty; A. GERMANYANUM, A. SCOTTIANUM, A. LEONIS (species not seen in flower). A large set of CATTLEYA GASKELLIANA, in fine condition with leaves extra broad, and distinct looking; C. PERCIVALIANA STANHOPEA WARDII, ONCIDIUM BICOLOR, O. RUBIGINUM, TRICHOPILLA species; ODONTOGLOSSUM PARDINUM, O. HALLI LEUCOGLOSSUM, and many other fine ORCHIDS.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7398.)

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on **THURSDAY** NEXT, December 23, at half-past 12 o'clock precisely, a few plants, including the above ANGRÆCUM FLORENTINUM, flowers large, nearly the size of A. Elisi, and are produced in great quantities. Also a superb lot of the lovely new CATTLEYA GASKELLIANA, in splendid condition. The individual flowers are near Kotschy, but are borne more abundantly on spikes, often reaching twenty-five in number. The plants, white, including tails, 12 inches long. At the same time will be offered A. KIMBALLIANUM, a splendid novelty; A. GERMANYANUM, A. SCOTTIANUM, A. LEONIS (species not seen in flower). A large set of CATTLEYA GASKELLIANA, in fine condition with leaves extra broad, and distinct looking; C. PERCIVALIANA STANHOPEA WARDII, ONCIDIUM BICOLOR, O. RUBIGINUM, TRICHOPILLA species; ODONTOGLOSSUM PARDINUM, O. HALLI LEUCOGLOSSUM, and many other fine ORCHIDS.

On view morning of Sale, and Catalogues had.

Tuesday Next.—Orchids in Flower.

SPECIAL SALE FOR CHRISTMAS DECORATIONS.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY** NEXT, December 21, at half-past 12 o'clock precisely, a large quantity of ORCHIDS in FLOWER or BUD, from various collections, including—

Cypripedium Morganæ
" euryandrum
" alba porphyreum
" leucum
" veritatum
Lælia, Oncidium, Masdevallia, Odontoglossum, Spheeropsis grandiflora, Cattleyas, &c.

On view morning of Sale, and Catalogues had.

Tuesday Next

300 DOUBLE CAMELLIAS and AZALEAS, dwarf plants, well set with buds; 400 very fine Standard and other ROSES, FRUIT TREES, HARDY PLANTS, SHRUBS in variety, PLANTS in FLOWER, BULBS, &c.

MESSRS. PROTHEROE AND MORRIS will sell the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on **TUESDAY** NEXT, December 21, at 12 o'clock precisely.

On view morning of Sale, and Catalogues had, at the Rooms, or of the Auctioneers, 67 and 68, Cheapside, E.C.

Wednesday Next.

8000 LILIIUM AURATUM, splendid Bulbs, 400 LILIIUM SPECIOSUM RUBRUM and L. ALBUM.

MESSRS. PROTHEROE AND MORRIS will include the above in the SALE, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY** NEXT, December 22.

On view morning of Sale, and Catalogues had.

Wednesday Next.

PLANTS in Flower, PALMS and FERNS for Christmas Decoration; 5000 splendid Bulbs of LILIIUM AURATUM, from Japan; 500 English grown Standard and Dwarf ROSES; a choice assortment of English grown LILIES and other hardy Bulbs, BARR'S DAFFODILS, LILY OF THE VALLEY, SPIRÆAS, CARNATIONS, Dutch BULBS in variety.

MESSRS. PROTHEROE AND MORRIS will sell the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY** NEXT, December 22, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Christmas Holidays.

MESSRS. PROTHEROE AND MORRIS beg to announce that in consequence of the Christmas Holidays there will be NO SALE of ORCHIDS at their Rooms on **FRIDAY** NEXT.

NORTHERN ITALY.

TO NOBLEMEN, GENTLEMEN, AND OTHERS.

Messrs. PROTHEROE & MORRIS

are favoured with instructions to

SELL BY PRIVATE CONTRACT,

A DISTINGUISHED and SINGULARLY ATTRACTIVE

FREEHOLD ESTATE

on the borders of one of the principal Lakes.

The property possesses an area of about 22½ Acres, and may be fairly described as one of the most attractive in Southern Europe.

Full particulars and terms will be forwarded on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

TO FLOWER GROWERS.—We hold SALES BY AUCTION in our Vaults, in the Market Hall, every TUESDAY, THURSDAY, and SATURDAY. Growers will and Birmingham a good market. Cheque forwarded every week, or earlier if desired.

POPE AND SONS, Central Avenue, Market Hall, Birmingham.

ORCHIDS—ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

THE VINEYARD and NURSERIES, GARSTON, NEAR LIVERPOOL,

have to state that a

NEW EDITION OF THEIR ORCHID CATALOGUE

is now ready, and will be sent Post-free on application.

To Gentlemen, Nurserymen, Gardeners, &c.

TO BE SOLD.—**FREEHOLD GLASS NURSERY, SEED, and FLORIST'S BUSINESS**, in one of the best manufacturing parts of Yorkshire. A chance seldom to be met with, the owner and occupier wishing to retire from business.

Apply by letter, B. C., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOR SALE, FREEHOLD, or to LET on LEASE. THE MELBOURNE NURSERY, Anerley, near Crystal Palace, formerly let at £500 per annum, to be had bargain; nine lots fine Greenhouses, Fern-house, Show-house, Dwelling-house, Stabling, &c.

Apply to WALFORD and WILSHIRE, 121, Anerley Road, London, S.E.

To Nurserymen, Market Florists, and Others.

TO BE SOLD or LET on Lease. The Goodwill with possession, of an Old-established NURSERY FLORIST, and MARKET and JOBBING BUSINESS. Ten spacious Greenhouses, Hot-water connection, complete within 7 miles of Covent Garden. Good Dwelling-house, and three Cottages in Nursery, if desired.

Apply to J. LAIDMAN, Esq., Solicitor, 5, Sergeants' Inn, Temple, or to R. T. BIGGS, The Nurseries, Lewisham, S.E.

To Horticultural Nurserymen, Market Gardeners, and Others

TO LET, by Tender, THE ELMS, Torre Torquay. All those modern and excellent VINERIES, GREEN and HOTHOUSES, with Pits, Frames, Ferneries, Mushroom, Orchard, and Potting Houses, together with Dwelling-house, Figery and other Outhouses, and Land adjoining; all situate in a thickly-populated district, within two minutes of the Torre Station of the Great Western Railway. Southern aspect, well sheltered, and in good position; built with the latest improvements, very substantial, and thoroughly heated.

Three Houses are 104 feet each, by 14½, 15½, and 16 feet—three divisions in each; two other Houses, 19 by 11 feet, &c. Sealed Tenders to be sent to the undersigned on or before January 7 next.

To view, apply at the Laundry adjoining the property, and for further particulars and conditions of letting to J. EDGELL SEARLE, Solicitor, Crediton and Exeter.

TO LET, a Small NURSERY, of 2 Acres, in the healthiest part of Mallock, No glass. Stock low. Particulars of Mr. MARKOTT, Line House, Walsall.

To Florists and Others.—Chelmsa.

TO BE LET, a large walled GARDEN, with Glass and Cottage.

Apply to Mrs. MORGAN, 10, Beaufort Street, S.W.

TO BE LET, a large GLASS HOUSE (good), 40 feet long. Well fitted. Main road.

397, King's Road, near Dalston Junction, N.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

SQUELCH and BARNHAM, North Row, Covent Garden, London, W.C., REQUIRE any quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatoes, Cucumbers, choice Flowers, &c.

SQUELCH and BARNHAM, giving personal attention to all consignments, they are thus enabled to obtain the HIGHEST MARKET PRICE.

SQUELCH and BARNHAM, ACCOUNT SALES sent daily, and CHARGES forwarded weekly.

BASKETS and LABELS supplied.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

HENRY MAXHAM is a CANDIDATE for the PENSION at the ELECTION in JANUARY NEXT. He has been in the Trade with Leading Firms for the past forty years and is now entirely unfitted for work.

The undersigned respectfully solicit from Subscribers promises of support at the ensuing Election.

WILLIAM CUTRUSH and SON,

Highgate Nurseries, London, N.

Landscape Gardening.

H. F. MALLER (of the firm of B. Maller & Sons), late pupil of the Crystal Palace School of Landscape Gardening, is prepared to FURNISH PLANS, or undertake any kind of the above work.—61, High Street, Lewisham.

HORTICULTURAL SOILS, MANURES, SUNDRIES, and BERKSHIRE POTTERY. Catalogue free post, of every Horticultural Requisite.

BENJAMIN FIELD, F.R.H.S. (Son-in-law and Successor to J. Kennard), Swan Place, Old Kent Road, London, S.E. Telephone—11. FLORENCE LONDON. Established 1854.

IMPORTANT TO ORCHID GROWERS.

Special offer of Light Brown ORCHID PEAT,

all of Pure Bracken fibre, also a good GENERAL PEAT.

Quotation with sample on application to

THE 12, A STATION,

10, Calum Street, London, E.C.

Rhubarb and Seakale Forcing.

STRONG WELL-MADE POTS for the

above—GARDEN POTS, ORCHID POTS, ALPINE POTS, FERN POTS, &c. All other GARDEN

Pots of the best quality can be supplied by

J. MATTHEWS, Royal Pottery, Weston-super-Mare.

Price List Free.

SHRUBS and CONIFERÆ.—Laurostinus,

2 feet, bushy, 300 per 100. Aucuba Unedo, 2 feet, 400

per 100. Aucuba japonica, 2 to 2½ feet, 400 per 100. Box

Tree, 200, 1½ to 2 feet, 300 per 100. Common Laurels, 2 feet,

300 per 100. Colchic Laurels, 1 to 2½ feet, 100 per 100.

British Litoralis, 1 foot, 250 per 100. Sweet Bay, 1½ to 2 feet,

300 per 100. Rhododendron penticum, 1½ to 2 feet, 3½ per

100; ditto, 2 to 2½ feet, 400 per 100, extra fine. Abies

Douglasii, 2 to 3 feet, 300 per 100; ditto, 3 to 4 feet, 400 per

100; ditto, 4 to 5 feet, 700 per 100, fine roots and well furnished.

Araucaria imbricata, 2 to 2½ feet, 400 per dozen; ditto, 3 to

3½ feet, 600 per dozen; Cupressus Lawsonii, 1½ to 2 feet,

300 per 100; ditto, 2 to 2½ feet, 300 per 100; ditto, 3 to 4 feet,

500 per 100. Cupressus erecta viridis, 1½ to 2 feet, 300 per

100; ditto, 2 to 2½ feet, 400 per 100; ditto, 2½ to 3 feet,

300 per 100; ditto, 3 to 4 feet, 400 per 100. Thuja Lobbi,

2 to 2½ feet, 250 per 100. Special offer by the plant for smaller

sizes. GAILLIE and SUTHERLAND, Glasgow, Scotland.

Now is the time to Plant

E V E R G R E E N S.

New Descriptive LIST free.

RICHARD SMITH and CO., Nurserymen, Worcester.

JERSEY FRUIT TREES, Carriage Pad for

Cash with Order. Write for Illustrated CATALOGUES

to JOSHUA LE CORNU & SON, High View Nurseries.

FOR JERSEY ROSES for 21s.

To the Trade.

Home-grown VEGETABLE and AGRICULTURAL SEEDS.

H. AND F. SHARP have now prepared to

give special quotations of all the principal varieties of

VEGETABLE and FIELD SEEDS raised on their own Seed

Farms this season from the choicest selected stocks. The

quality is unsurpassed, and the prices very low. Samples may

be had on application.

Seed Growing Establishment, Wisbech.

ANDRE LEROY'S Nurseries, at Angers,

France, the largest and richest in Europe in Collections

of FRUIT and ORNAMENTAL TREES, SHRUBS,

and PALMS, &c. Give special quotations of all the principal varieties of

VEGETABLE and FIELD SEEDS sent on application. Freight

from Angers to London is very moderate. Medal of Honour

at the Universal Exhibition at Paris in 1875.

Orders must be addressed to MESSRS. WATSON and SCOLL,

90, Lower Thames Street, London, E.C.

PALMS, for Table and Conservatory Decoration,

20 inches high—Latania borbonica, 12. 6d.; Sea-

forthia elegans, 11. 6d.; Areca lutescens, 12. 6d.; Phoenix

reclinata, 12. 6d.; Euterpe edulis, 12. 6d.; Corypha australis,

12. 6d.; six for 80, or 125. 6d. per dozen.

COCOS WEIDELIANA and KENTIAS, 20 to 25 each.

PALMS, fine healthy plants, 1000 to 1500 bushy plants,

bonica, Seaforthia elegans, Phoenix tautis and Phoenix reclinata,

6d. each, or 4s. per dozen. Packages and delivery free.

Large PALMS, 1 foot to 2½ feet high, 1000 to 1500 bushy

GARDENERS, Holly Lodge, Park Hill, London, N.

New Early Peas.

To the Trade and Growers for Early Market.

EARLY KENILWORTH and WILLIAM

THE CONQUEROR.

These two gems have no equals for Earliness, Cropping, Colour,

and Taste Quality.

Testimonials and price for application to

W. BURBURY, Seedsman, &c., The Crew, Kenilworth.

Special Offer.

ISAAC MATTHEWS and SON have for

sale 5000 RHOODODENDRONS, varying in size

from 4 to 6 inches up to 2 to 3 feet—Cunningham's White,

Jacksoni, caucasicum, pictum, Seedling Hybrids, Hybrid

ponicum, and many other varieties.

ROLLES, CONIFERS, FOREST TREES in large

quantities: AUCUBAS, YEWs, and other Nursery Stock.

CATALOGUES now ready, and may be had, on much paper,

free, on application to the Nurseries, Milton, Stoke-on-Trent.

Our Nurseries are 100 acres.

Myroballa.

PRUNUS MYROBALLA, or CHERRY

PLUM.—The best stuff for Mendior. Old Fences or

Making New Ones. Grow fast, fruit strong, and

with Whithorn. It is also an excellent Stock for the Plum.

A sample hundred, 2 to 3 feet, sent on receipt of 6s. 30 for 3s.

Further particulars and prices on application to

EWING and CO., Sea View Nurseries, Havant, Hants.

GREAT CLEARANCE SALE OF BARR'S BEAUTIFUL HARDY DAFFODILS.



"Daffodils, that come before the swallow dares, and take the winds of March with beauty."
SHAKESPEARE.

BARR'S HARDY DAFFODILS

Are acknowledged to be the fairest among the flowers of Spring, and form a new and popular feature in Spring Gardening. They have been awarded at different times many Medals—Gold, Silver, and Bronze—besides many Prizes and Certificates, by the Royal Horticultural Society, Royal Botanic Society, Crystal Palace Company, &c., at their London Spring Shows, where they have always formed the centre of attraction.

ALL AT GREATLY REDUCED PRICES.

Trumpet Daffodils.	Per 100	Per doz.	Each
LARGE YELLOW HOOP PETTICOAT, very beautiful	s.d.	s.d.	s.d.
ABSCISSUS, petals sulphur-yellow, long narrow trumpet	8 6	1 6	—
MINIMUS, the smallest of all Daffodils, petals and trumpet yellow, collected roots	—	2 0	3
OBVALLARI (Tenby Daffodil), very early-flowering, uniform yellow petals and trumpet	8 6	2 6	—
SPURIUS, rich full yellow petals and trumpet, large-flowered	10 6	2 0	3
VARIIFORMIS (Parkinson), a beautiful species, petals ranging from white to primrose, and trumpet from sulphur to deep yellow, brim elegantly recurved	—	5 6	0 6
TELAMONIUS PLENIUS, strong flowering bulbs of the large double Daffodil	5 6	1 0	—
Very large bulbs	7 6	2 3	—
Chalice Cup-shaped Great Non-such Daffodils.			
CONCOLOR, petals and cup yellow, large flower	15 0	2 6	3
EDWARD HART, petals and cup full deep yellow	21 0	3 6	4
FRANK MILES, very large yellow petals and cup	21 0	3 6	4
FIGARO, large yellow petals, large spreading orange-scarlet stained cup	21 0	3 6	4
FAIRY, yellow petals, cup elegantly-edged orange	8 6	1 6	—
GLOW, yellow petals, cup margined orange	5 6	1 0	—
SUNLIGHT, yellow petals, cup stained orange	7 6	1 3	—
SULPHUREUS, sulphur petals, cup yellow	7 6	1 3	—
ASTREA, sulphur petals, yellow cup	5 6	1 0	—
JOHN BULL, sulphur petals, cup yellow, large and spreading	21 0	3 6	4
LONGSHANKS, sulphur petals, large yellow cup	—	2 6	3
SANGHO, sulphur petals, yellow cup, tinged orange	7 6	1 3	—
ALBIDUS, sulphur-white petals, yellow cup	7 6	1 3	—
ANNIE BADEN, sulphur petals, brim of cup stained orange, and elegantly contracted	15 0	2 6	3
PERICLES, starry primrose petals, pale yellow cup	—	3 6	4
STELLA, large white petals, large yellow cup	10 6	2 6	—

Barr's Hybrid Daffodils.

	Per 100	Per doz.	Each
	s.d.	s.d.	s.d.
BARRI SULPHUREUS, primrose petals, yellow cup	10 6	2 6	—
ADA, sulphur white petals, yellow cup	10 6	2 6	—
BEATRICE MURRAY, petals creamy-white, cup canary, edged orange, very beautiful	—	4 6	0 6
JOHN STEVENSON, sulphur-white petals, large spreading yellow cup	—	4 6	0 6
Eucharis-flowered Daffodils.			
DUCHESSE OF BRABANT, white petals, canary cup	—	3 6	4
IANTHE, white petals, canary-yellow cup	—	7 6	0 9
Jonquil-like Daffodils.			
ODORUS, large self-yellow, handsome Jonquil, with six-lobed cup	7 6	2 3	—
CAMPERNELLI, petals and cup full yellow	—	4 6	1 0
RUGULOSUS, large self yellow, handsome Jonquil, with straight cup	—	3 6	0 9
Burbidge's Daffodils.			
BURBIDGE'S BOZ, the yellow Poet's Daffodil	—	2 6	3
DANDY, white petals, yellow-plaited cup	15 0	2 6	—
LITTLE JOHN, pet's cream, passing to white, small yellow plaited cup	—	4 6	0 6
MARY, petals white, large suffused orange cup	—	15 0	2 6
ROBIN HOOD, petals white, cup lemon, stained orange	—	3 6	4
SULPHUR STAR, petals sulphur-white, cup canary, edged with orange	—	3 6	4
Poet's Flowered Daffodils.			
POETICUS ORNATUS, the broad-plaited Poet's early-flowering Daffodil, beautiful	8 6	2 6	—
POETICUS OF GARDENS, large white petals, orange rimmed cup	—	3 6	0 9
POETICUS MAJALIS, petals pure white, well-formed, and generally flat, cup-edged, suffron, leaves erect	—	3 6	0 9
GARDENIA-FLOWERED DOUBLE WHITE DAFFODIL	—	5 6	1 0
THE TRIPLE-GASHED DAFFODIL	—	10 6	2 6
GRACILIS, a graceful yellow May-flowering Daffodil	—	2 6	3

DAFFODILS, CHOICE MIXED, for naturalisation in shrubberies, woodland walks, &c., and for cutting from, 30s. per 100, 4s. 6d. per 100.

DAFFODILS, FINE MIXED, for naturalisation in Wild Gardens, &c., 21s. per 100, 3s. 6d. per 100.

GREAT NONSUCH DAFFODILS, mixed yellow varieties, for planting in beds, or in grass, desirable for cut flowers, 35s. per 100, 4s. 6d. per 100.

BUNCH-FLOWERED DAFFODILS (Polyanthus Narcissii), mixed varieties, for beds and borders, &c., 7s. 6d. per 100, 1s. 6d. per dozen.

Clearance List of other Spring-flowering Bulbs free on application.

BARR & SON,
12 & 13, KING STREET, COVENT GARDEN, W.C.

SPECIAL NOTICE.—

On and after Jan. 1, 1887,
the Price of the
"GARDENERS' CHRONICLE"
will be

Reduced to Three Pence.

Continental Nurseries, Ghent, Belgium.

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AUGUST VAN GEERT begs to offer to the Trade the following well grown PLANTS, of which he has a nice healthy stock still on hand:—
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THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 18, 1886.

PLANT GROUP AT THE
EXETER SHOW.

(SEE SUPPLEMENTARY SHEET.)

THE subject of our illustration is a picturesque group of flowering and foliage plants, arranged by Messrs. Robert Veitch & Son, of Exeter, for the exhibition of the Devon and Exeter Horticultural Society in August last. One end of a large oblong marquee was placed at Messrs. Veitch's disposal, and in this space they arranged their plants in a novel and artistic manner. The staging was covered with irregular blocks of virgin cork, which were arranged in a natural and irregular group, here and there a boulder sticking out, there a mossy knoll, while the sides were flanked by Ivy-covered rocks and subtypical vegetation. In the centre of the rockwork was a little pond—silvered glass representing the water—which appeared to run back among the caves formed by the rocks until lost to sight. On the verge of this pond were growing little patches of aquatic plants, Ferns, Reeds, Pitcher-plants, Sarracenias, &c. Projecting from the overhanging rocks were graceful foliage plants, such as *Doryanthes Palmeri*, with *Ampelopsis Clematis*, and Ivy, clinging, as it were, to the sides. Here and there were bright telling patches of double and single *Begonias* of varying hues, from pure white to deep crimson. In the crevices were some very interesting little alpenes—alpine Poppies, *Anemones*, *Edelweiss*, and other rock plants. Standing up boldly from the sides were some stately perennials such as *Campanulas* and *Delphinium* hybridum in many shades of blue; while, affording a fine contrast, were several tall trusses of *Lilium auratum* with some of the shorter Lilies like *L. Harrisii* at their feet. Overhanging, and arranged with good effect, were Tree Ferns and many of the hardy British Ferns, backed up with fine specimens of *Eucalyptus globulus*—the foliage of the Gum trees making a fine set-off to the Fern fronds and the gay colours below. A few Orchids were judiciously but sparingly introduced.

In the evening of the show day fairy lamps were dotted about here and there on the margin of the pond and among the rocks, while from boughs and jutting "boulders" were suspended pretty Arabian lamps, which threw a warm, subdued light over the group. There is no doubt but that much could be done in this direction in staging plants at flower shows to relieve their tiresome monotony and to show plants to their best advantage. In this case Messrs. Veitch only commenced the erection of their group the day before the show. It is therefore all the more creditable to them that they should, on the spur of the moment, as it were, have produced an effect so happy and so suggestive. But with the material at their disposal, and their known capabilities in this respect, there is no room for surprise at the result.

New Garden Plants.

CYPRIPEDIUM PRÆSTANS, Rehb. f., n. sp.*

A MOST unexpected surprise. I have before me a living plant, a fine peduncle bearing five flowers and buds, and a single flower, beautifully preserved in alcohol. It is of Papan origin, and was kindly sent to me by Messrs. Linden. When looking at the contents of the mighty bottle, full of varieties and novelties in company with smaller ones, I thought of *Cypripedium glanduliferum*, Blume. It is, however, not that species, as both my herbarium and the *Rumphia* show distinctly that Blume's plant is less vigorous; it has much smaller bracts, quite distinct petals, and last, but not least, a straight stigma. The star-like ornaments on the petals show that it is an associate of the Rev. Mr. Parish's *Cypripedium*.

The leaves of the living plant have all the strong texture and the varnish of those of *Cypripedium levigatum* and *C. Robbeleni*. The peduncle is very strong, covered with short dark hairs. The inflorescence is five-flowered, and appears to have been pendulous. The spatheaceous bracts are nearly equal to the stalked ovary. The flowers surpass all those of the above-named species, and are nearly as large as those of *Cypripedium grande*. Both sepals are nearly equal, though, curiously enough, the connate one is rather broader. The three median nerves are keeled outside, petals linear-ligulate, very much undulated at the base, as in a fine *Methonia* (Gloriosa), tapering at the end, surpassing the lip by one-third. The lip has a very long channelled stalk, and has the uncommonly elegant shape of that of *Cypripedium Stoeletii*. The staminoide is like that of *Cypripedium Robbeleni*, exceedingly gibbous at the base, abruptly acuminate at the top, villous on the sides.

The greatest merit of the plant lies in its quite novel stigma, which is broken up, and ascends at right angles like a beak. The stigmatic bodies of *Cypripedium levigatum* and *C. Robbeleni* are a little ascending at the top, but this one is quite distinct.

I learn from Mons. Lucien Linden that the plant has its *sepal jaune* and the sepals *striés de brun foncé*. H. G. Rehb. f.

OPLISMENUS BURMANNI VAR. ALBIDULUM (new var.).

This is a most charming little grass, new, distinct, and pretty, which has been recently introduced from India by Messrs. Veitch & Sons. It is a variety of the common and widely spread *O. Burmanni*, and differs from the well known variety *variegatum* (or *Panicum variegatum*, as it is often called in gardens) by its dwarfier and more compact habit and differently coloured foliage. The stems are rather stouter, more erect, and far less straggling than in the variety *variegatum*, and the leaves are white with a pale green stripe or ill-defined area along the midrib. I am informed that the plant comes true from seed; the white foliage is charming, and being of quick growth and compact habit this pretty little grass is likely to become a useful and desirable decorative plant. N. E. Brown.

EDWARD PYNÆERT.

MANY of our readers, frequenters of the Ghent "Quinquennials," and others, will be glad to see the *vera effigies* of M. Pynæert (on opposite page), whose quarter of a century of service as Professor in the State School of Horticulture at Ghent, was celebrated, as recorded by us at the time, with so much spirit a short time since.

* *Cypripedium præstans*.—Folii coriacei ligulatis apice minutissime inaequali-bilobis, inferne sub nervo medio carinatis, ultra pediculus, ultra duos pollices latis, nitidissimis; pedunculo pilosulo pluriloro, racemoso (quaque pedicellato); bracteis spatheaceis carinatis (apice tridentatis), ovaria pedicellata leviter subquadratis, sepalis levigatis, sepalis impari oblongo-ligulato acuto supra nervum medianum carinato, sepalis paribus subulterioribus bicarinatis; tepalibus lineari-lanceolatis demum angustioribus lanceolatis superantibus, basi erecte undulatis, hinc nunc, imbricatis basin versus pilosulis; labelli ungue campaniformi elongato, callo obtuse conico abrupto; staminodii bali valde gibbo lanceolato acuminato lateribus pilosis; stigmati triangulari sub angulo recto flexo adpresso. Ex ins. Papp; introduct. cl. Linden. H. G. Rehb. f.

MARKET-PLANTS.

MIGNONETTE.—The immense quantity of Mignonette grown annually for market purposes proves that it is one of the most popular of flowering plants; although there is a certain demand for it throughout the year, it is during the early spring and summer months that it is most wanted, being then used for purposes of every description.

A few years ago there was scarcely any that sold more readily than Mignonette, but during the last three or four years the supply has been quite equal to the demand, and a considerable improvement has been observed in its culture. In growing Mignonette for market, to secure a profitable return it must be well grown—that is, it must be dwarf, with fresh green foliage down to the pots, with stout, sturdy spikes of bloom. If a regular succession be kept up—say, from early in March to the end of June—a fair average price may be relied upon, though perhaps during the time there may be a glut, when the price may fall very low. I have known really first-class stuff to be sold for 3s. 6d. per dozen pots, and it may have been sold for considerably less than this; but a fair average price is from 5s. to 9s. per dozen, and anything extra good may fetch 12s. per dozen, especially early in the season.

It is to the late Mr. Parsons, of Brighton, that we are indebted for the first great improvement in the varieties of Mignonette. He was also one of the most successful cultivators of his time. It was with my father, who was nursery manager to Mr. Parsons, that I commenced my gardening career, and from that time I have always taken a great interest in this fragrant, though unassuming flower. I well remember the first plant that was selected, from which, after several years' selection "Parson's White," *Reseda odorata eximia*, was obtained; this was a great improvement on any other variety grown at that time. It was exhibited at South Kensington in the spring of 1870, and was awarded a First-class Certificate, it also obtained several other first-class awards the same season. It is now difficult to obtain a new strain of this variety. Its chief characters were the whiteness of the flowers, which was caused by an almost entire absence of stamens (the anthers of which give the colour in other varieties); and an unusual development of the petals, the individual flowers being more than twice the size of those of any ordinary variety, the spikes of bloom of great length, and the plant of vigorous habit.

Miles' Spiral is another good variety; this originated with Mr. Miles, of West Brighton; the stock was obtained from one plant, which came up among a batch of the dwarf red Continental variety, *ameliorata*. I saw the parent plant of this variety, and I may say I have never seen a finer spike of bloom on so dwarf a plant as that produced. In the collection that was grown for trial at Chiswick a few years ago this proved to be one of the best for pot work, being dwarf in habit and producing fine bold spikes of bloom. Although this was received from several firms, there was but little variation, which is more than could be said of some of the varieties. *Vilmorin's pyramidalis grandiflora*, is one of the best for market work; it is dwarf in habit, of vigorous growth, and produces stout, though rather short spikes of bloom. In this variety the stamens are numerous, and the reddish-brown anthers are very conspicuous. Matchet is a newer variety, producing immense spikes of bloom; it is one of the best for market work. Golden Queen, or *ameliorata aurea*, is another very distinct variety, of dwarf habit; in this variety the anthers are yellow; it is very pretty as a variety, but of no value for market purposes.

Besides the varieties above mentioned, there are many others offered, some of which are distinct. In referring to two catalogues that happen to be at hand, I find in one twelve varieties, all enumerated, while in the other there were eight; and as the same names occur in only four instances it would signify sixteen varieties. I think that some of the names given are misleading, such as *Crimson Giant*, *Pyramidal Bouquet*, *Crimson Queen*, &c. As far as I have seen, these varieties are very little better than the ordinary form, and certainly do not merit the names applied to them.

All the varieties of Mignonette are liable to considerable variation, and it requires great care in saving the seed to secure a true strain, especially where there are several varieties grown together. Where a batch of any variety is intended for seed, it

should be grown in an isolated position, and as they come into flower they should be gone through and any of inferior quality pulled out, otherwise the stock will soon deteriorate.

CULTURE.

The best position for growing pot-Mignonette is in pits or frames, and as one great point is to keep it as dwarf as possible, the closer to the glass it can be kept the better; it is also necessary that the glass should be kept clean. In preparing a range of pits for Mignonette it is a good plan to have them in three sections, the first to be filled up, so that when the seed-pots are plunged they are within 3 or 4 inches of the glass; by the time the plants require more room they may be transferred to the second section, which should be a little deeper; here they may remain until they require tying, when they should be placed in the third section, which should be deep enough for the plants to remain until they come into flower and are fit for market. A regular succession may be kept up by filling the first section of the pit in two separate sowings, the second to be made about the time the first is beginning to show the second leaves; by following on with successive sowings each section may be kept filled up, and a regular supply obtained.

In preparing the seed-pots they should be well drained, and it is a good plan to mix a little soot with the drainage. The compost for filling the pots may consist of good maiden loam, with a little well-rotted manure added, or, what is often used by market growers, any old potting soil, with a little manure added; provided the soil be fairly rich and not too heavy, anything that is at hand may be used, care should be taken, however, that it is as free from worms as possible. In filling the pots the soil should be pressed as firmly as possible, and the seed should be well covered with soil.

For early spring work the seed should be sown in the autumn—say, about the beginning of September—and throughout the winter it should only have sufficient warmth to keep the frost off. The first spring sowing may be made about the middle of February. That sown in the autumn as well as that sown early in the year requires great care to keep it healthy until the days get longer and the weather brighter; the main thing is to avoid it getting drawn and weakly.

THINNING-OUT, WATERING, &c.

As soon as the seedlings are large enough to handle they should be thinned out, leaving from six to nine plants in a pot. Six plants will be quite enough to fill a 48-sized pot, but it is best not to thin too closely at first, in case of a few plants damping off.

Watering is one of the most important matters connected with the culture of Mignonette. Great care must be taken not to get the pots too wet, especially during the earlier stages; as the plants get more advanced and the pots full of roots it is necessary to guard against the other extreme; either excess is very damaging, if not fatal, at any time. As soon as the roots get round the pots, liquid manure may be used, beginning by using it weak, and using it more freely as the plants advance.

Ventilation must always be given freely, and no artificial heat used except to keep out frost. A. Hemley.

THE SEED TRADE.

THE PEA CROP.—The Pea crops have not turned out so satisfactorily as the trade were led to suppose they would two months ago. The early deliveries were generally of a decidedly assuring character, but later ones show that the main crop and late varieties have unfortunately in not a few instances suffered very much indeed. Especially does this appear to be the condition of things in the Lincolnshire district, where, although there was at one time the promise of good crops, a very large portion is found to have been damaged by the rains which fell before the seed Peas were in a condition to be harvested. And this is applicable equally to the round as to the wrinkled varieties. The fact that the harvest was later than usual, owing to the retarding character of the spring and early summer, has greatly operated against a successful result.

At present but few seeds excepting Peas and Beans have come to hand, and the deliveries are later than usual from the cause just named. Small seeds such as Cabbages, Broccolis, Kales, &c., promise to be a fair average. Fine open weather is now badly wanted,

so that the seeds in the husks can be threshed out and sent in to the dealers.

THE ONION.

The leading Onion of the day is undoubtedly the White Spanish or Portugal, or what has been known in later years as the Reading. That all the sorts having the Anglo-Spanish character, from Nuneham Park and Banbury Improved, down to the latest novelty, Rousham Park, have been derived from the White Spanish, there can be doubt; and it is very probable that selection has had more to do with the creation of assumed sorts than fertilisation. The origin of the White Spanish Onion, as well as of its conqueror, the Strasburg Brown Spanish, or Deptford, is no

informed by the representative of one house that their sales averaged 30 tons of Onion seed of various varieties, but fully one-fourth of the bulk is the White Spanish. When it is borne in mind that seed of the White Spanish will weigh from 37 to 39 lb. per bushel, some idea may be formed of the vast number of grains that go to a ton weight.

The seed of the White Spanish Onion which passes into the hands of the London trade is mainly grown in Bedfordshire. Passengers by the Great Northern Railway are familiar with the large breadths of Onions to be seen between Hitchin and Huntingdon; and in July and August, when the huge beds of Onions have developed on their stout stems the large ball-like heads of seed-vessels, they form picturesque sight.

ciently bulbed to go to market, and leaving those not sufficiently matured until another day.

It is sometimes said that the Bedfordshire White Spanish Onions have deteriorated in quality, and this is accounted for on the ground that the growers send all their best bulbs to market and retain only the refuse for planting for seed. This is no doubt unfortunately true of many, and an inferior stock is a certain result. Some growers act differently: they select and retain for planting for seed some of their largest and handsomest bulbs, and sow the seed obtained for their main crops.

The Brown Spanish, or Deptford, or Strasburg Onion is regarded as having a stronger flavour and being a better keeper than the White Spanish; and



EDWARD PYNAERT.

doubt involved in great obscurity. Philip Miller in his *Dictionary* (1731) enumerates seven species, under the head of "Cepa," among them the Strasburg, the Red Spanish (probably answering to our Blood-red), and the White Spanish; and he alludes to these three sorts as "propagated for winter use, their roots being preserved dry during the season." In a thoroughly reliable seed list published in 1817, I find enumerated the White Spanish, Deptford, Globe, James' Keeping, Blood-red, Silver-skinned, Strasburg, White Spanish, and the Cerruian Onions, whatever the last may have meant; but the White Spanish is our representative one—there is scarcely a garden in which it is not to be found during the summer, and it is the variety depended upon for the main winter supply. That it is capable of improvement by selection and cultivation there can be no doubt.

Very large quantities of seed of Onions pass through the hands of our leading wholesale seedsmen. I am

Much depends upon the weather at the time the seed is ripening, whether the sample is good or indifferent; in wet weather mildew will attack stems and seed-balls alike; and then the seeds are small, light, and the germinating power indifferent. The bulbs are planted out in spring for seedling; and it appears to be the custom of the growers to break their plantations of Onions up into different breadths rather than to have them together in one huge piece.

The pickling Onions that find their way into the London markets in such large quantities are grown in Bedfordshire. The refuse seed from the harvest of White Spanish is sown by some of the growers, and it is from this variety that the "picklers" are obtained. The seed is sown in February and March, and while some growers are content to sow 30 lb. per acre, others will sow 40 lb. and even more. About the end of July, nice little bulbs are formed, and women then go over the beds, pulling up all that have suffi-

it is probably owing to the possession of the latter quality that some gardeners prefer to sow it for their main crop. It is worthy of remark that this is an Onion much grown in Ireland. Seed of this variety comes largely from abroad—a great deal from Holland. "It is the kind most commonly used for field culture about Paris, and it is grown in very large quantities in the neighbourhood of St. Denis, and as far north as Normandy. The winter supply of Paris and of a great part of Europe consists chiefly of this variety, which may be often seen hanging up in dwelling-houses, in long hanks formed by interlacing and plaiting the withered leaves together." (*Vilmorin's Vegetable Garden*.) Formerly large quantities of seeds of this variety came from the south of France, and probably the supply continues. The White Spanish and Brown Spanish are both flat Onions. As far as the United Kingdom is concerned the Brown Spanish Onion is much more largely used in Ireland and

Scotland than in England, where the White Spanish finds greater favour. The bright brown thick skin of the former enables it to bear rougher usage than the latter, and its stronger flavour appears to be appreciated also.

The Globe Onions are globular rather than flat shaped; the group comprises several varieties, among them the white skinned, the brown skinned, Bedfordshire Champion, Magnum Bonum, Excelsior, and that newer prodigy, the Wroxton Park. They form a very valuable group, and should be grown much more than they are, as the produce a crop of larger weight, and are regarded as being better flavoured. The Globe Onions are related to the Pear-shaped Onions of the French, of which there are numerous varieties, having long bulbs, which differ from one another in colour and earliness. The bulbs of the Globe Onions grown in this country are almost as broad as they are long; the one most in request of the best known types is the Bedfordshire Champion. This is said to be a selection obtained in Bedfordshire and it is found to produce a heavy weight per acre. Not a few gardeners grow the White Globe in preference to any other, and they are justified in doing so, though it is considered not to keep so well as the Brown Globe or James' Long Keeping.

The Blood-red Onion is an old hardy variety, much in use for flavouring dishes in cooking, though by no means largely grown in England, but much more so in Scotland. It is also largely grown in the northern districts of France. It is well named because of its blood-hued skin; in some of the bulbs the colour is deepened almost to black. There is a fine variety of this of American origin, known as the Wethersfield, in shape and colour coming near to Danvers' Yellow. It is an Onion that keeps well, but is not particularly hardy in character. Messrs. Vilmorin & Co. inform us that "in the south-west of France, especially about Bordeaux, a very fine variety of Onion is sometimes met with under the plain name of the Red Onion. The flesh is tender and mild-flavoured, but the bulb does not keep well." One is led to imagine from this description that it is closely related to the Blood-red Italian Tripoli. Then there is the Bright Red August Onion, chiefly grown in the south-eastern parts of France, where it is sown in August, and comes into use early in the following summer, as do the Tripoli varieties that are cultivated in this country.

There is now a considerable group of Italian or Tripoli Onions. The Spanish Onion of the shops is the Madeira Globe Tripoli or French Globe Tripoli, which is regarded as a better keeper than the Italian Globe or Giant Rocca. We may say of the Italian Onions that they are all Tripolis, and they are much esteemed for their mild flavour, but they do not seed in this country. I doubt if it is within the knowledge of the oldest and most experienced gardener that he has known the Tripoli Onion to produce seed in England; consequently, seed has to be obtained from Italy, France, and elsewhere. Our climate is too cold for them to perfect their growth by producing seed; and yet it is a hardy Onion, the seed being sown in August in order to get fine grown bulbs at Midsummer, thus preceding our early spring-sown Onions.

Autumn-sown Onions form a feature in schedules of prizes, and it is the Tripoli varieties that are found competing, namely, the Giant Rocca and the large White Flat Tripoli. The Tripoli Onions will come to a good size if sown in this country in spring, and perhaps the Giant Rocca is best suited for this purpose, but the bulbs are never so fine as when the seed is sown in autumn.

It is found by experience that the Tripoli Onions raised from seed sown in spring do not keep so long as those produced from seed sown the previous autumn. Undoubtedly the two best are the Giant Rocca and the Giant White Tripoli. The late Mr. John Standish used to grow at Ascot very fine Tripoli Onions from spring sown seeds. The Bassano and the Silver-skin of Naples are largely grown in Italy; but it is found that Geneva supplies the very best types. In private gardens the silver-skin Onion is that generally grown for pickling purposes, because it is said to turn in early in the form of small well-ripened bulbs. The Queen Onion is of the silver-skin type, but decidedly the earliest to turn in that can be had. We have seen it at Chiswick many days ahead of any other of the section. The Early Nocera belongs to this group. The Neapolitan Maggiaiola, or Marjazole, is a small white Italian

variety of rapid growth, but now almost entirely superseded by the White Italian Tripoli.

The Welsh Onion—a native of Siberia or the East—is the *ciboule* of the French, a species that does not form bulbs—though this characteristic is asserted in high class kitchen gardening by a high authority like Mr. W. Earley—is now nearly extinct as far as this country is concerned. It would be interesting to know how it came to be termed the Welsh Onion. It produces leaves all the winter through, and the first cuttings may be made three months after sowing the seed. The leaves, which possess a strong oniony flavour, are used for seasoning. The Two-bladed Onion is now almost superseded, most of the plants producing only two blade-leaves—hence its name. It is a curious species, formerly used for pickling purposes.

The tree Egyptian or bulb-bearing Onion is occasionally found in this country, and is grown more as a curiosity than for any useful purpose. Instead of producing seeds at the top of the stem there is found a cluster of small bulbs, by means of which the plant is propagated. The root-bulbs soon decay, but those produced will keep for some time.

The Potato or underground Onion is only sparingly cultivated in England, and probably because the crop is lost sometimes during the winter. "In the South of England, where this species is somewhat of a favourite, the rule as to growing this plant is to plant on the shortest day and take up on the longest." New bulbs are formed round the parent one, and it is thought best not to earth them up but to let them have all the light and air possible. It is said that the larger the bulbs are, the worse they keep.

The harvesting of the crop of Onions, if the bulbs are to keep for any length of time, is as important a matter as the cultivation of them. When moist growing weather, or a wet summer happens, there is of necessity a lack of the fine sunny drying weather that has so much to do with the proper ripening of the crop. It is best to go over the beds and gently break down the short succulent stems, not bruising them if it can be avoided. This arrests the flow of sap, causes the tops to turn yellow, and hastens the ripening process. Then when the necks have become shrunken the crop should be pulled and allowed to dry in the sun; hurdles covered with mats answer well to spread the bulbs upon. When ready for storing, they may be laid out on the floor of a loft, or in any place where it is cool and dry. The old country plan of roping is a good one to follow where there is limited space for storing. A wisp of straw a yard in length will take a good many bulbs, provided the latter have strong stems that can be tied to the straw. These can be hung up anywhere in any dry outhouse, or even in the open air, if they are protected from frost. It is damp that causes premature growth, and this should be avoided if possible.

The Onion is one of the oldest of known vegetables. If it were regarded by the ancient Egyptians as a plant partaking of a sacred character, it must have been also an article of the national food; for did not the children of Israel, as they wended their way towards the Promised Land, look back with regret and longing upon the "Leeks and the Onions and the Garlic," which in Egypt they did freely eat? And yet Juvénal, in one of his satires, ridiculing the veneration entertained for this and other vegetable products, wrote:—

"How Egypt, mad with superstition grown,
Makes gods of monsters, but too well is known;
'Tis mortal sin an Onion to devour.
Each clove of Garlic hath a sacred power.
Religious nation sure, and blest abodes,
When every garden is o'errun with gods."

The priests of ancient Egypt were forbidden to partake of them, though their Onions were of large size and exquisite flavour; but they were admitted among the offerings placed on the altars of the gods. *Pisum.*

ANNEXING A ROADWAY.—At the Surrey Sessions the other day Mr. A. Waller, a Government clerk, was indicted for having inclosed 6 feet of the highway at Caterham Valley for a length of 111 yards. He was found guilty, and Sir W. Hardman ordered him to enter into his own recognizances to come up for judgment next Sessions, when the amount of fine would depend on whether he had set back his fence.

The Apiary.

GENERAL REMARKS.

THOUGH we have had some cold days, on which bees had to stay at home, yet there have been several warm ones, when they could take some cleansing flights, and they were not backward in availing themselves of this privilege. Yesterday, December 6, mine were having fine sport, and this is very beneficial to them. All work and no play does as much harm to bees as boys. I find on making comparisons with the notices in newspapers, that as a rule the sporting days for the bees in the country are the same as the days of thick fog in London. Snow has not visited this locality yet, but as several places have been visited with heavy falls, bee-keepers must look well to the roofs. Everybody knows the penetrating powers of snow, so in no case allow it to stop on the hives, but brush it off at once, and never allow it to thaw, as it is sure to find a vulnerable point somewhere. It will also be well to keep snow away from the entrances, and also to sweep it away from the hives as far as possible. The dazzling brightness of snow, especially if the sun be shining on it, often causes the bees to come out, only to fall down and perish. Many people put something in front of their hives at this time of the year to prevent the sun shining into the hives, and thus keep the bees at home. This is a very good plan, especially on cold days. The cleansing flights ought to be restricted to fairly warm days.

APPLIANCES.

I said in my last article that now was the proper time to look after appliances. These things want to be done slowly and carefully. It is seldom that matters succeed in spring with the bees, if done in a careless and hurried manner. Some time ago hot controversies were going on about invertible frames. It seems to be now pretty generally conceded that it is a very good thing to invert section cases. The sections have not only been more rapidly completed, but have been better filled, and with less popholes. From various small experiments I have come to the conclusion that much good may result from the inversion of the frames in the body of the hive. In the case of a skep, it could be inverted at once, and without so much disturbance of the bees. Many frames have been devised, which will admit of inversion, but while these are made to hang on the sides I am afraid they will be too complex for general use. The simplest method seems to me, for the frame to stand on narrow strips at the bottom of the hive. The only possible objection to this style of frame is the danger to the queen during manipulation, but a careful bee-keeper would take care of her. I have invented a frame, which is the same at the bottom as the top, and there is nothing to move or shift prior to inversion. *Walter Chitty, Pewsey.*

POTATO CULTURE ON THE FARM.

ONE might ask the question, How is it we see the Potato crop so miserably bad generally, and more especially among farmers? Where not grown as a specialty, now and then a very few of the latter step in and grow a crop, which causes in the district quite a sensation, but such cases are few and far between. Some few years since I gave an account in the columns of the *Gardeners' Chronicle* of an enormous crop grown near here on what was termed a bad piece of land, but what with using a different kind of manure, the latter not extravagantly employed, the land being well worked, and with plenty of space given for the Potatoes to grow in, the crop was acknowledged to be extraordinary, and was estimated to have been over 10 tons to the acre, and which was so stated in your columns. This was contradicted at the time, as to quantity; however, the fact remains, and my communication in your columns did good service in many places.

The following season Mr. Towler wrote to me to say that he had exceeded my estimate by 2 tons, consequently he had grown 12 tons to the acre on land adjoining his nursery at Northallerton; and I believe Mr. R. Dean stated in your columns

about the same time that a crop of 12 tons had been grown by him, or had come under his notice. My object in writing now is to show that to grow 10 tons to the acre is no difficult task to perform, if anything like moderate cultivation be adopted. The cowman here, has produced more than that quantity for the last three years on a very moderately fertile piece of land, the manure used being a small scattering of half-rotten stable-dung, and between 6 and 7 cwt. of specially prepared bones. The cost was not extravagant, but the result was a splendid crop of very fine Potatoes. I mentioned this result to Sir F. Milbank, and to my surprise he said he had just been informed of a person that had turned out 15 tons to the acre. Surely this ought to excite those farmers who hardly grow enough to pay for the taking up, *Magnum Bonnae*, the Potatoes in question, are quoted in the London markets at from 65s. to 85s. per ton, here they ought to be worth 60s. per ton, which would make the produce of one acre worth £30. The cultivator should bear this in mind, and not forget the fact that he has no friend so generous as the soil, provided that he treats it liberally. A few years since, three farmers were walking through the kitchen garden here, when the men were digging a piece of ground for the winter, and one of them asked me what would be the consequence if he farmed in that style? He got a quick reply from the kitchen garden foreman—that his farm would want dividing into four parts, as he would not be able to house the produce.

An answer like this should afford food for reflection to those miserable tillers of the soil who have no spirit to fight against the times. Since I have lived in this place I have witnessed extremely low prices, and very low wages; I have also seen very high prices, injurious to all, except producers. The bad seasons have been against the farmers, as they have also been against most other trades. The market gardener gets no sympathy, whereas he oftentimes pays four times as much rent as does the farmer, and his losses from bad seasons are most disastrous. In our own neighbourhood the Potato crop should be more than doubled, to be at all satisfactory, and this might be done without much difficulty. *William Culverwell, Thorpe Perrow.*

TREES AND SHRUBS.

PATTON'S HEMLOCK SPRUCE (TSUGA PATTONIANA).

THIS is one of the Conifere sent home to this country from North-west America by the unfortunate explorer, Jeffrey, and which is nearly related to canadensis. It is perfectly hardy in Britain, having withstood the severe frost here in the winter of 1879-80 unscathed. The two specimens alluded to are growing each in the centre of two small clumps in the deer park on a rather high and exposed situation, and are about 12½ to 13 feet in height. The nurses or trees surrounding for shelter consists wholly of Larch and common Spruce, which have assisted them to make good growth of a fine glaucous hue. If this continues as they attain age and size, they will prove a valuable acquisition in parks and pleasure grounds. The character of growth is not quite so erect as that of the common kinds of Spruces, and is more in keeping with that of canadensis. As little has been reported of this Spruce since its introduction it may probably interest some of your readers to be made acquainted with its hardness and the probability of becoming a valuable ornamental tree in this country. *J. Webster, Gordon Castle.* In Provost Russell's grounds near Falkirk a tree of this species or of Hookeriana, which is a slight form of it, was some years said to be 14 feet in height and 11 feet through. Ed.]

VERONICA PARVIFLORA.

On p. 758, a *Veronica*, now flowering in Mr. Wilson's garden at Wisley, is mentioned three times, twice by the name of *V. salicifolia*, and once by that of *V. angustifolia*. Mr. Wilson showed me the bush when I was in his garden a short time ago, and it is the species which at Kew goes by the name of *V. parviflora*, being far more floriferous and elegant in habit than what is called, at Kew, *V. salicifolia*. On the cold clay soil of my garden in Cheshire it is by far the best of the New Zealand Veronics, being the only one, except *V. Traversi* and *V. pinguifolia*, which has lived out through four successive winters. It grows 5 feet high and is covered with flowers for

nearly its whole height, and it begins to flower freely when quite a diminutive bush. It has a long flowering period, from early summer until stopped by severe frost.

Self sown seedlings often appear round the old plants, and, like those of many other plants, come up by preference on gravel walks. It does not seem to be grown in gardens as generally as it deserves to be. *C. Welley Dod.*

Orchid Notes and Gleanings.

GOODYERA RODIGASIANA.

A SUPPOSED new species from New Guinea, with ovate acute leaves, dark green, with a central band of white. The flowers are at present not known. This and other plants of like character are cultivated by M. Liaden in a compost of equal parts of peat, sphagnum, and charcoal, in well drained pots, which are frequently watered, but never with cold water. During the growing period the plants are kept in shade. The plant is figured in the *Illustration Horticole*, t. 616.

PHALNOPSIS, &c., at HEATON HOUSE, CHESHIRE.

The Moth Orchids have occupied the attention of fanciers very much during the last few years; and nothing is more remarkable than the way in which these lovely but capricious Orchids succeed in some gardens, whilst in others, where the greatest skill is displayed and the best appliances for their culture are available, they do not give satisfaction. The omission of some minor detail may make all the difference between success and failure. The collection of Moth Orchids at this place belongs to J. Partington, Esq., and is under the care of an ardent cultivator, Mr. Searin, who seems to have discovered the right treatment for them. The house in which they are growing faces the south—not the best position some would say; they are, however, the best cultivated specimens I ever saw. The vigour of the plants and strength of the flower-spikes are most remarkable. None of the plants seem to have lost a leaf for years. For instance, I noticed a plant of *P. grandiflora*, the Java variety: it has but one stem and thirteen leaves on it, the largest of them being 13 inches long, and 3 inches wide, producing one spike, on which are forty-one flowers.

P. Schilleriana had two very strong spikes showing, and six leaves, the largest 13 inches by 3½ inches. A remarkable specimen of *P. amabilis* had fifty-three flowers on a spike, with nine leaves on the plant. *P. violacea*, producing freely their distinct violet-purple and creamy tinted flowers, had leaves of great substance, 5 inches across. One specimen of *P. Schilleriana* had leaves a foot long, and 6 inches across. *P. Saderiana* was in flower in two varieties, one of them with broad overlapping sepals and petals, most lovely in its delicate rosy-pink tint. Most of the plants are in baskets suspended from the roof, others are in baskets placed on the top of empty pots on the stage.

What is the treatment that has produced such remarkable results?—remarkable, not so much for the number and size of the leaves, as for their perfect condition. I certainly did not notice a single spot of decay on any leaf in the whole house, and every species and variety seemed alike healthy. The atmosphere of the house, what of that? This is perhaps most important at this season of the year. It was moderately dry, not close, and even stifling, as it was often the case. The night temperature now, and during winter, ranges from 60° to 65°, in summer, 70° to 75°—that of course would be attained by shutting up to utilise the sun-heat. The shading used for summer is Williams' new hothouse shading, and in hot sunshine mats are thrown over the shading. The plants are not much interfered with when once they are established in their Teak baskets; the largest proportion of the roots were outside the baskets, and in addition to this they had taken firm hold of the pots on which they were placed.

The other extreme of Orchid culture, the cool-house, was also well managed. The popular *Odontoglossum* was *O. crispum* producing many very strong spikes from fat glossy bulbs. I counted sixty-four unopened flower-buds on one branched spike of this species, which was stated to be an extra fine variety. *O.*

Insleyi splendens had eleven flowers on a spike, and as Mr. Williams, in the *Orchid Grower's Manual*, states that six is the maximum, this may also be considered remarkable; the variety was very fine. I ought also to remark that Mr. Searin has been handicapped, by having to grow his plants too much crowded together. Now new and well-appointed houses have been built, which will give the largest specimens sufficient space for more perfect development. *J. D.*

DENDROBIUM FALCONERI GIGANTEUM.

This Dendrobe, like *D. Wardianum* (says Mr. Williams), requires attention at all times of the year. During their season of growth the plants should be attended with care, also during the resting season. This is of great importance, for if they have too much drying up they do not like it; they should always be allowed to rest when their growth is completed, which period may be easily known by the last leaves at the top having completed their growth. The roots require to be kept moist up to that period; then when the growth of the stem is completed the quantity of water must be reduced, but they must never be kept so dry as to cause the stems to shrivel. When they begin to show flower a little water should be given, to plump the stems and encourage the flower-buds to develop in a proper form; and as soon as they start their young growths, let them go on so that they may ripen early, and be enabled to resist any strain that may be put upon them.

Rough peat and live sphagnum, with good drainage and a liberal supply of water during the growing season are requisite; they should therefore be syringed twice a day during summer in bright weather, but less frequently in autumn. The plants should be suspended near the light, as they require but little shade; they will also thrive in baskets and on blocks of wood, but when grown on blocks they require more moisture and more frequent attention as to the water supply. *Orchid Album.*

CYPRIPEDIUMS.

This genus of Orchids is so well known, and so widely appreciated, that it almost seems to be a waste of space to say a word about it; but we notice in our travels that the plants are often grown in very warm structures, and under strong shade. The former is not absolutely necessary, and the latter is positively a great evil. We can compare the short-leaved plants grown all the year round in a cool *Odontoglossum*-house very favourably against those where heat is greater. The flowering proclivities, too, are greatly enhanced in the cool structures. The colouring is much better also. There are probably some species which require more heat to complete their growth, but such kinds as *longifolium*, *Sedeni* (which has been flowering profusely with us during the last six months), *Harrisoni*, *insigne*, *i. Maulei*, *Hookeri*, *veixillarium*, and some others do not. Our *Odontoglossum*-house has air on from the front under the stage almost continuously; during the winter months the temperature averages 45° to 50°, but of course stands higher, while the temperature in the open air is at present over 50° in the shade. We have known some *Cypripediums*, particularly *C. insigne*, stand in rooms of various temperatures over six weeks, flowering freely all the time, and then be taken out apparently uninjured. A good batch for decorative purposes during the present season is invaluable. *Caledonian.*

TRICHOSMA SUAVIS.

How often one hears of the increasing demand for cool Orchids, and yet at the same time there are some which possess all the qualities looked for, but which are seldom seen. Rarely is that little gem, *Trichosma suavis*, witnessed in good form. Here the plant carrying thirteen spikes on a plant in a 7-inch perforated pot seems quite at home in a cool-house. It has been in bloom for four weeks now. It is deliciously scented, is easily grown, and blooms freely during the duldest months of winter. *J. H.*

ANSELLIA CONGOENSIS.

A new species, introduced into Belgium from the Congo. Flowers in erect racemes. Sepals and petals greenish-yellow with numerous purplish-brown spots. Lateral lobes of the lip whitish and marked with purple veins, disc with two short, not very prominent keels, anterior lobe elongated, narrow oboval yellow. The plant was discovered by M. Auguste Linden, chief of the scientific expedition sent to the Congo by

M. Edouard Oulet. The plant is very free flowering, the ground being covered with the profusion of its flowers at the flowering period. *Lindenia*, t. 640.

TSUGA CAROLINIANA.

It is certainly a remarkable fact that such a very distinct tree as the Carolina Hemlock should have escaped the notice of the early botanical travellers in the Southern Alleghany Mountains. Neither W. Bartram, who crossed the mountains where it is found as early as 1777, nor the Michaux, father and son, who ten years later made more than one visit to the same region, nor Fraser, who was with them, nor M. A. Curtis, who explored more fully than any of his predecessors or successors the botany of the Alleghanies, appear to have been aware that the flora of Eastern America contained two species of Hemlock. It was not until 1850 that Professor L. R. Gibbs, of Charleston, recognised an undescribed species in the Carolina Hemlock, for which he suggested several years later the provisional name (never published) of *Pinus laxa*, and it was only in 1881 that the species was properly characterised by Engelmann.*

From *Tsuga canadensis* the Carolina Hemlock may be distinguished by its larger, wider, and darker coloured leaves, six to ten lines long and nearly one line broad, retuse or often notched at the ends, without stomata above, and with two stomata bands below, and with strengthening cells (not found in the leaves of *T. canadensis*) under the epidermis on the keel, midrib, and edges; by its larger cones, ten to sixteen lines long, the scales oblong, longer than wide, spreading when ripe at nearly right angles, the broad bracts slightly cuspidate, the seeds less than half the length of the narrow wing.

The Carolina Hemlock is a small tree of compact pyramidal habit, with flattened spray, the branches densely clothed with dark green shining foliage, sometimes 50 or 60 feet in height, although the trunk rarely exceeds 2 feet in diameter. It is pretty widely distributed along the Blue Ridge west of the valley of the French Broad River in North Carolina, although nowhere common, and only a few individuals are found together in the same locality; it is strictly confined to the slopes and summits of dry rocky ridges, at an elevation of 2000 to 2500 feet above the sea level, where it is often found growing side by side with the more common *T. canadensis*.

The Carolina Hemlock is one of the most ornamental Conifers of Eastern America, recalling in its compact pyramidal habit and dense foliage, alpine specimens of the Western *Tsuga Pattoniana*. Although hardly known in cultivation yet, a few plants have been raised in the Arboretum. The climate of the region where it is found, however, indicates that *Tsuga caroliniana* will prove hardy in the Northern States and in Europe. The illustration on p. 781 is from a drawing made by my associate, Mr. C. F. Faxon, and is taken from a specimen which I collected in September upon Caesar's Head, an outlying spur of the Blue Ridge in South Carolina. C. S. Sargent, *Arnold Arboretum*.

HERBACEOUS PLANTS.

SCIRPOTYLIS COCCINEA.—In spite of the cold and wet and fogs of our ungenial autumn for a South African plant, the subject under notice never fails to put in a respectable appearance in the shortening days of November. The open flowers do indeed get bespattered and spoiled when the weather is boisterous and stormy, but a few calm days induce them to resume their wonted brilliancy. The plant is perfectly hardy in the South of England, and I have seen it flourishing well in the open ground a long way north of the Tweed. The moist atmosphere in summer seems even more suitable to its likings than the dry atmosphere in summer in the neighbourhood of London. In fact, a long-continued drought, as occasionally happens there, has the effect of killing the plant entirely if grown in a heavy clay soil, liable to be baked and hardened by the sun. The same applies to plants grown in light sandy soil, as happened at Tooting a few years ago, when the wasting remains of previously healthy plants had to be potted up from the open ground to preserve them. The foliage withered away, and in their last efforts the plants seemed endeavouring to form small tubers. This is easily accounted for when we know the conditions under which they grow naturally. In the eastern parts of South Africa, in Kaffirland and

the Katberg, where it occurs at an elevation of 3000 feet, the plant is found in wet places and never far from water: it increases rapidly, and is easily propagated by division. Those who have difficulty in growing the plant in the open ground on account of drought would do well to mix some peat with the soil and use water freely in dry weather. The plant is figured in the *Botanical Magazine*, t. 5422.

LYCHNIS PYRENAICA.

The dwarf character of this plant, and the fact of its being a native of rocky places in the Pyrenæes, make this plant peculiarly adapted for rockwork, where, on account of its natural habit and likings, it may be inserted in crevices too narrow and confined for plants of larger and grosser dimensions. Plants of this kind are necessary on rockwork, in order to give it character, because we usually associate a great variety of plants on rockwork that have little in common as far as natural habitat is concerned or atmospheric conditions. The latter may be perfectly suitable for plants found naturally at low elevations, but with alpine the case is altered, and we can only tide over difficulties by providing a great variety of conditions by variety of exposure and position. The alpine under notice was originally introduced in 1819, but has probably been lost and re-introduced several times since then. The figure in the *Botanical Magazine*, 3269, shows flowers of a decided pale or delicate rose colour, and most other descriptions of the plant seem to follow suit in this respect; but there is either a white variety, which is very possible, and even probable, seeing that such is very prevalent in the order, or the dull wet days of November have the effect of causing the flowers produced to develop white petals. The small glaucous leaves and compact habit of the plant are suitable accompaniments of the flowers. Propagation is easily effected by division, and by cuttings in sandy soil under a hand-light. F. R.

WHAT IS ORANGE PEEL?

THIS may seem a simple question, but it really is a difficult one to answer. The view now generally

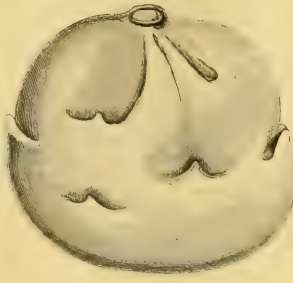


FIG. 152.—A SCALY-RINDED ORANGE.

adopted is that it originates from the disc a sort of sheath visible at the base of the ovary of the flower, and which grows up from below, and eventually covers the carpels or quarters of the orange. Lately M. Naudin has favoured us with a sketch and description of a fruit found near Antibes by M. H. de Vilmorin. Here is M. Naudin's description of it:—

"The anomaly consists in the circumstance that the rind of the fruit is provided with projecting scales, terminating in a point, and arranged in regular spirals. In the axil of one of these scales I saw a rudimentary bud marked with two small tubercles, which appeared to me to be abortive leaves. If this be correct the disc which surrounds the base of the ovary is not a mere outgrowth from the axis, but is the axis itself, in which the carpels are imbedded, as in the Pomegranate, Apple, &c., but with this difference, that while in the plants just named the peduncle is fleshy and exterior to all the parts of the flower, the sheathing or tubular portion of the axis in Oranges is placed between the stamens and the carpels. This tube usually completely covers over the carpels, but is sometimes defective at the top, allowing the carpels to protrude. Sometimes, as in the fingered Citrons, the sheath does not develop, and the carpels then remain free as in a variety called Buddha's Fingers, a specimen of which may be seen in Mr. Hanbury's garden at La Mortola."

EMBELLISHING FORECOURT GARDENS, VASES, WINDOWLEDGES, &c.

WHAT a melancholy-looking, naked, and dreary appearance do the forecourt gardens and commodious window-ledges of hundreds of stately villa residences present to view during both summer and winter in the suburbs of large cities and towns, and especially in London. There are miles of whitened stone steps, pedestals, balustrades, &c., with a hideous glare of heat on them in summer—naked, cold, and cheerless in winter—that might be furnished—aye, and embellished too—by the employment of a few plants suited for the purpose, that can be grown in pots, and give but little trouble. In walking through an outdoor nursery many things present themselves to view as suited for the purpose. Then pots are cheap enough, soil and plants can readily be procured from a nursery. But little skill is required in potting them, and when properly potted in suitable soil they will last for a few years, if carefully looked to in the matter of watering. Evergreens should be employed for the purpose; they are suitable both for summer and winter. Some of the pleasantest and most attractive forecourt gardens round London are planted wholly with hardy evergreens, and they are, in consequence, at all times furnished, in mid-winter as in mid-summer.

Then look at the thousands of bold and prominent bay windows, having a broad exterior ledge, and not a particle of green to relieve the endless monotony of solid, naked white and grey. Window-boxes cost comparatively little, and when formed of proper materials, carefully put together and securely fixed, they will last for a long time; and when planted they give a remarkable aspect of finish and cosiness to a dwelling.

There are now many hardy evergreen shrubs so handsomely variegated as to supply tints not so bright as those of flowers truly, but highly effective and acceptable. There are hardy evergreen plants that would flower in window-boxes if properly tended. Mention may be made of *Berberis aquifolium* and *B. stenophylla*, *Andromeda floribunda*, *Kalmia latifolia*, the *Laurestinus*, and *Rhododendrons*, as illustrating the class of plant suited for the purpose. Of evergreen plants, plain and variegated, there are many equally well adapted to the end in view, such as *Aucuba japonica*, the dwarf green, golden-blotched, and silver-stripped forms of the Box, *Cupressus Lawsoniana* and its varieties *albo-spicata nana*, *pyramidalis*, *erecta viridis*, *gracilis*, and *lutea*; *Euconymus radicans variegata*, *Juniperus virginiana* (the red Cedar), the rotund-leaved Laurel, *Osmanthus filicifolius*, both green and variegated; *Retinosporas filifera*, *plumosa*, *plumosa aurea*, *plumosa argentea*, *plumosa flavescens*, *alamosa variegata alba*, and *squarrosa*; *Rhododendron ponticum* and hybrid varieties, and the pretty *R. præcox* might be added to the flowering plants; *Thuias orientalis aurea*, *T. elegantissima aurea*, *T. semper aurea*, *T. occidentalis Elwangeriana*, and *T. Vervaeckiana*, and *Veronica Traversii*.

Here, then, is a select list of subjects that might be employed with great advantage in imparting life and warmth from January till December to our bare forecourt gardens and window sills. Plants of these can be had at a moderate cost, from 12 to 24 inches in height, small, bright, and compact, that would do well for potting, and would also grow into size and increase in value as year followed year. The *Andromedas*, *Kalmias*, and the *Rhododendrons* would need a peaty soil; the others would do well in a good yellow loam, mixed with which should be a little well decomposed manure and leaf-mould. If the plants were grown in pots they could be stood in the window-boxes all the winter, with plenty of cocco-fibre pressed firmly about the pots, and removed in summer for flowering plants to take their place. Those standing in the forecourt garden would require to be well looked after in the matter of watering, especially in summer; be occasionally examined to see that the drainage in the pots was perfect, and a shift occasionally given to such as required it. The surface soil should be occasionally stirred without injuring the roots, and a little top-dressing added as required. Water should be carefully administered, so that the soil is not washed out to disfigure the stones upon which they were standing, and it would be a positive advantage to stand the plants in earthenware pots during the summer. R. D.

* *Identifications*.—*Tsuga* [*caroliniana*], Engelmann in *Coultier's Botanical Gazette*, vol. vi., p. 223; Sargent, *Forests of North America* ("Final Reports Tenth Census of United States"), vol. ix., p. 207; *Abies caroliniana*, Chapman, in the *Flora of the Southern States* (Supplement), p. 659.

FORESTRY.

TRANSPLANTING OF LARGE PLANTS OR TREES.

This is a work which the forester or gardener has often to perform, and it at all times gives very considerable anxiety because the risks attendant are much greater than in ordinary planting. Having in a pretty extensive experience had a good deal of this to do, permit me to state shortly my views on the subject.

The object of transplanting large trees may be varied, but we will presume that the reason more generally is to produce quick landscape effect, or to give shelter. Frequently, however, some favourite individual tree may either be in a position where it is not seen, or where it is in the way of some proposed

that while in some cases, if done very carefully, and consequently expensively, that it may be successful, yet I am convinced that it is attended with greater risk than the course I would suggest and recommend.

The object in preparing trees for removal is to give growth a check before transplanting, more than to encourage the production of fibre, because I do not think that any small roots produced during the time of what I would call preparation is of much good, because being on the outside of the ball or root they invariably get dried up, or destroyed in the final removal. I therefore say the main object is to give a check, and to do this I cut a trench round, as near the tree as possible, only cutting the large roots and leaving the smaller untouched, fill up the trench again with the soil taken out, or it may be left open all summer, at the same time, if the trees to be removed are of the following kinds—*i.e.*, Oak, Ash, Elm, Lime, or even Maple. Cut in the heads by foreshorten-

from the fact that they are not always applicable to every situation, while they are expensive to keep up. It must, therefore, be left to the skill of the planter to use the means at his command for each individual case. The main point to be observed in transportation is to do as little injury as possible to the smaller roots, and if possible to secure as large a ball as may be consistent with transit.

When the plant has arrived at its new abode and is safely put in the ground care should be taken that the hole or pit be large enough to admit of the roots being spread out to their full extent; the common practice is then to put some rich soil next to the roots. Now I disapprove of this because it is liable to over-stimulate the already enervated functions of the roots, and do harm. I recommend instead that rather poor soil, such as a mixture of leaf-mould and sand, if convenient, should be applied, and that the original soil should be gradually filled



FIG. 153.—A NEW HEMLOCK-SPRUCE, *TSUGA CAROLINIANA*. (SEE P. 780.)

alteration of ornamental grounds; it is therefore desirable that it should be taken to a more suitable position. In the laying out of grounds ornamentally this forms a very considerable part of the work, because most people like to have an effect produced at once. The first consideration is the selection for this purpose of the trees to be removed; care should be taken that they are not in too sheltered a position, as such are liable to be soft and more susceptible of changes in site, soil, and exposure. The shrubs or trees being selected the next point is the preparing them. This should be done at least twelve months before. Now there are great differences of opinion as to the way in which this should be done. It has been recommended by some that a trench should be cut all round the tree proposed to be removed, the large roots cut, and the trench again filled up with good mould such as leaf-mould and sand, so as to encourage the production of fibre; this to be at a distance of 5 or 8 feet from the stem, according to the size of the tree, and the tree removed at the proper time with the whole head entire. Now I cannot agree with this: I think

ing the branches; in the case of Conifers, Beech or Plane trees, this cannot well be done, but in those mentioned it will be of immense advantage, both economically and otherwise. This should be done immediately after the leaves are off in the case of deciduous trees, say the month of October or November; in the case of Conifers and others in the spring, say February or March, not later than the first week.

REMOVAL.

This is perhaps the most anxious part of the work, and it must be done with great care. The proper season for the earlier prepared plants, and all deciduous trees, if they are to be planted in a sheltered position, is the following autumn, all evergreens in the late spring. The work of removal must depend very much on the size of plants or trees to be removed, and the distance from the point where they are to be transplanted. Many machines have been invented for this purpose, notably, McGlashen's and Barron's; and while each has its several advantages, none have come into general use,

in, during which time a plentiful supply of water should be used, to consolidate the soil—this going on simultaneously with the filling in of the earth. No tramping of the earth with the feet should be allowed, as that is always liable to bark the roots, besides leaving holes or vacancies in the ground. Water does this more effectually, besides tending to revive the partially parched and withered roots. The tree should then be steadied by six or eight cords from the main stem to the ground, care being taken that they do not chafe the bark.

This can easily be avoided by inserting a bunch of dry meadow hay or moss between the cords and the stem; I would also advise that the stem of the tree for, say, 2 or 3 feet from the ground, be bound round with soft ropes, made of meadow hay or other soft substance, and these allowed to remain until they fall off by decay; by this means a genial and cool moisture is always maintained round the stem, which is eminently beneficial to the health of the plant. In the case of evergreens during dry weather in spring and early summer, frequent syringing of the

head is most advantageous, as it arrests the partially weakened root-action necessary for the maintenance of the leaves, besides keeping the pores of the leaves in a healthy condition. C. S. F.

HARDWOOD TREES TO PLANT.

(Continued from p. 778.)

Birch and Alder.—For dampish ground either of the above trees are of particular value. They grow fast, arrive at maturity early, and are always sought after for the timber they produce, it having been no rival in that ever-increasing industry—clothing-making. We have no difficulty whatever in selling either of the above timbers at 10s. per foot, local demand rendering it quite unnecessary for the export of even a single load. For high-lying ground the Birch is invaluable, and when forming young plantations at great elevations a sprinkling of the tree in question is always to be recommended not only for the shelter it affords, but warm and ornamental appearance it imparts to the landscape.

Ash timber, although one of the most useful produced in this country, does not sell so readily as some other kinds, but as it cannot be done without the planting of young trees to take the place of such as have been cut down must be encouraged. A dearth of Ash timber would be serious, for its uses in the manufacture of farming and other implements are many and varied. Other trees that should, according to circumstances, soil, altitude, and exposure, enter largely into the composition of our woods and plantations are the English and Cornish Elms, the Norway Maple, Cherry, Poplar, and Willow, all of which, in some way or other, have good qualities that claim our attention.

The Willow for seaside planting has few equals, while its timber for pavements or bottoming of carts for stone traffic cannot be superseded, it never splitting, but tearing or wearing gradually away.

The Cornish Elm (*Ulmus cornubiensis*) is another excellent tree, whether for ornamental appearance or the value of the timber it produces. That it is so seldom seen is certainly to be regretted, but after a little, when its many good qualities become better known, we anticipate that as a lawn and general timber tree it will be held in high esteem. The timber is hard and beautifully grained, and has given the utmost satisfaction for repairs of boats, and as working kindly under the carpenter's tools.

As a general woodland tree, its fastidious habit of growth renders it peculiarly well adapted; while for embellishing the lawn and park grounds when appropriately placed it is a decided acquisition to the general run of our ornamental hard woods.

The Spanish Chestnut (*Castanea vesca*) is another tree whose valuable qualities will not allow us to pass it unnoticed. It is an excellent timber tree, of free, rapid growth, fairly accommodating as regards quality of soil in which it is planted, although preferring and attaining its greatest luxuriance in free open loam of good quality, and second-rate at least as regards value in an ornamental sense. For various purposes the timber is highly valued, that of good quality and mature age being in demand for cabinet work and as a substitute for Oak in the making of coffins.

We have but little difficulty in obtaining from 1s. 6d. to 1s. 8d. per foot for clear, large trees, more particularly when of sufficient size for the latter-named purpose. This tree should be planted in moderate quantity wherever free open spaces for its perfect development can be found.

NURSERY WORK.

As the various borders in the nursery become vacant have them trenched or deeply dug over, the soil at the same time being thrown up in as loose a manner as possible, so that it may receive the full benefit of the winter frosts. Such brakes or patches of the ground as are required for immediate re-planting should be levelled over, and if necessity demand such, as in most cases it will, a good top-dressing of thoroughly decayed farmyard manure or accumulations of leaf-mould and other nursery refuse applied. During fine open weather the transplanting of young stock, or such as it is not intended for permanent positions during the present season, should be actively engaged in, such work being got well in hand before the usual spring duties of the forester make fresh calls on his men and time. Where practicable the transplanting of young stock from the seed-beds may be deferred until early spring, and after the chances of

the usual recurrence of frosty weather are at an end. Too often does it happen that seedling plants lined out in early winter are lifted bodily from the soil by the influence of the frost, their roots being consequently much damaged, and the whole constitution of the plant impaired in a corresponding degree. In the event of seedling nursery stock becoming loosened through severe and long-continued frosts, we have found a dressing of finely-sifted soil to be of great value in setting matters right. Pine cones are unusually long in becoming ripe this season, this being no doubt attributable to the rather unfavourable sunless summer and autumn through which we have passed. When collected placed them in a dry, warm, and airy position, and allow the seeds to remain in them until wanted for planting in spring.

HEDGING.

Ordinary hedge trimming, ribbing in, and cutting over will still require attention, and may be engaged in from time to time where constant hedgers are not employed; but on every estate where the live fences are at all numerous a couple of practical hedgers should by all means be employed, as the efficient work performed by such is of great value in preserving the fences in a neat and creditable condition. Gaps in old fences will require looking to and planting up with strong, bushy, and rooted plants of the Quick, Hornbeam, or Beech. The formation of new hedges may still go on briskly—indeed, the sooner after the middle of November these are finished up the better, for as the Thorn is one of our first plants to start into growth, early planting can alone insure that vigour of growth and quick start away that is so desirable in every newly formed fence.

Where hedge plants are to be substituted for others that have died or otherwise got killed out, it is well first of all to remove the old soil as carefully as possible from the positions in which they are to be planted and substitute other of better quality from the woodland or adjoining fields. A. D. Webster.

Notices of Books.

The Future of the Date Palm in India. By E. Bonavia, M.D. (Calcutta: Thacker, Spink & Co.)

The author of this little book has been making strenuous efforts to further the progress of the cultivation of the Date Palm in India. No doubt in that vast country there are some districts—as in the Punjab and Sindh—where Date culture would be successful. The value of the fruit in periods of famine would be incalculable, for the Date tree, if the flowers were properly fertilised, would ripen its fruits abundantly in dry rainless seasons, when other crops would be likely to fail. Impressed with these facts, Dr. Bonavia has long exerted himself to secure the introduction into North-western India of the finest varieties of Arabian and Persian Dates, and has achieved a considerable amount of success, though it is obvious that to be of real service the matter must be taken up on a much more extensive scale than could be attempted by any individual. Moreover, there is a good deal of apathy and disinclination to new projects on the part of both natives and European officials to be contended with, and not a little ignorance. The fact that Date Palms have the sexes separately is not sufficiently known, and complaints are consequently made about infertility or imperfect ripening, the real cause—the absence of pollen-bearing flowers—not being thought of. It appears that in the Persian Gulf artificial fertilisation is always resorted to if first-class Dates are required, just as was done in olden times, and the same process should be resorted to in India. Dr. Bonavia recommends that the trees should be propagated by offsets from the best varieties of female plants, taking care to have a few male trees in each plantation. The offsets are planted 12–15 feet apart, and daily watered till they have struck root; or if planted in a nursery as a temporary measure they should be put in prepared soil 3 to 4 feet apart, and watered regularly. In the next rainy season the young plants can be carefully taken up, and placed in their permanent quarters. For this purpose, holes 2 feet each way should be dug, and the roots placed in a compost of soil, well-rotted leaves, and wood ashes. Watering should be carefully and regularly attended to. Surface dressings and mulchings are desirable, as retaining moisture and supplying nourishment. At first, Wheat, Barley, and other low-growing crops can be grown between the trees, but subsequently it is better to leave the Dates in full possession of the ground, for, as Dr. Bonavia truly

says, fine fruit can only be obtained by good cultivation.

Date stones should be sown in September or October in prepared beds of rich soil, the stones being 6 to 12 inches apart. Irrigation should be employed whenever necessary. After about a year the seedlings may be transplanted 12–15 feet apart, and daily watched and watered. A safer plan is to replant them about 3 feet apart in a second nursery in a shady site for another year before placing them in permanent quarters. There appears to be no special secret in the cultivation of the Date, but Dr. Bonavia emphasises the necessity for constant watchfulness and unremitting care, rather than special skill. There is a great deal of valuable information in this little book, and Dr. Bonavia's facts and arguments ought to carry conviction. India is not the only dependency where Date culture might be advantageously introduced. Some parts of subtropical and tropical Africa and Australia would probably be redeemed from barrenness by the introduction of these trees.

The Rosery.

ROSES AND ROSE STOCKS.

As I suppose most Rose lovers have before now purchased and planted their Roses (at least, they ought to have done so), any observations I may make now have reference to the future rather than to the present. There are a great many amateurs who like to bud their own plants, and it is to this point that I especially direct my observations. Any who have carefully read Mr. Douglas's remarks on what is necessary to be done in the Rose garden at this season will have made all secure for the winter, so far as possible. It has hitherto been a grand autumn time; we have had plenty of moisture, and now we are experiencing fine dry weather, with only slight hoar frosts, so that there can be no excuse for not being well forward with work. It may be that some may be hampered because the packages from the nurserymen have not arrived; it is very tiresome, but they must be at their wits' end—the wet weather prevented them lifting, and now that the dry weather has come there is, of course, a grand rush. Let not, however, the fineness of the weather induce amateurs to put off the mulching that ought to be on the beds now. We can never tell when sharp frost may come, and therefore it is well to be prepared. When it can be had I think there is little doubt that pig manure is the best, for, delicately beautiful as the Rose is, she is, unhappily, a gross feeder; moreover, I do not think it encourages the growth of fungus so much as stable-yard manure, which is so often used.

It is, however, as I have said, with regard to the future I wish to write. Amateurs are fond of budding their own Roses, and the question is, what stocks are they to get in now for future work? A good many years ago I ventured to predict the disfranchisement of the standards, and although some ridiculed the idea, the prediction has been pretty well fulfilled. Wherever now do we go into a rosarian's garden and see any quantity of standards or Briers prepared for budding?—or, go into the Rose nurseries, where do we see the large quarters of standards that we used to see? And Canon Hole, even were he now, as in former days, a large Rose grower, might with equanimity notice the absence of his Rose man from church. By-the-bye, I met two of these Rose men yesterday—this neighbourhood is full of woods, copses, and hedgerows, yet the whole result of their day's work was "fifty Briers"—"terrible 'ard work surely it be too, maister." I do not think we need regret the loss of the standard Rose; its appearance was the acme of ugliness, unless its stem could be concealed—a tall stick with a head like a mop of Roses was not the way to show the queen of flowers to advantage; and then it had also this disadvantage—that in severe weather it readily succumbed to the frost. A few years ago I went to France, and visited the Rose gardens of my old friend Margottin where I saw one of the very best quarters of standards I had ever seen. I was also at Brie Comte Robert, where immense quantities of Roses were grown; the following winter was a severe one, and every one of these was killed. With dwarf Roses, on the other hand, you can protect them by mulching, and covering when needed, and

when cut down to the snow-line they will shoot up again, whereas the standard succumbs *in toto*.

Having thus discarded the standard in favour of dwarfs, there comes the question, What are to be the dwarfs? Shall the stock be Manetti, de la Griffieraie, Seedling Brier, or Brier cutting? A few years ago no such question would have arisen. Manetti then reigned supreme, and I think there is no doubt that Mr. Rivers' introduction of that stock was one of the greatest boons to Rose growing that we have had; it enabled the Rose to be propagated as it had never been before, and it was not by any means a singular case for a nurseryman to have a quarter of a million of Manettis ready for budding, but it was found it was not the stock for many of the Teas. Then came the introduction by Mr. George Prince, of Oxford, of the seedling Brier; it was ridiculed at first, but it outlived the ridicule, and it became recognised as the stock for Teas, and the contention came to the front that it was, after all, the best stock for all Roses, and that opinion has been gradually gaining ground. Then the Brier cutting was especially encouraged by Mr. Ben Cant, of Colchester. There is a difference in the mode of rooting between the seedling Brier and the Brier cutting; the former sends its roots straight down, the Brier cutting spreads them horizontally; both alike form large quantities of fibrous roots, but the Brier cutting is easier for working. Some rosarians, amongst others your contributor "T. W. G.," have pronounced uncompromisingly against the Manetti and in favour of the Brier. "T. W. G.," says, that if he had an offer of 1000 Roses on the Manetti he should refuse them. This is what is called "coming it pretty strong," but it indicates the depth of the writer's convictions, and certainly is an indication of the way matters are tending. Whether growers agree with this or not, now is the time for laying in their supply of stocks for next year, and they will do well to include in that supply either seedling Briers (which are constantly advertised in the gardening papers), or Brier cuttings. I have not seen stocks of these advertised, but probably they are to be obtained. It is too late now to strike them for another season, and those who wish to try them must either procure them at a nursery or be contented to wait.

I cannot make out "D. T. F." I ventured to say that I thought that he would find that the best exhibition Roses would prove to be the best Roses also for garden decoration. He asks, if so, why does the National Rose Society publish a list of garden Roses, and offer prizes for them? Surely he must understand that the list of garden Roses (which is a name applied simply in distinction to exhibition Roses, and not because those in that portion of the catalogue are better for garden decoration) introduces us to different types of Roses, which may be useful enough for decorative purposes, but are not what are ordinarily termed show Roses. Let me say, too, that "D. T. F." makes it very hard to follow him. He stated that the National Rose Society did not have autumn shows because they did not pay, and when I showed that the Society received no benefit from their exhibitions, he says he did not introduce the paying subject. As to his last paragraph I have read and re-read it, but I confess it beats me. I at last concluded that he meant to take A. K. Williams as the type of an exhibition Rose and Gloire de Dijon of a garden Rose; if so, the comparison is unfair. In the first place Gloire de Dijon is often exhibited in many stands, and although not in the National Rose Society's list of exhibition Roses, is so marked in many catalogues; and in the second place, it is not fair to compare a climbing Rose, whose proper place is a wall, with a bush Rose. A. K. Williams ought to be compared with the Gallicas, Hybrid Bourbons, and Roses of that class. I believe, notwithstanding this, however, that A. K. Williams is a good garden Rose, as it is one of the most certain autumn bloomers we have. Just one word more, "D. T. F." has, unhappily for himself, alluded to the Caledonian Horticultural Society's exhibition to back up his contention about the advisability of holding autumn shows—well, I was there, and I do not hesitate to say that in the amateurs' classes there was not one Rose which would have been admitted into a fourth-rate stand in July. There were two good standards for nurserymen—one from Aberdeen, far away North, and one from the North of Ireland, and therefore I do not think "D. T. F." has gained much by his reference to this exhibition. That nurserymen might get a fair stand in autumn we know, that amateurs have plenty

of flowers which are delightful and pleasing is also correct; but that is a very different thing, and I think most rosarians will agree with me that we had better enjoy the modest beauty of our autumn Roses at home. *Wild Rose*.

CULTIVATION.

Plants which were placed in warmth early, so as to give a supply of bloom the last week in October and during the past month, will have got over their best bloom by this time, and will be breaking again, and showing quantities of buds. The plants will be benefited by having a coating of fibrous loam and bone-meal spread thinly, in which the roots will run freely, and strong growths will be thrown up, some of which will give as many as thirty buds and blooms. Keep the plants freely syringed on all fine days, and the troughs charged with liquid manure, otherwise the foliage will soon get infested with red-spider. Give manure-water freely to all growing plants; regulate all shoots as they get matured, so as to get the plants nicely furnished with them; introduce into this house, if space will permit, hybrid perpetuals which were forced last season and well cared for afterwards; these will produce flowers that will be acceptable in decorations, or for personal adornment. Sunset, a deep apricot colour, is becoming a great favourite here; it is beautiful in bud, and a fine forcing variety, producing an abundance of good and well-shaped flowers. W. F. Bennett (crimson Tea) is one of the greatest additions we have ever had in this class, being large and double, free-flowering, and very fragrant. *A. Evans, Lythe Hill, Haslemere.*

The Flower Garden.

CUTTINGS OF SHRUBS, &c.

CUTTINGS of Sweet Bay, Laurel, Ribes, Guelde Rose, and hosts of other subjects, may be put in to strike with a little heel of the old wood attached to the cuttings. It is a safer plan to open a perpendicular notch with a spade and place the cuttings against the face, than to dibble them in. You are more certain of the soil being firm around the base of the cuttings, which is a matter of great importance to their rooting speedily. Aucubas will root more satisfactorily if a glass case can be spared for their accommodation.

ROSE STOCKS.

As soon as possible a good stock of nice straight-stemmed plants should be secured of the Dog Rose for purposes of budding next season. These should be planted in well-prepared beds after having their roots trimmed of gnarled and useless wood. They should also be examined round the base under the ground level, and any eyes likely to develop suckers should be removed with the point of a knife. Where Manettis have been layered for the purposes of furnishing stocks for grafting, they may be removed from the stools, and either potted or planted in nursery lines. Continue to plant Roses as soon as received. Should any of the plants be found very dry in the roots, it is a good plan to steep the roots in water, or to make a puddle, and work the roots of such Roses in this till a considerable portion adheres to them, and then plant them. If the plants are in good condition, they may be planted forthwith.

STATIONS FOR TREES AND SHRUBS.

If notes were made earlier in the season where it was deemed necessary to introduce types of foliage to increase or produce effect, they should now be referred to. In sheltered positions the Ailanthus has a fine effect. Its characteristic foliage renders it one of the most desirable trees to plant in ornamental grounds, especially near water. Many of the new types of Oaks are also striking objects. Some of these produce enormous leaves, such as Dalmio; while such as fastigiata, from its erect growing habit, is quite as effective as the Lombardy Poplar, and perfectly hardy, which the other is not. The various types of Maple must not be passed over. They are some of our most effective autumn trees, and the Japanese varieties are the most gorgeous of any trees yet introduced; most of them are perfectly hardy, and the foliage is invaluable for dinner-table work. The various colours of double and single Thorns

produce a splendid effect in combination with Ghent Azaleas and Rhododendrons, as well as single plants by the sides of walks. A goodly use should also be made of the Mountain Ash; it is very striking in autumn, and also looks well among Rhododendrons. Garra elliptica is also a capital subject in a recess with a southern aspect. It is a shrub with dark green leaves, but it is its flowers which stamp it as an effective plant; they are produced in abundance, and depend from the shoots like Cob-nut catkins, only they are from 5 to 6 inches in length. It is a pity it is not quite hardy. Some very fine specimens here were destroyed in 1868-69, but they sprang again from the bottom. Tilia asplenifolia is a beautiful object to plant in shrubberies; when in flower it is so delicate as to rival the grace of ostrich plumes. *Wm. Bailie, Luton Ho.*

The Kitchen Garden.

EARLY FORCED POTATOS.

WHERE these are required during March, April, and onwards, the first planting should be made without delay; very good tubers may be grown in 10 or 11 inch pots, or in portable boxes. An advantage is gained by first starting the sets as advised in a former Calendar, by placing them in shallow boxes, covered with leaf soil, in gentle heat; care must, however, be taken that they do not remain in this position too long, but the tubers should be taken carefully out and planted as soon as the young shoots are prominent, and the formation of roots has commenced. After planting, and until the young growths are well above ground, a comparatively close temperature may be indulged in, but after this stage a more buoyant, airy one will be necessary, and which should be so regulated that the growth and foliage be robust and sturdy. When grown in pots these should be well drained, and filled rather more than half full of soil, made moderately firm; four sets will be enough for pots of the dimensions given, and which can be covered for the present with an inch or so of soil, the remainder being added later on, and when the haulm is well above the rims of the pots.

For Frames.—Whether heated by hot-water pipes or entirely by fermenting material, a slight bottom-heat is necessary in either case; when the latter method is adopted, a well constructed dung frame will of necessity be required, but where artificial heat is at command, a much less quantity will suffice, and may vary in depth from 2 feet upwards according to the construction or situation of the pit or frame to be filled—in either case, however, the contents should be so arranged that when finished and made ready for planting by having 9 inches of soil added, the surface should be within 15 or 18 inches of the glass; the sets should be planted in shallow drills from 1 foot to 15 inches asunder, and 9 inches apart, and afterwards, and before the haulm has got too high, a little more fresh soil should be added. All dung frames will require well covering to exclude frost, and this protection should be given from the time the sets are planted; the temperature also must be maintained by the renewal of and addition to the linings as the heat in them declines.

Soil.—If at hand, that in which Cucumbers or French Beans have been grown, with perhaps the addition of a little leaf soil and a sprinkling of soot, will be a very suitable one; but if soil has to be prepared, almost any light turfy loam, that has been stacked for at least six months will serve the purpose; this should be chopped up finely with the spade, and one-third of leaf-soil and thoroughly rotten dung, as from an old Mushroom bed added, and the whole be well mixed. If any specially fine clean tubers be desired a little more space in planting must be allowed, and the upper portion of the soil they are grown in sifted through a half-inch sieve, and a liberal addition of coarse sand added if it is deficient of that ingredient.

Water should always be very sparingly applied to forced Potatos, especially in the earlier stages. As a rule none should be given until the growths are from 6 to 8 inches high, nor after that until the young tubers have formed and are swelling.

Varieties.—The most suitable for framework are selections of the Ashleaf section, these being alike good in quality and quantity, and make but small haulm.

EARLY HORN CARROTS.

The frame for these, if prepared as advised in a previous Calendar, may be ready for the reception of the soil, which should be of a fine sandy nature, and from 6 to 8 inches in depth. After being made firm and even, the seed should be sown in shallow drills 6 inches apart, and the frame afterwards kept close until the seeds germinate. *John Austen, Willey Court.*

Appointments for the Ensuing Week.

SALES.

MONDAY, DEC. 20.	Sale of Roses, Fruit Trees, Plants, and Bulbs, at Stevens' Rooms.
TUESDAY, DEC. 21.	Sale of Orchids in Flower, at Protheroe & Morris' Rooms. Sale of Roses, Azaleas, &c., at the City Auction Rooms, by Protheroe & Morris.
WEDNESDAY, DEC. 22.	Sale of Roses, Fruit Trees, Plants, Bulbs, 10,000 Lillium auratum from Japan, 5000 South African Tuberoses, Home-grown Lilies, &c., at Stevens' Rooms. Sale of Plants and Lillium auratum, at Protheroe & Morris' Rooms.
THURSDAY, DEC. 23.	Sale of Orchids from Mr. F. Sander, twelve cases of Aracarias, &c., at Stevens' Rooms.

Christmas Decorations.

FIRST and foremost among plants suitable for Christmas decorations stands the Holly in all its more robust and beautiful varieties, green and gay. Among the latter we have many richly variegated golden and silver varieties. Unlike golden and silver Yews, and not a few other bright-leaved shrubs and trees, the Holly retains its maximum of beauty up to Christmas-tide. The berries, whether of the golden or coral-coloured varieties, provide such a display as no other group of plants can furnish. The mention of golden berries suggests the inquiry, why the golden-berried Holly is not more generally cultivated? It has always been scarce, and yet we have no golden berried plant in any way equal to it, or that forms such a rich contrast with the glowing coral—the normal type of Holly berries. With abundance of Holly toned down a little with the silver berries of the Mistletoe, hardly any other plant is needed to complete our Christmas decoration.

Unfortunately, however, this year the Holly, in some districts, was cleared of its berries nearly three weeks before Christmas. The birds have stolen a march on the decorators, and shorn the Holly of two-thirds of its glories as a decorative plant. The mere admirer of rich foliage plants will object to the proportions here stated, and it may be at once admitted that these are not material, and will be largely determined by matters of taste and sentiment. A practical question of considerable importance, however, pauses for solution, and that is the search for substitutes for Holly berries in districts where these either have not been produced this season, or where they have been prematurely devoured by birds.

And as it has been said of one or more great men, that none but themselves could be their equal, so it must be said of Holly berries; and as their non-production or destruction is seldom universal or general, a limited supply of them may mostly be forthcoming. The carriage of Holly boughs laden with berries is costly; a box of berries in singles or bunchlets, daintily picked, and packed to avoid bruising, would, however, cost but little for carriage, and go a long way in lighting up the boughs, if used with studied moderation and such tact as to give the impression of a natural example of a thin-berried season. Even in seasons such as this, when most or all of the most suitable branchlets for house or church decoration are stripped bare, a sufficiency of berries may not be found in out-of-the-way places for the enlivenment of the green or variegated boughs. The berries are often found thinly dispersed, or on boughs with imperfect leaves, and it is quite a legitimate exercise of the decorative skill to transfer them from where they are useless or unseen to coigns of vantage where each berry or group of berries will add to the glowing beauty of the decoration.

In the absence of berries small Sweet or summer Peas rolled in red lead or vermillion, or

any other and more perfect mixture of red and golden Holly berries, form useful subjects for distant effects. Ivy berries are too large to be mistaken for Hollies, and if used in their natural state tend to throw the whole decoration into mourning.

The Pyracantha is magnificent when and where a sufficiency can be had, though in neither of its colours will it pass muster for Holly. Some of the larger berried Thorns, too, are admirable, but they are mostly over too soon to be available for Christmas decoration. The Berberis aquifolium and some others, where they seed or berry freely, are useful, alike in leaf or berry; and where the Butcher's Broom or the Alexandrian Laurel abound, and berry freely, few plants give a richer or more chaste or brilliant touch to Christmas decorations. Then a few berried branchlets of these well posted in a leafy grove of Yews—the latter richly clothed with their brilliant acorn-shaped berries—are extremely effective in combination with variegated Hollies without berries. Laurustinus berries, too, when obtainable, are exquisite for chaste decoration, and with these such Ivy-leaved and berried plants as some of the Cotonasters may be used. Hips, especially of the Sweet Brier, which are abundant this year, and Snowberries, are also most effective in large combinations, as are the feathery seed-vessels of the Traveller's Joy, Clematis flammula, and others. As to shrubs, it is hardly needful to go beyond Hollies and Yews, though for the fabrication of letters Box is useful and very tractable as a base, as are also the variegated and plain leaved Euonymus, the Japanese Honeysuckles, and other smallish foliage plants. The Sweet Bay, too, and all the Laurels, are often used for decoration on a large scale; but for brilliancy and staying properties there are no plants to match Holly, Yew, and Mistletoe, well clothed with berries. With these in good form, all things are possible; without them the most skilful decoration must be poor indeed.

ACTION OF POLLEN-TUBE ON THE OVARY.

It is well known to growers that the ovary of many Orchids, and also of the Banana, will swell and ripen even when no seed is formed. The explanation is that the pollen-tube in its passage down the style feeds on the contents of the cells with which it is in contact, and thus leads the life of a parasite. In so doing it brings about an afflux of nourishment to the part, and consequent swelling. Frequently the ovary has attained its full size before the ovules in its interior are fertilised.

THE BOTANICAL AND HORTICULTURAL SOCIETY OF DURHAM, NORTHUMBERLAND, AND NEWCASTLE-ON-TYNE.—The spring show will be held in the Town Hall, Newcastle-on-Tyne, on April 20 and 21 next. No summer show is intended to be held, but a large autumn show in the grounds of the Royal Jubilee Exhibition (to be held in Newcastle next year), the dates of this show being August 30 and 31 and September 1. This show is in conjunction with and will form part of the attractions of the Exhibition.

BAILLON'S "DICTIONNAIRE DE BOTANIQUE."—This most useful publication continues its slow growth. It is indispensable in all botanical libraries. Detailed as it is, there are some notable omissions; thus, under "Hartweg," not a word is said of his travels in Mexico; nor are HARVEY's long residence at the Cape, nor his travels in Australia mentioned. "Bindweed" is given as the English name for *Convolvulus arvensis* instead of Bindweed, but these matters are but trifles compared to the general excellence of the book.

"THE BOTANICAL MAGAZINE."—The hundredth anniversary of the *Botanical Magazine* has just been reached. No publication of its kind has attained anything like the same age, and none has been so useful. A glance through the back volumes supplies an epitome of the high-class horticulture of

the period. We hope shortly to be able to lay before our readers some comments on this subject. The present volume is dedicated by the Editor, Sir JOSEPH HOOKER, to Sir TREVOR LAWRENCE, the President of the Royal Horticultural Society, in the following terms:—"Allow me on this, the hundredth anniversary of the *Botanical Magazine*, to dedicate to you, as President of the Royal Horticultural Society, the volume that is the evidence of this work having attained a longevity far exceeding that of any other botanical or horticultural serial. Whilst thus commemorating your service to horticulture I would associate with your name that of the lady from whom you directly inherit your love of plants and your passion for gardening—the late Mrs. LAWRENCE, of Ealing Park, whose liberality and whose rich and beautiful conservatories were set forth by my predecessor in the dedication to her of the sixty-eighth volume (published in 1842) of this work, and whose kindness to myself when a very young botanist I shall ever hold in grateful remembrance."

CULTURE OF PEPPERMINT.—The following remarks are extracted from a paper on oil of Peppermint, read at a meeting of the American Pharmaceutical Association:—"The industry in England reached its zenith about 1850, just 100 years after its introduction, when the area cultivated was about 1500 acres, but, owing to successful American competition, it was reduced during the next fifteen years to about 250 acres. From personal observation when visiting the Peppermint districts of England in 1875, I attribute the success of American competition to a more perfect system of distillation and apparatus therefor, and the more healthful growth of the plants in our country."

CACTUS SPIRIT.—In Spain DON FERNANDO DE LA CAMARA recommends the employment of the fruit of the Prickly Pear—*Opuntia vulgaris*—for the manufacture of alcohol. As this plant is very common in many of our tropical and subtropical dependencies it may be worth the consideration of some of our Colonial friends.

ROYAL NORTHERN HORTICULTURAL SOCIETY OF ABERDEEN.—At a meeting of the acting directors of this Society, held in the Secretary's office, Union Street, Aberdeen, on Friday evening, 10th inst., Town-Councillor LYON was unanimously re-elected Chairman, and Major CROMBIE, Vice-Chairman.

LEAVES OF PINES.—Messrs. COULTER and ROSE have published in the November number of the *Botanical Gazette* a synopsis of the North American species of Pinus based upon the microscopical anatomy of the leaves. It is not likely that gardeners or foresters of this generation will avail themselves of this means of discriminating the species, which, nevertheless, for botanical purposes, is very useful.

TROWBRIDGE HORTICULTURAL SOCIETY.—This Society is in so prosperous a financial condition as to excite the envy of many a committee whose ventures have turned out less successfully. The Hon. Sec., Mr. J. HUNTLEY, reports that the annual show in August last realised a profit of over £30, and the balance in favour of the Society is now just over £245—truly a very satisfactory state of things. A desire has been expressed that the Society should hold a Chrysanthemum show next November, but whether it will be carried out remains to be seen.

FASCIATED ROOTS.—Mr. BURBRIDGE has been kind enough to send us a specimen of a Japanese Piper in which the aerial roots are flattened out into broad masses like the antlers of an elk in miniature, but covered with a rich investment of brown velvety hairs like that covering the inflorescence of the Sumach. Under normal circumstances the tip of a root has but one growing point. In these cases from over-nutrition several are formed, but they remain for the most part encircled by a continuous band of cellular tissue, so that they do not separate, or only to a slight extent, into separate rootlets, but remain in the form of a flattened band.

THE PHYLLOXERA LAWS.—There would appear to be some hope that the absurd restrictions on the commerce in plants are about to be made somewhat easier in the German Empire for nurserymen and others living in England and other countries that have not joined the Phylloxera Convention.



THE PHOTOGRAPH BY J. J. MANTON, LONDON, ST. JAMES'S PLACE, E.C.

MESS^{RS} R & T. VEITCH'S GROUP OF PLANTS AT THE EXETER FLOWER SHOW.

The Imperial Chancellor has recently asked the opinion of the government of Saxony in regard to these laws, which has replied that it appeared to be desirable to admit plants and vegetables, with the sole exception of Grape Vines, under the condition that these are examined and pronounced to be free from Phylloxera by experts at the frontier station.

— **FLORAL FASHIONS.**—Within the last few years a great change has been wrought in the style of making up flowers for personal adornment. A few years back the idea of using Ivy leaves that had become discoloured by exposure would have been considered absurd; yet at the present time their use has become general; and the once indispensable Maidenhair Fern is falling more and more into disuse, for besides Ivy leaves, many other kinds of foliage are used. The Ivy leaves that are used are mostly imported from France; they are rather small in size, and of a beautiful bronzy hue, and when nicely worked up they are very effective; besides which they last well, where Maidenhair Fern would quickly perish. In all kinds of floral arrangements various sorts of coloured foliage are very extensively used, and when brought in combination with flowers of distinct colours it is certainly more appropriate than the indiscriminate use of Maidenhair Fern.

— **FLORAL DEVICES.**—Our American cousins, so often in advance of us, are at least a half-century behind in the matter of floral devices. The absurd monstrosities now scarcely ever seen in this country, even at a village flower show, seem to be in full favour across the Atlantic. The following incident, related in an American paper, may help to banish an absurd custom:—"As the curtain went down after the second act of *Miss Mutton* last night an usher rushed down the middle aisle of the theatre bearing a most unique floral device. It looked much like a big baby swaddled in white laces, with its little red head protruding. Some of the audience took it for a snow man with a piece of red flannel around its throat. As Miss Morris received the offering and wrestled it behind the curtain she looked much bewildered. It was, in fact, a floral representation of 'Liberty enlightening the world.' The florist had used poetic licence with Liberty, however, and as a result she was lop-sided, one-armed, legless, and grinning."

— **LONGCHORPUS BARTERI.**—The members of this rather extensive genus show a considerable range of variation, some being trees with upright habit, while others are climbers or twiners. The species under notice is so habited, and ascends trees in its native haunts in tropical Africa to a great height. This latter fact is its most serious drawback, and will weigh heavily with cultivators in this country on account of the extent of house-room, or in other words the length of rafter required to grow it to a flowering state. In the Palm-house at Kew, where it has been growing and gaining strength for some years, flowers have at length been produced in tolerable abundance in the upper reaches of its great twining stems. Planted in one of the beds, it ascends a pillar supporting the gallery, rambling extensively over the railings of the latter, and finally ascends some wires reaching nearly to the highest part of the roof. The pea-like flowers are rose coloured and rather small, but numerous, in large axillary panicles or compound racemes, produced on the stems near the glass toward the top of the house. Under such conditions, visitors in the lower part of the house, would never become aware of their presence, but seen from the gallery they are sufficiently conspicuous to attract attention. The final ascent on the wires near the glass seems to have been favourable to the production of flowers.

— **KAPOK.**—Under this Malayan name the Silk-cotton tree of India and the Archipelago, and which is indeed common throughout the tropics, is known. Botanically it is the *Eriodendron anfractuansum*, a plant well known to botanists, and, when collecting seed-vessels was in vogue some forty years ago, to amateurs also. It was always a mystery why the silky fibres attached to the seeds of this plant in such profusion, were not utilised. Certainly it was from no fault of the botanists. Now we learn that it forms a large item in Australian trade, Melbourne being now supplied from India and Ceylon. It is chiefly used for upholstery purposes. In 1886, 7995 bales, worth between £26,000 and £27,000, were imported, prin-

cipally from Java, where special care is taken in cleansing and packing the fibre.

— **HONOURS TO CALIFORNIAN BOTANISTS.**—Professor and Mrs. J. G. LEMMON, who toiled so devotedly to have the products and capabilities of the Pacific coast worthily represented at New Orleans during the winter of 1884-85, have, we learn from an American paper, lately received from the management of the World's Exposition, held then and there, six certificates of awards in the First Degree of Merit, accompanied by prizes in money, as follows:—1. Largest and best exhibit-flora of North America. 2. Largest and best exhibit-flora of the Pacific Slope. 3. Largest and best exhibit forage grasses, sedge, and other plants. 4. Largest and best exhibit new and rare Ferns and flowering plants. 5. Largest and best exhibit-paintings of rare and beautiful plants, made in the field with water colours (awarded to Mrs. LEMMON). 6. Largest and best exhibit indigenous (Arizona) Potatoes, represented by botanical specimens, live tubers, and water colour paintings.

— **"THE PRESS AND HORTICULTURE."**—Mr. HERBERT MYRICK, of Massachusetts, made the following remarks at the seventh annual meeting of the American Horticultural Society, but much of what he said applies equally to this country. We do not think the Press is to blame. They cannot be pressmen and dealers at the same time:—"The Press has done much to encourage the fruit-growing for the home, but it has done little toward telling how to sell fruit. The space between the producer and the consumer is too wide. The fruit-grower wants the Press to aid him in co-operative selling. The Press may also be used to discover new markets in this and other countries. Reports of fruit crops have been generally neglected, but these reports should be looked after. The reports should cover the whole country. If the Press had done its whole duty toward horticulture, Congress ere this would have passed the Hatch Experimental Station Bill, which appropriated 15,000 dollars to every State Agricultural College for the founding of the stations. The Press and farmers have been very silent regarding the passage of this Bill. Many papers refuse to notice new fruits and patented inventions for fear of advertising some one. This subscriber wants his journal to describe new fruits before the news is stale. The dealers' and nurserymen's papers are good, although they are generally advertisements for the proprietors. The horticulturists should write for the Press. These writers are few. Men who have never written for the Press sometimes send the best of news founded upon experience. Local horticulturists should keep local papers informed of their proceedings."

— **BENT TWIGGS.**—Professor SORAUER has been investigating the method of bending twigs of fruit trees for the purpose of enhancing their fertility. When a branch is bent acutely, the bark on the lower surface is thrown into transverse folds here and there detached from the wood. In these little cavities new woody tissue is formed filled with starch grains, and afterwards new woody tissue of a normal character, but always thicker than elsewhere, and especially on the upper convex surface. The mass of woody tissue checks the flow of water towards the tip of the branch, to the great advantage of the bud immediately beneath, and which is thus the more likely to develop as a fruit bud.

— **LEARN TO OBSERVE.**—Writing in the *American Florist* "T. K." says:—"Take notice of all your plants from day to day. Keep in mind the treatment you have subjected them to, and note the slightest change in their appearance, and the cause of the same. You will then have made a start in the right direction, for the florist or gardener who errs, and finds the true cause of his failure, has learned something; but he who lays his failure to the wrong cause has not. By constant observation one may soon learn to judge a plant by its appearance, and after a time become sufficiently expert to be able to tell at a glance, or simply by feeling of the foliage, or both, to what treatment a plant has been subjected, whether kept too warm, too cool, too wet, or too dry, or just right, and be guided accordingly. Observe the appearance of plants in perfect health in some successful grower's collection, and keep in mind the appearance of the same; strive to get yours in the

same condition, and never be satisfied until you do. Persevere, do not get discouraged, and you will be successful in the end. It is better to learn by observation than to follow instructions laid down by those who are working under vastly different conditions generally, as you can then work in accordance with your surroundings."

— **CATASEUM BUNGEROTHII.**—A short time since Mr. BROWN described in the *Lindena* a new *Cataseum* under this name, and a coloured representation was given at the same time (t. 57). Of necessity, both description and plate left much to be desired. The latter was especially unsatisfactory, and the Editors of the *Lindena* will now, doubtless, speedily publish another plate, and so render justice to an ill-used plant. A living specimen was shown by the Compagnie Continentale of Ghent, at STEVENS' Sale-room (on Thursday last, and which at any rate bore out the assertion that this is one of the most remarkable Orchids of recent introduction. The plant in question had five spindle-shaped pseudobulbs, from the base of one of which issued a raceme with seven saucer-shaped flowers of ivory-white colour, each about 4 inches in diameter in each direction, with oblong-acute sepals and petals, the petals broader and longer than the sepals, and ascending vertically almost parallel to the median sepal. The concave lip is broadly ovate-acute or shovel-shaped, pure white, with an orange blotch surrounding the entrance to the short stout conical spur. The column is stout, white, with the anther prolonged upwards into a long thread-like tail, and with two thread-like processes or antennae on either side at the base, after the fashion of male-flowered *Cataseums* in general. The irritability of these antennae is well known—touch them and away fly the pollinia, to be attached to some intruding insect, which forthwith flies off to some other flower of the opposite sex and effects the fertilisation of the ovules. The present flower is, as it were, two-lipped in appearance, the lateral petals with the median sepal constituting one slightly concave lip, the median petal or labellum forming the other lip. The large size and bold outline of the flowers, their firm substance, persistent duration, and attractive colour, to say nothing of the botanical interest attaching to it, should render this plant specially attractive to Orchid growers. It has all the appearance as if it would respond to the cultivator's art, and, if so, we may confidently expect it to become one of the finest "specimen Orchids" at future exhibitions. We hope shortly to be able to give an illustration of this superb flower.

— **DESICCATED SOUP.**—At the recent Potato Tercentenary Exhibition we met with some samples of EDWARDS' desiccated soup, to be obtained of the agents, Messrs. KING & CO., Bishopsgate Avenue. It is composed of beef and Potatoes desiccated, ground, and flavoured with Celery seed in some cases. It appears to be both a useful and palatable preparation where soup is required at short notice, while it makes excellent gravy for poultry, &c., at small cost—1d. per small packet.

— **FARTHING DINNERS.**—Mr. GEORGE HERBERT SARGANT, Colmore Road, Birmingham, has published a valuable little pamphlet, containing full directions for supplying to the poor nutritious dinners of soup and vegetables, &c., at the cost of one farthing per head. The price of the materials and the quantities to be used are given, together with such clear directions for cooking, that to blunder in the preparation of them would seem to be a total impossibility. The number of ladles, spoons, basins, cans, buckets, tables, trestles, towels, cloths, mops, &c., needed, is detailed and the prices given; while even the "pigswash tub" to hold the refuse is not forgotten. We heartily commend this little book to all those who are trying to establish a soup kitchen during the coming winter, and can assure them they will find the pamphlet full of valuable hints, calculated to ensure the success of their undertaking, and to save themselves a great deal of trouble and unnecessary outlay.

— **HORTICULTURAL CLUB.**—The usual monthly dinner of the Club was held on Tuesday last at the rooms, 1, Henrietta Street, Covent Garden. Among those present were the Hon. and Rev. J. T. Boscawen, Messrs. B. F. Raines, W. H. Pearson, A. H. Pearson, Jefferies, G. Bunyard, Rev. W. Wilks, &c.

The subject for discussion was opened by Mr. T. F. Rivers on "Pears and their Culture," and a very interesting discussion followed, in which many important facts were elicited.

— SHOWS FOR 1887.—Wednesday, August 17, has been fixed for the summer show of the Devon and Exeter Horticultural Society, and Friday, November 4, for their autumn show at Exeter.

— ESSEX FIELD CLUB.—The Council of the Essex Field Club has determined in future to issue the "Transactions" and "Proceedings" of the Club combined in the form of a monthly periodical entitled "The Essex Naturalist, being the Journal of the Essex Field Club." The Journal will contain papers read before the Club, reports of past and announcements of future meetings, and, as space allows, notes and communications upon any matters of interest connected with the natural history, botany, geology, and prehistoric archaeology of Essex. We believe that this is a new departure in the policy of local societies, at least in the South of England, but the plan has been adopted by the Essex Club from a rapidly growing conviction that if local societies are to flourish and do useful work, it is necessary to devise some means of "keeping touch" with their members, and encouraging intercommunication among them. The first number of the "Essex Naturalist" will appear in January next, and will be conducted by Mr. W. COLE, who has edited the publications of the Club since its establishment, seven years ago.

— OXERA PULCHELLA.—The members of this genus form a small group of woody climbing plants, with much the same habit as that of *Clerodendron Thomsonae*, and they are indeed members of the Verbenaceae family, and closely allied to *Clerodendron* itself. They are natives of New Caledonia, but very little known in this country. Rarely do we find any record of any of them in books coming within reach of the gardener, and even then the species under notice is the only one mentioned. As might be concluded, a plant so little known in current literature would be less known in a cultivated state. A plant of some considerable size flowered recently, and may still be in that condition at Pendell Court, where it elbows its way amongst numerous other rare or little known subjects that seldom obtain a footing at other private establishments. The white flowers are produced in axillary cymes towards the top of long slender climbing stems. The leaves are opposite and smaller than those of the *Clerodendron* above mentioned. It is planted out in a border against the back wall of a stove, a kind of treatment doubtless more congenial to it than if confined for root-room to the narrow compass of a pot, in which, however, it is possible to flower it. Rich light loam mixed with a small quantity of peat, well rotted dung, and sharp sand to keep the whole open will suffice to grow the plant whether in pots or planted out.

— THUNBERGIA MYSORENSIS.—In general appearance this species is very unlike the *Thunbergias* proper, and which are generally recognised in gardens as such. Of course the old genera *Hexacentris* and *Meyenia* have been sunk in that of *Thunbergia* by the *Genera Plantarum*, owing to the trifling differences, botanically speaking, that serve to separate the three. There are five species belonging to the section of which this is a member, and all are natives of Asia, principally of India. The flowers are produced in long, pendent racemes terminating the stems or on short axillary branches. The corolla is bilabiate and yellow, with five obtuse, reflexed, crimson lobes, quite unlike the wide, open-mouthed, true *Thunbergias*, such as *T. Harrisii*, *T. grandiflora*, or *T. laurifolia*. The drooping, many-flowered racemes are very conspicuous and telling when in full flower, owing to the peculiar colouring of the lobes of the corolla, which may be variously described as crimson, or a mixture of orange and scarlet, according to its intensity and the way in which it blends into the yellow tube of the flower. In shape the latter recalls the flowers of *Mimulus cardinalis* in no slight degree. In habit this species associates with *Thunbergia* proper, and requires the same moist, warm, temperature and cultural treatment. Owing to the great length of the climbing stems the plant does best when grown planted out in a border. It may be seen trained up near the glass in the Palm-house at Kew,

and there is a figure of the species in *Paxton's Flower Garden*, iii., 88.

— MISTLETOE FOR CHRISTMAS.—During the past few days large quantities of Mistletoe have arrived in the port of London from Boulogne, Havre, Bordeaux, and other French ports. The Mistletoe comes to London chiefly from Brittany and Normandy, in which provinces the parasitic plant grows on trees in abundance; but this year there has been a new departure, as far as British Mistletoe is concerned, several tons of the plant, gathered mainly on the Welsh border of Monmouthshire, having, it is said, been shipped from London to New York, as it is stated that amongst large numbers of genuine English settlers in the United States so general a desire has been expressed to have sprigs of British Mistletoe at Christmas that it has been made worth the while of speculators to have it brought out from England. Covent Garden Market is at present well stocked with Mistletoe.

— A POTATO SOCIETY.—There is a marked tendency, now-a-days, toward specialisation in all things; but while admitting the fact we do not see why the Royal Horticultural Society may not recognise this and act accordingly. If it will not do so, then the specialists will have twofold right on their side. Meanwhile we point out the genuine grievance there is of individuals being virtually compelled by this multiplication of small bodies to expend many guineas where comparatively few would suffice. So far as Potatoes are concerned, we cannot see how or why any all-round gardener may not, for all practical purposes, master all the details relating to their cultivation. The Potato surely stands in no need of such assistance as a special society could render. The following communication, advocating a somewhat different view, has been handed to us for publication:—"As I have something to do with the proposal to form a Potato Society, I should like to say that in doing so I have no wish whatever to offer any form of opposition to the Royal Horticultural Society. I regret exceedingly the lack of capacity and comprehensiveness shown by that Society, which seems literally to drive friends from it rather than to attract them, when, in regard to its designation and the relative importance of its associations in the horticultural world, it should occupy a bold, dignified, and independent position. It is all very well to say that the Royal Horticultural Society should be the instrument for performing all the work we look for at the hands of special societies; but perhaps it would be as fair to assert that a comprehensive society like the Royal Society should perform all the sectional work so ably done by the Linnean, Geological, Geographical, and other scientific bodies. It now seems more and more evident that if such is to be done well it should be performed by special bodies. Turning to agriculture, we see even with the existence of such an eminent and capable body as the Royal Agricultural Society, and one so widely supported, that there still is found ample room for Cart Horse, Fat Cattle, Dairy, Kioslage, and other special bodies, all doubtless doing good work, and not improbably doing it better than the Royal Agricultural Society could do, because devoting special and not general attention to it. Then special societies are found to attract to them those who have special affinities with the subject to be supported. In horticulture we have as many, perhaps even more, phases of thought and practice than in agriculture, and as no man can be a specialist in everything it is certain that he will be attracted to those particular subjects, with which he has the greatest sympathy. I presume no one now imagines that the Royal Horticultural Society could perform the work of the National Rose or Chrysanthemum Societies with anything like the zeal and interest shown in them by their respective supporters. There are in the composition of their governing bodies no opposing interests, but in a large homogeneous body, such as the Royal Horticultural Society should be, indifference on the one hand might seriously help to cripple the earnestness of specialists in another direction, and thus on every hand no special work would be effectually done. I think the Royal Horticultural Society should strive to make itself as useful as possible in its particular line, and, while not viewing special societies with any jealousy, rather strive to attach them to itself by acts of sympathy and appreciation rather than to repel them by coldness. If the Royal Horticultural Society had, as you suggest,

a really central and available home in London, how gladly, I am sure, would special societies avail themselves of it for that special purpose, and thus serve to render the senior body help. As it is the Royal Horticultural Society is in London homeless, and it has no shelter for itself, let alone for other junior but still sympathising bodies.

— VITALITY OF SEED.—SIR WALTER ELLIOT communicates to the Agri-Horticultural Society of Madras a case in which seeds of *Ipomoea Qnamodit*, gathered in India in 1859, were sown in England in 1881, when they germinated after a rest of more than twenty years.

— PUBLICATIONS RECEIVED.—*Notes Horticoles sur l'Allemagne du sud et l'Autriche-Hongrie*. Par ERNEST BERGMAN. (Paris: Société Nationale d'Horticulture de France, 84, Rue de Grenelle.)—*Le Propriétaire Planteur*. Par D. CANNON. (Orléans: H. HERLISON, Libraire-Éditeur, 17, Rue Jeanne-d'Arc.)—*Archives des Sciences Physiques et Naturelles; Remarques sur la Relation qui existe entre les Sommes de Température et la Production Agricole*. Par Professor J. H. GILBERT. (Genève: Bureau des Archives, 18, Rue de la Pelisserie.)—*Ferns, their History and Cultivation*. By J. H. HART. (Kingston, Jamaica: De CORDOVA & CO., Harbour Street.)—*Farming Dinners*. By G. H. SARGANT. (Birmingham: J. L. ALDAY, 39, Colmore Row.)—*Phytophological Observations on the Forms of Seedlings, and the Causes to which they are Due*. By Sir JOHN LUBBOCK, Bart. (London: Linnean Society, Burlington House, Piccadilly, W.)—*A Dictionary of Plant Names*, Part III. By JAMES BRITTEN, F.L.S., and ROBERT HOLLAND. (London: TRUBNER & CO., Ludgate Hill.)—*The Tea Planter's Manual*. By T. C. OWEN. (Colombo: A. M. & J. FERGUSON.)—*The Moloch of Paraffin*. By CHARLES MARVIN. (London: R. ANDERSON & CO., 14, Cockspur Street.)—*Whitaker's Almanac for 1887*. (London: 12, Warwick Lane, Paternoster Row.)

— GARDENING APPOINTMENTS.—Mr. C. SOLMAN, late Foreman at Cassiobury Park, Watford, Herts, has been appointed Gardener to J. J. SUDBURY, Esq., Womersley Park, Guildford, Surrey.—H. PEW-TRESS, late of The Gardens, Waddesden Manor, Aylesbury, as Gardener to ALFRED TATE, Esq., Roseleigh, Woolton, near Liverpool.

THE ORCHID HOUSES.

GENERAL REMARKS.

ALTHOUGH NOT the growing season of Orchids, the next three months will be an anxious time for those in charge of collections. It will be necessary for those attending the fires to be on the alert, so as to keep up a uniform temperature in the various houses. Thanks to the improved forms of boilers, and the more skilful laying of hot-water pipes, these long winter days are reduced to a certain extent; and while we continue to keep the boilers well beneath the houses which have to be warmed, we can always depend on their doing efficient service for some hours without attention. We hear of boilers that will take care of themselves for twelve hours at a time. This might do for dwelling-houses or rooms with thick walls and a ceiling; in such places the outside changes do not affect the temperature so suddenly as is the case in a glass-house. In the latter the stoker has to guard as much against a sudden rise in the outside temperature as against fall; otherwise plants that should be kept at rest get started into premature growth. None but a novice in Orchid growing would be pleased to see his plants that might not be doing well continue making rapid growth. There can be no rule laid down in regard to heating and watering for each day at this season; but it will be found that during and after strong winds the houses and plants will dry up quickly, and will require as much moisture in one day as in two or three dull, mild days. Orchids that have leaves to support during winter other than those with pseudobulbs, will often suffer more quickly when much fire heat is used, if dry at the roots, than they would if stinted of water during summer days. I think some growers of Orchids are likely to err in winter by keeping the atmosphere too dry, and the roots of the plants too wet; in such cases of doubt the hygrometer is the best guide as to the state of the atmosphere in the

houses; it is not necessary to have one for each house, but one should be placed in any house for a few days, when there is any doubt felt about the aerial conditions. Slugs are apt to be busy with the *Massevallias* and cool *Odontoglossums*, therefore look closely for the depredators each day at daybreak. They may be sought for in the evening with a bull's-eye lantern.

It will improve the colour of the flowers of *Calanthe Veitchii*, now opening, if the plants be placed in the lightest part of the East Indian-house, and any of the deciduous type can be removed into a Cattleya-house when nearly all the flowers are expanded; this tends to strengthen them, so that they last longer when cut. Very little water is necessary after the leaves have fallen, and the plants are in full bloom. *C. Woolford, Downside.*

FRUITS UNDER GLASS.

PEACH AND NECTARINE TREES.

THE trees in late houses should be pruned forthwith, the glass, woodwork, and other parts made clean and sweet. As much of the old wood as can be spared must be cut out, as well as extra strong shoots made in the past season, and some of those left should be shortened back to a wood-bud where necessary to secure a sufficiency of shoots. This done, the trees if affected with blight should be carefully washed with soft soap (4 oz.), dissolved in a gallon of warm water, adding two handfuls of sulphur well mixed; and should scale exist on the trees, a winglassful of petroleum should be added to the solution. Train the shoots 5 inches from each other at an equal angle on either side of the tree, leaving sufficient room in the ties for the wood to expand. The surface of the border should then be pricked over with a fork; the loose soil removed and replaced with a mixture consisting of three parts good loam and one of old mortar rubble and wood-ashes, following this with a mulching of horse-droppings or short dung to the thickness of 2 inches, and a good watering.

FIG TREES.

The trees in late houses should be attended to, and treated as recommended in the *Gardeners' Chronicle* for November 13, p. 632.

THE GRAPE-ROOM.

A dry equable temperature of about 50° should be maintained here. Look the bunches over three or four times a week, and remove any bad berries that may be in them. *H. W. Ward, Longford Castle.*

PLANTS AND THEIR CULTURE.

CHRYSANTHEMUMS.

THESE will now be past their best, and where late plants are in bloom keep the conditions as favourable as possible for the preservation of the flowers; damp is the chief enemy, and must be combated by applying a little warmth day and night.

All plants as they go out of bloom should be cut down, placing them where they can develop good growth. If plants are required for producing large blooms next season, cuttings must now be put in. I prefer putting one cutting in the centre of a small pot, the pots being then plunged in cocoa-fibre in a cold pit. If large specimens are required, some of the strongest of the single stemmed plants should be cut down, shaken out of the soil, and repotted into small pots, these will produce a number of fine shoots, which should be encouraged to grow, and if mildew should show itself dust them directly with flowers of sulphur; these plants will require very little water for some time to come; any varieties that may be wanted can be procured now.

THE STOVE.

Plants here will now be gay with flowers, such as *Eucharis* and early *Gardenias*; *Poinsettias* should now be at their best, these make a fine show of themselves when grown of different sizes, from 4 feet high plants in 24-size pots, down to 3 inch miniature plants in 60's. *Euphorbia jacquiniiflora* is another showy winter bloomer, good as a decorative plant, or for

cutting if grown near the light. The beautiful free-flowering yellow *Linum trigynum*, although properly a greenhouse plant, does better in a temperate-house in the winter. *Centropogon Lucyanus* will be found a very beautiful plant for various purposes during the winter months, and it produces its blooms very abundantly from the point of every shoot, and from the axils of almost every leaf. It is a charming plant for hanging baskets. *Thysacanthus rutilans* should be put on shelves where their long drooping spikes will not get damaged. Great care must be exercised for some time in watering plants, not to allow any to suffer to the extent of shrivelling, and, on the other hand, not to give them enough to cause growth to ensue. Too much moisture in the air must be also avoided. Tubers of *Caladiums* which were induced to rest early in the autumn should be examined; and on no account placed near hot-water pipes, where they get dried up; there are far more bulbs killed annually by dry rot than by wet, and they are better left in their pots till the time comes for starting a few of them.

A good stock of peat should be got together; after picking it over and throwing out any sour coarse stuff or any pieces harbouring fungus, break it up, placing it in a dry airy shed, turning it over once or twice, so that by the time of the general potting it will be in good condition. Get a sufficient number of stakes painted, if this is done now the work in the busy season will be got over without hindrance. Sow again some *Panicum sulcatum*, also put in cuttings of *Panicum variegatum*, *Coleus*, and *Abutilon*; these will make nice plants for furnishing uses early in the spring. See that all plants are free from every trace of scale or bug. *A. Evans, Lythe Hill.*

TESTING SEEDS.

WHEN you want new seed Peas put one from the stock into your mouth and bite it. If it is very hard it is more than one year old. If the teeth enter it with moderate ease it is new seed. New Carrot seed always has a green shade on it. Old seed loses this, and is of a dead pale brown, and less fragrant. New Parsnip seed has a shade of green, which it loses if more than one year old. Onion seed is more difficult to prove than most other seeds, but if you take a single seed at a time and carefully bite it you will find that old seed has a tough dry skin, with a very white and harsh kernel, while new seed has a more tender, moist skin, and the kernel possesses a greater degree of moisture, and is somewhat oily. The seed may be cut with a penknife instead of bitten. Onion seed that has no vitality at all has no kernel, or one perfectly dry. Test this by pressing the seed on a piece of white writing-paper. If it leaves no moisture on the paper it is of no use, and has been tampered with, or has lost its vitality by age. New Cabbage and Broccoli seed possesses a pale green shade in the kernel when pressed out or cut, and a tinge of green in the brown skin also. But old seed loses this in proportion to its age, becoming of a dull, dark brown. Cabbage, Broccoli, Kales, &c., will retain their vitality longer than any other seeds, and will grow well when three years old, or even six years, if well kept. Beet seed has a faint tinge of pale green if new, but is a dull brown if old, and its vitality is very doubtful if old. New Celery seed has a faint tinge of green, and is very aromatic, but it loses the green and becomes less fragrant if more than a year old, and is doubtful. *American Horticulturist.*

TRADE NOTICES.

THE LAWSON SEED AND NURSERY COMPANY.

IN the First Division of the Court of Session, Edinburgh, on the 2nd inst., their Lordships heard counsel in connection with the petition by the Lawson Seed and Nursery Company, Edinburgh, to have the winding-up of the company carried on under the supervision of the Court. The petition was opposed by Messrs. Peter Lawson & Son, who stated in their answers that the company was perfectly solvent. Respondents also presented a petition asking that the resolutions to wind-up, adopted by the shareholders of the company, should, in the above circumstances, be recalled, winding-up being unnecessary. Their Lordships granted the supervision order asked by the

Lawson Company, and found them entitled to expenses.

NEW VEGETABLES.

The new Potato, *Mottled Beauty*, not yet in the market, and raised by Mr. Wiles, Edgemoor Park Gardens, has passed into the hands of H. Deverill, Royal Seed Stores, Banbury, for distribution. Mr. Deverill has also purchased the stock of the new Onion, *Ailsa Craig*, from Mr. David Murray, Culzean Castle Gardens.

SOURCES OF NITROGEN AS PLANT FOOD.

A CORRESPONDENT ("P. T. I.") in asking the following questions opens up a wide and an important enquiry.

1. Nitrate of ammonia being the chief compound from which the roots of plants absorb nitrogen, is the greater amount of it formed in the air (and carried to the earth by rain) or in the earth?
2. In reference to the nitrate of ammonia formed in the soil, how is its nitric acid formed, and how is its ammonia formed? Is its ammonia chiefly produced by the decay of organic substances, or absorbed from the air, or brought down by rain?
3. Do the roots of plants absorb ammonia uncombined with any other substances, but merely dissolved in water?
4. Do the roots of plants absorb sulphates, carbonates, and phosphates of ammonia in a state of Nature?
5. Is ammonia, uncombined with any other substances, brought down to the earth by rain?
6. In reference to the ammonia present in the soil, is the chief amount of it (a) brought down to the earth by rain, (b) absorbed from the air by the soil, or (c) produced by the decay of organic substances in the soil?

Plants obtain the elements of which they are built up partly from the atmosphere and partly from the soil. The water and most of the organic matter, making on an average from 90 to 95 per cent. of the total weight of the plant, comes from the atmosphere, either directly through the leaves or indirectly from the soil by rain, and then to the plant through its roots.

Nitrogen exists in soils in three combinations—with carbon, with hydrogen, and with oxygen. When in combination with carbon it is very insoluble in water, and it is in this form that we find by far the greater part of the nitrogen that exists in soils.

This nitrogenous organic matter of the soil has been derived either entirely from the decay of vegetable *debris* left in the land by preceding generations of plants, or possibly to some extent from past applications of farmyard or of other organic manures. It is also a fact that besides the residues of crops soils receive certain amounts of nitrogen from the atmosphere in the form of ammonia and nitric acid, but the quantity of these substances contributed annually by rain varies in different years and places. The average of many experiments on the Continent gives to 23 lb. of nitrogen per acre. The average of some English experiments is but 7.29 lb.

Rain also furnishes small quantities of alkaline chlorides, especially in the neighbourhood of the sea, and about 18 lb. per acre per annum of sulphuric acid.

Although the amount of ammonia directly absorbed by the soil from the atmosphere may in some soils be much larger than is shown by the analysis of the rain, yet the total nitrogen acquired, though most important as tending to counterbalance the losses of plant-food which the soil annually suffers, will have little effect on the present fertility in comparison with the large accumulation of nitrogenous matter resulting from previous crop residues, and decay of animal refuse.

In all kinds of soils there exist very minute underground organisms, called "bacteria," invisible to the eye, the function of which is to separate the carbon and hydrogen from the nitrogen, and to unite it with oxygen. But to effect this lime must be present in the soil, and the compound so formed is called nitrate of lime.

Nitrogen in combination with hydrogen forms ammonia, and the substance with which most gardeners are acquainted as ammonia-salts is obtained from an extinct vegetation.

Nitrogen in combination with oxygen forms nitric acid, these combine under the influence of the electric discharges in the atmosphere, nitrous acid being formed; this is converted into nitric acid by the

action of ozone, or peroxide of hydrogen, and is brought down by rain.

Ammonia cannot exist as such for any length of time in the soil, neither is it taken up by plants in that form.

The facility with which ammonia and other nitrogenous substances are converted into nitric acid by the oxygen of the soil is so great, that nitrates become by far the most important source of plant food.

The uncombined nitrogen of the atmosphere is not appropriated by plants.

Plant roots take up all the diffusible substances which are present in the water which they draw from the soil; but the feeding power of roots is by no means confined to the taking up of ready formed solutions, for they are also capable of attacking some of the solid ingredients of the soil which they render soluble and then appropriate, for the building up of their vegetable fabric. The best of all manual applications are those which supply both phosphates and ammonia or nitrogen.

WEEKS' FIREPLACE BOILER.

This week we give two illustrations of Messrs. J. Weeks & Co.'s Fireplace Boiler, as exhibited at the Provincial Horticultural Meeting at Liverpool, where we had the opportunity of seeing it in action. The open fire serves to warm the room and to heat the water in what is in reality a tubular boiler capable of warming a small conservatory, or hall and staircase at the same time, and by means of the same fire. It will be seen on reference to fig. 154 that the Fireplace Boiler presents the same appearance as an ordinary register stove, but the back, sides, and bottom are formed of water bars and chambers, and, in fact, constitute the boiler. When the fire is banked up for the night the stove is shut up by means of doors, as shown in fig. 155. This transforms it into a slow combustion furnace, and thus closed it will keep alight for very many hours without attention. The small hit-and-miss ventilators shown at the bottom of the doors are for regulating the supply of air to the fire—only just enough to support combustion being admitted. The fuel used is anthracite coal, and the economy of the arrangement is very great.

This boiler will be found very valuable for warming small conservatories attached to dwelling-houses or for warming the hall or staircase of a house, or a room which has no fireplace, or, in short, for any small apparatus where there is no provision for a stovehole and flue, as required by an ordinary hot-water boiler, and where they could not be constructed without disfiguring the house and its surroundings. In such a case, one of these Fireplace Boilers might be placed in the existing fireplace of any adjacent room and connected to coils of pipes in the apartments required to be warmed, and thus accomplish the desired end. Another advantage possessed by this boiler is, that it can be managed by a house servant in the same way as an ordinary fire; while, on the other hand, experience has shown that servants cannot or will not take the trouble to manage the usual forms of hot-water furnace, which, it must be admitted, is anything but a cleanly operation.

WOODS IN THE LATE COLONIAL EXHIBITION.

(Concluded from p. 765.)

QUEENSLAND COURT.—Few persons if at all interested in the timber produce of the Colonies can have failed to notice the two gigantic logs of the Red Cedar or Toon tree (*Cedrela Toona*), exhibited by Mr. Burgess from trees grown on the Blackall range of hills. The largest of these was nearly 13 feet long and 20 feet 5 inches in girth; the smaller 12½ feet long and 18 feet 8 inches in circumference. Usually in trees of such gigantic proportions the stems are unequal, furrowed, and fluted, but not so in the specimens under consideration, for I was not a little surprised, although I must confess agreeably so, to find after a careful examination that they were remarkably uniform, and with but little taper; while the bark was soft to the touch, not flaked to any great extent, and put me much in mind of that of a twenty years' old Wellingtonia. A good idea of the quality and capabilities of the timber could be gleaned from the sensible way in which one at least of the logs was prepared, a portion of that at about 4 feet from the ground being neatly cut out in

triangular fashion, the faces thus made being planed and polished, thus showing well how the wood worked under the tools of the carpenter, as also the peculiarities of graining and susceptibility of being polished; while both above and below the timber in its natural condition was plainly visible. We, in this country, have had ample opportunities afforded us of examining the Cedar wood, as most of the boxes in which the Bengal and Assam Teas are sent over to this country are manufactured from it; while logs and boards are not unfrequently imported under the name of Moulmein Cedar. It is of a red or brownish colour, beautifully marked and grained, easy to work, and being very lasting or durable when converted, is much in use by the Queensland carvers and cabinet-makers. It is not hardy in this country, although a nearly allied species we noticed in fine form at the Royal Gardens, Kew.

Araucaria Cunninghami, a tree that has more than once been tested as to suitability for planting in this country, but invariably found wanting, produces a pretty wood, light yellow in appearance, and which is strongly recommended for furniture making and

akin to that of the Cypress Pine. There was exhibited of this tree a cross section of a pile that had been exposed to the action of the waves of the Pacific Ocean for eleven years, thus showing how well it is adapted for resisting the ravages of the sea worms that are so destructive to nearly all other known woods. Another useful quality of the Turpentine tree, which we may notice in passing, is in its being almost fire-proof, for it will only char or consume slowly away. For railway sleepers and boarding for rooms it is much sought after.

Another Conifer, *Podocarpus elata*, or She Pine, is likewise, useful for maritime positions, as it is fairly proof against the teredo attacks. For spars, masts, and many other uses in connection with navigation, the wood of the She Pine is highly valuable, it being long and close grained, not at all brittle, and very durable. From the specimens of the wood exhibited, including a plank, veneer, and book block, we could not but compare it, so far at least as colour was concerned, with that of the *Araucaria imbricata* produced in this country, it being of a very pleasing rich yellow tint.

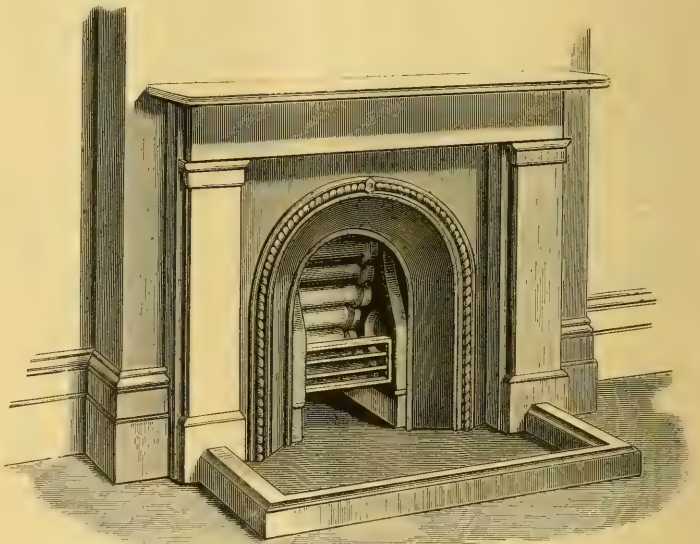


FIG. 154.—WEEKS' FIREPLACE BOILER.

boarding, it being, although very firm and close in texture, easily worked, and susceptible of being polished or stained at will.

A. Bidwilli, the Bunya Pine, for timber purposes, is quite equal, if not, indeed, superior to the last, as may be seen from the plank, veneer, and book-block exhibited, all of which show off to perfection the light coloured but beautifully marked appearance of the wood, and adaptability for the uses of the cabinet-maker and joiner. The cones, two of which were exhibited, we were delighted to see, and we were certainly not disappointed for their large size, and 2 inches long edible seeds were quite up to published descriptions.

Of the Cypress Pine (*Callitris robusta*) we took particular notice of a beautiful plank, some 14 feet long, and 18 inches wide, and nearly half a foot thick, and which revealed in a marked degree the buff-brown coloured wood with its pinky longitudinal streaks. It is very pretty, slightly fragrant, and owing to its resisting the attacks of the teredo or sea-worm (*Teredo navalis*) better than any other native wood, or any other work in which it is exposed to the sea-water. The New South Wales Turpentine tree has similar qualities that recommend it for purposes

Of the Eucalyptus or Gum trees the wood of about forty species was exhibited, all of which are of great value in the arts, as was clearly shown by the number of useful purposes to which they are applied; indeed, in scanning over this fine collection one could not but feel astonished that the timber of a single genus is capable of being converted into such a multitude of diverse uses, for whether we take cabinet-making, house-building, fencing, ship-building, railway sleepers, piles, or a score of other minor matters, the wood of one or the other species of Eucalyptus is highly valued; while the bark contains a valuable tannin matter, and is, further, of great use in the manufacture of ropes and cordage.

A large plank of the Bloodwood (*E. corymbosa*), 15 feet long, 22 inches wide, and 7 inches thick, shows off well the deep rich reddish colour of the wood of this useful tree, and forcibly impressed upon us how well adapted so large and durable a wood must be for the varied uses to which it is applied not only in Queensland but throughout Australia generally. For piles, posts, railway purposes generally, but particularly for use underground, the wood of this Eucalyptus is highly valued, the large deposits of gum which occur here and there in the timber rendering it very lasting even under the most trying circumstances.

This gum contains, so we were told, fully 43½ per cent. of tannin.

Nearly approaching the latter wood, both in colour and texture, is that of the Blue Gum (*E. tereticornis*), a common Queensland tree, and one that is highly prized by the colonists, not only for its ornamental appearance, but the valuable timber it produces. The wood is of a dull red colour, tough, durable, and close-grained, and used extensively by the builder, cabinet-maker, and railway companies. For veneering purposes it would seem, from one of the specimens exhibited, to be well adapted, while a book block, into which it has also been formed for exhibition purposes, shows the pretty blue bark, and from which the name of Blue Gum has been bestowed upon the tree. The timber of two other species, *E. siderophloia*, the Ironbark, and *E. microcorys*, the Turpentine or Peppermint tree, pleased us much, for the beautiful colour and close graining betoken uses many and varied. For the purposes of the wheelwright the timber of the latter tree is perhaps of greater value than any other native wood, it being remarkably tough, long-grained, and durable.

situations at Penrhyn Castle, but always with the result that it is cut over during severe winter, even when it has attained to a large size. Messrs. Veitch inform me that *E. coccifera* has stood unprotected in their Coombe Wood Nursery for several years, and during intense frost; and certainly judging from a number of trees pointed out to me, the tree in question seems well adapted for withstanding our somewhat fickle climate. Experiments are being instituted on several estates—maritime and inland, high-lying and but little above sea level—and should these warrant the extensive planting of so valuable a tree, it will certainly be a great acquisition to the British arboriculturist, to be able to produce a timber of such excellent quality, and that is so well suited for general purposes as that under consideration. *A. D. Webster.*

AMERICAN FRUIT CULTURE.

THE following remarks are taken from a recently delivered address of President Earle to the American Horticultural Society, in Cleveland, Ohio:—
"Perhaps no industrial expansion of the time shows

Thirty or forty years ago it would be safe to say that all the Strawberries marketed in one day in the United States could have been gathered by a force no larger than I have seen bending over the smiling rows of a single plantation. Now there are probably not less than a quarter of a million harvesters engaged in gathering this delightful fruit for market growers. Then the season of this fruit was limited to the three or four weeks of its ripening in each locality; now by the help of railways and refrigerator transportation it extends over four or five months of the spring and summer, and Strawberries are sometimes transported a distance equal to that from the Atlantic to the Pacific seas."

HOME CORRESPONDENCE.

The Winter Spinach Crop.—There was a notice of the general failure of this crop in a recent issue of the *Gardener's Chronicle*, which was commonly attributed to too high manure before sowing. As I have to produce a supply of this vegetable all the year round I would remark on the culture of Spinach, giving a sketch of the practice I have for many years carried out with success. I always use ground for this purpose that has been well manured, and which has been used for the crop of second early Peas. After this last crop has been cleared off the ground is deeply dug, raked down, and rolled, drilled, and sown the second week in August. When the plants are up, and large enough to handle, they are thinned out with a hoe, so that those that are left stand about 6 inches apart; and before sharp frosts set in the land is mulched with short manure. When treated in this way Spinach stands the frost very well, producing a good supply of succulent leaves till the spring-sown crop is fit for use. But this season the plants made such rapid and early growth, which has only been checked by the recent severe frosts, that about a third of the crop has run to seed; but as I generally sow a large breadth we shall not feel the loss materially. I never experienced any loss of crop before, and can only attribute it to the too rapid growth made in the early autumn months. I usually sow the round Spinach in the second week in February, and fortnightly afterwards up to the time of sowing the winter prickly-seeded Spinach, and so ensure a continuous supply throughout the year. *Edward Ward, Hewell, Bramsgrove.* [If our correspondent would sow his Spinach at fortnightly intervals up to the middle of September, but little loss will be caused by plants bolting. *Ed.*]

—Monstreuse de Carentan is a fat-leaved robust kind not running to seed readily. The leaves are very large and of much substance; owing to this the plants must stand at least a foot apart in the rows with a 2-feet space between the lines. It is hardly enough for the winter crop. *X.*

Dwarf Scabious for Winter Work.—A large number of plants of the dwarf German Scabious is in flower at Gunnersbury Park just now; and Mr. Roberts, who grows them most successfully, has been cutting freely during the last six weeks. There are many colours, from white to rich deep maroon; and though seed may be saved from two or three select varieties, the seedlings will show many forms. The seed is sown in the middle of May, and the plants are put eventually into 32-sized pots, grown outside all the summer, and then stood under the glass-covered Peach-wall, or in a frame, where a little heat can be given to keep the flowers expanding, and to keep down damp. *R. D.*

Tobacco Culture.—The article published in your issue of Oct. 30 on "Tobacco Culture in Jersey" contains so much that accords with my own experience that I cannot refrain from supporting it by a few remarks. I am one of those who twenty years ago grew Tobacco, ripened and cured it in an English garden. The result was a Tobacco of fair quality but deficient in the aroma so necessary to produce a first-class cigar. From my experience of the climate of the hills and plains of Jamaica I long ago assumed that first-class cigar Tobacco can be grown only in a purely tropical climate, and subsequent experience confirms this view. We have here—in the hills—a climate giving a mean annual temperature of 63° Fahr., while on the plains the corresponding temperature of 79° Fahr. is found to prevail. All the Cuban refugees in selecting their sites for Tobacco cultivation choose level alluvial at elevations least 50 to 100 feet above the sea, and no attempt has been made to produce the article in the hills. Wishing to test the matter I have proved that Tobacco grown in the hills at the above-named temperature is deficient in aroma and not so fine in quality and texture of leaf as that grown at lower elevations. Tobacco of good quality can, without doubt, be

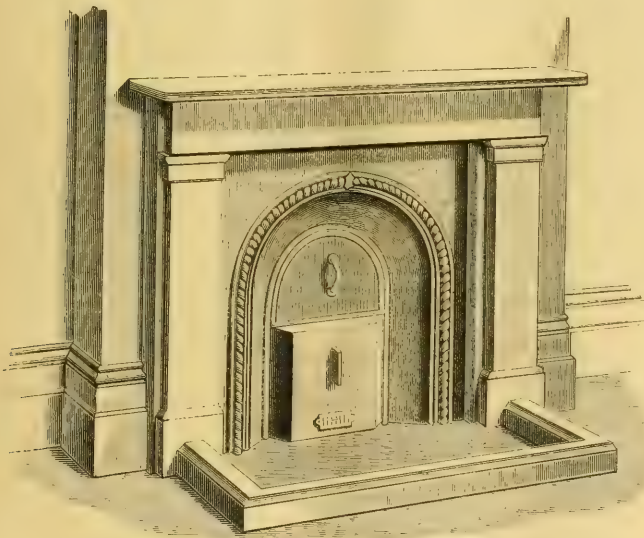


FIG. 155.—WEEKS' FIREPLACE BOILER. (SEE P. 788.)

Dr. Howitz, of Copenhagen, in a lecture delivered at the International Forestry Exhibition, spoke as follows regarding the Eucalypti:—Though the Eucalypti are suited only for cultivation in hot or warm climates, and though probably their cultivation did not interest the people of the British Isles, he maintained these trees ought to be of some importance to this country on account of the great value of their timber, which, if utilised for certain purposes, would drive the timber from our own woods out of the market. The Jarra wood (*E. marginata*), for instance, would supersede all others for piles for wharves, and a certain class of shipbuilding, while the Red Gum (*E. rostrata*) and its congeners would be placed foremost as railway sleepers, wood pavements, &c. Where hardness, durability, and resistance to the attacks of insects were required, these trees were preferable, and it was certain that they had a great future before them. He believed likewise that the large quantities of our native trees, which had hitherto been used for such purposes, would be forced into other branches of industry if the use of Eucalyptus became general.

That such a useful tree as the Eucalyptus is not suited for growth in this country is certainly to be regretted. *E. globulus* has been tried in various

more remarkable results than the business of American fruit culture. A single generation has witnessed a revolution in the habits of living of the American people. The rare luxuries of thirty years ago have become the everyday necessities of American tables, and the health-giving and refining influences of general and abundant fruit supplies are working their noticeable effect upon the physique and character of the nation.

"Thirty years ago the daily receipts of Strawberries in the city of Chicago—now the second greatest fruit market in the world—could all have been carried in one wagon at one load, and it would not have been a large load either. Now whole railway trains are engaged to carry the daily supply of that market, which often amounts to 300 tons, and sometimes to twice that quantity! A similar increase of supply has taken place in most of the markets of the country. The production of the Wilson Strawberry was the beginning of a new era in Strawberry culture, and I may add of small fruit gardening; for all branches of the business have been stimulated and carried along by the tide of enthusiasm which has planted Strawberry fields all over the continent, and covered the tables of the rich and of the poor alike with their dishes of fragrance and crimson beauty.

members of committee for the ensuing year. A brief discussion took place as to the mode of conducting the election, and the Rev. H. D'Ombrian then read the annual report, which is as follows:—

"In presenting this report the committee wish to remind their members that the Society has now completed its first decade; and in looking back upon the hopes expressed at its foundation they cannot but feel that those anticipations have been in many respects more than fully realised. The Society has from the very first enjoyed the confidence of the Rose growing community generally, and has already effected a considerable improvement in the management of local Rose societies, and their methods of exhibition, besides bringing about the almost entire discontinuance of two days' Rose shows. Indeed, its influence in these respects has even extended to other special societies in this country, as well as to some of those recently started on the Continent and in our colonies. It has also, besides leading to the wider cultivation and exhibition of show Roses, helped much to encourage the growth of those garden varieties which find favour with many horticulturists at the present time.

"The past year has in no way come short of its predecessors in the success which has attended the Society's operations. Its two exhibitions, the metropolitan show, at South Kensington, and the provincial show, at Birmingham, have, as usual, brought together very fine collections of Roses, as well as a large number of visitors more or less interested in the culture of our national flower. The exhibition at Birmingham was particularly interesting, as it was new ground for the Society, and the fixture being well timed in the season, there was an unusually large display of fine flowers. That at South Kensington was one of the most extensive the Society has yet held, but owing to the hot dry weather which prevailed on the exhibition day and for some time previous to it, the individual blooms were not, as a rule, so large as those seen there.

"The medals struck from the Society's new dies have been much appreciated, and are on all hands admitted to be greatly superior in design and execution to those previously issued.

"With regard to finance the committee are unable to report so large a balance as last year. This, however, will be found to be almost entirely due to the large expenditure on the dies for the new medals, and to the additional price of the new medals at both the metropolitan and provincial exhibitions. The total receipts have amounted to £590 14s. 7d., and the expenditure to £583 15s. 7d., leaving a balance for the financial year of £56 19s.

"In making arrangements for 1887, the committee hope to hold their metropolitan exhibition as usual at South Kensington, where the superintendent of the Royal Horticultural Society's gardens, Mr. Barron, hopes so to arrange the site, and the conservatory that the flowers may be displayed to better advantage, and at the same time be more convenient for both exhibitors and visitors. In order to carry out the original intention of the Society as a national one the committee have entered into arrangements with the Royal Caledonian Horticultural Society for the provincial show to be held in Edinburgh on July 13. The Lord Provost of Edinburgh has kindly consented to take an interest in this exhibition, and every endeavour will be made to render this, the first show the Society has held out of England, in all respects a successful one.

"The privileges of members are the same as in former years, subscribers of £1 being entitled to two private view tickets, and £4 to four transferable tickets, admitting at the same time as the general public. Members subscribing 10s. are entitled to one private view ticket, and £4 to two transferable tickets. Each one of these tickets will be available at either of the Society's exhibitions. Members who are subscribing for the first time in 1887 will receive a copy of the Society's illustrated catalogue of exhibition and garden Roses.

"It is again the pleasing duty of the committee to express their best thanks to those kind friends who have undertaken in different parts of the country to act as the Society's local secretaries; for it is unquestionably in a great measure through their exertions that the number of members has been so well maintained."

The Chairman, in moving the adoption of the report and financial statement, congratulated the members on the success which had attended the work of the Society, and considered that they had good cause for satisfaction with the results. He also thought it a good opportunity for suggesting that local secretaries and others interested in the Society should use their influence to maintain it in the high position it now so worthily occupies.

In the course of the discussion which followed the Rev. H. H. D'Ombrian said that, should any difficulty arise as to holding the metropolitan exhibition, which is fixed for July 5, at South Kensington, as in previous years, arrangements could probably be made for its being held at "Olympia," near Addison Road Station, Kensington, which is well adapted

for the purpose. With reference to the provincial exhibition to be held at Edinburgh, July 13, he had good reason for believing it would prove a great success. The Lord Provost had promised his influence, and a considerable sum had been already received by the Council of the Royal Caledonian Horticultural Society towards the special prize fund. Referring to the provincial exhibition for 1888, Mr. D'Ombrian said that an application had been received from Darlington to hold the show in that town; and he thought as the previous exhibition held at Darlington had been so successful, it would probably be to the advantage of the Society to take the application into consideration.

Rev. Alan Cheales, in seconding the motion for the adoption of the report and balance-sheet, said that with a number-roll of 425 societies in affiliation, they had no cause to fear as to the future of the National Rose Society. On being put to the meeting, the motion was carried unanimously.

As the result of the ballot, which was declared at this stage, the following are the officers for the ensuing year:—President, the Rev. Canon Hole; Vice-Presidents, the Hon. and Rev. J. T. Boscawen, the Rev. J. M. Fuller, Robert Hogg, LL.D., James McIntosh, and the Lord Provost of Edinburgh; Hon. Treasurer, Thomas Burt Haywood; Hon. Secretaries, the Rev. H. Honeywood D'Ombrian and Edward Mawley; General Committee, H. Appleby, Rev. H. A. Berners, Rev. H. E. Biss, R. Blotham, G. R. Cant, F. Cant, Rev. J. B. M. Camm, B. M. Cant, F. Cant, Rev. A. Cheales, Captain Christy, E. Claxton, J. Cranston, Rev. A. Foster-Melliar, Rev. F. Gall, T. W. Girdlestone, W. J. Grant, T. B. Hall, G. P. Hawtree, J. Shirley Hibberd, C. F. Hore, W. J. Jelferies, E. B. Lindsell, Dr. M. T. Masters, F.R.S., Rev. F. Page-Roberts, G. Paul, F. C. Pawle, J. D. Pawle, Rev. J. H. Pemberton, G. R. Piper, G. Prince, W. Ramsey, J. Sargent, A. S. R. Piper, W. T. R. E. West, E. R. Whitwell, E. Wilkins, Rev. W. Wilks, and W. H. Williams; Hon. Auditors, J. D. Pawle, and F. T. Wollaston.

A discussion arose, in which the Rev. H. D'Ombrian, Mr. T. B. Hall, Rev. J. H. Pemberton, Mr. G. Paul, Mr. B. Cant, and other members took part, as to the advisability of continuing to offer the challenge trophies at the metropolitan exhibitions, or at present, or of offering them alternately in London and the provinces. As the result of the discussion, the committee was instructed to consider the question and report to the next annual meeting. Mr. G. Paul suggested that the exhibition at which the trophies were offered should be the principal one of the year—a suggestion which met with general approval.

Mr. B. Cant referred to the question as to the best sites for the Rose, and quoted from a letter in which the writer said he had Roses on the Manetti which were at least twenty years old, and in the most vigorous state of health.

Votes of thanks were accorded to the Horticultural Club for the use of its rooms, to the officers for their services, and to the Chairman.

The annual dinner was held in the evening, under the presidency of the Hon. and Rev. J. T. Boscawen. The majority of the members, whose names are given above, were present, and a very enjoyable evening was spent, the toasts being few and the speeches brief.

NATIONAL CHRYSANTHEMUM.

A CHRYSANTHEMUM "ALBUM."—As briefly announced last week at p. 752, Mr. C. Harman Payne exhibited at the meeting of the National Chrysanthemum Society's Floral Committee, held in the Royal Aquarium, Westminster, on the 6th inst., an Album which he had compiled, comprising the earliest known drawings of this flower down to the present time, showing its gradual development. We now think it will be of interest to our readers to learn the following facts:—It appears that the earliest drawing, which dated 1789, illustrates the first large flower, being Chinese Chrysanthemum imported into Europe by Mons. Beauchard; the next is dated 1802, and is an illustration of the Changeable White, the first sport fixed in England, and it occurred at the Bishop of London's garden, Fulham Palace. Then follow illustrations of importations from China between 1802 and 1820. Plate No. 53 represents Sanguinea and Expanded Crimson, two of the first English seedlings, by Mr. Isaac Wheeler, of Oxford, who began raising by Mr. Freestone, of Downham, Norfolk, who followed Wheeler in 1835. Plate 63 is Chrysanthemum indicum, copied from the specimen in the Herbarium of Linnaeus; and plate 65 one of the same copied from a drawing in the possession of the old East India Company in 1823. Then follow drawings of varieties raised between 1850 and up to the present time. Plate 191 is worth a special notice as representing six varieties, three incured and three Japanese, and it is said to be the only coloured picture of the flower that has been produced in America. This

statement is made on the authority of Mr. John Thorpe, formerly of Stratford-on-Avon. The Silver Medal of the Society was unanimously awarded to Mr. Payne for this interesting exhibit. Mr. Payne is also making a collection of the literature of the Chrysanthemum, and has got together much of this character, but has not yet succeeded in bringing it to that state of completeness he hopes to reach in a short time. He would be glad of any reference to old pamphlets on the culture of the Chrysanthemum issued previous to 1840.

PRESENTATION TO MR. WILLIAM HOLMES.

The annual dinner of the Society took place at the old "Four Swans" Tavern, Bishopsgate Street, E.C., on Monday evening last, the President, E. Sanderson, Esq., in the chair, and some 112 members and friends being present. After the toasts, the prizes awarded at the Royal Aquarium show in November were presented, together with some special medals, among them one to Mr. C. Harman Payne, for his Chrysanthemum Album, on behalf of the subscribers to the same. Mr. E. C. Jukes presented to Mr. C. Gibson, of Morden Park Gardens, a handsome silver cup, in appreciation of the remarkably fine stand of forty-eight blooms of incured Chrysanthemums shown by him at the last Aquarium exhibition, but unfortunately disqualified owing to an oversight in putting up four blooms of one variety.

Mr. Sanderson proceeded to present to Mr. William Holmes, the Hon. Secretary of the Society, a beautifully illuminated address in a massive gilt frame; and three handsome epergnes, subscribed for by members of the Society. The address sets forth the regard and esteem entertained for Mr. Holmes by the members of the Society; and their sense of the inestimable value of his services to it, and especially in the direction of extending the culture of the Chrysanthemum. The centre epergne (this and the two side pieces being in silver and composed of twin Palms, with their leaves supporting receptacles for flowers and fruit), bears the following inscription:—"Presented to Mr. W. Holmes, by upwards of one hundred members and friends of the National Chrysanthemum Society, December, 1886."

Mr. Holmes in returning thanks, said that his connection with the Society extended over a period of fourteen years, as on Oct. 10, 1872, he was elected a member of the original Stoke Newington Chrysanthemum Society, then meeting at the old "Rochester Castle," and soon after he was placed on its committee. He was not long after advanced to the post of Honorary Secretary, and in course of time, thinking the operations of the Society should cover a wider field, he proposed that the show be held at Hackney. Eventually this was agreed to, and the Society then took upon itself the designation of the Borough of Hackney Chrysanthemum Society. When he became secretary there were just over fifty members; when this Society became the National, there were above ninety members; and the wisdom of giving the Society a national character was shown by the fact that there were now 399, and some twenty-five more for nomination. During the two years the Floral Committee of the Society had been in existence, 287 new varieties of Chrysanthemums had been submitted for consideration, and 44 certificates were awarded. At the November meeting of the Royal Aquarium, as much as 3722 blooms of Chrysanthemums were staged in competition. Mr. Holmes concluded by warmly acknowledging the great services the horticultural Press had rendered to the Society.

SCOTLAND.

SCOTTISH HORTICULTURAL ASSOCIATION.

(Continued from p. 760.)

ON the 7th inst. the above Association held its ordinary monthly meeting in their rooms, 5, St. Andrew Square, Edinburgh, Mr. A. Milne, President, in the chair. Mr. John Thomson, Clovenfords, read an interesting paper on "The Vine," dealing chiefly with seedlings of recent introduction, pointing out the peculiarities of such varieties as Alwick Seedling, Duke of Buccleuch, Waltham Cross, White Lady Downe's, Duchess of Buccleuch, and others, and with the diversity of opinion that existed among cultivators regarding these varieties severally. Mr. Thomson pointed out that it was unfortunate that adverse opinion on such matters was not always supported by conclusive evidence of the bearing of local circumstances on the case in point. Regarding the difficulty in settling on what grounds Alwick Seedling Grape has been so much condemned, he stated his belief that this peculiarity was mainly due to purely local conditions, particularly such as led to over-luxuriance in the Vine; moist localities, and

very rich borders being the principal causes of want of fertility in Vines that were, like the variety in question, hereditarily predisposed that way. Over-luxuriance caused an excessive development of moisture on the stigma, which prevented the action of the pollen on that organ at the proper time. The paper discussed the merits as regards quality of many of the newer sorts, and claimed the highest consideration for the Duke of Buccleuch and the Duchess of Buccleuch. They could not be put forward as market or popular varieties, because of their bad travelling qualities, but wherever the highest excellence in size, texture, and lusciousness were required for home use, the Duke would hold its own against all comers; while the Duchess in point of deliciousness of flavour was incomparable.

In the discussion that followed the reading of the paper, Mr. Mathew Todd, florist and fruiterer, dealt with the value of any particular variety of Grape from the standpoint of the market dealer. To be popular, it must have a good appearance and must keep and carry well—black Grapes being generally speaking preferred to light coloured sorts, flavour being the very last consideration, and having no weight in deciding the choice of customers, if all the other qualities were up to the mark. Mr. Hugh Fraser and others took part in the discussion, and three much interest into the proceedings of the evening.

EDINBURGH BOTANICAL: DECEMBER 9.

H. H. JOHNSTON, Esq., exhibited and presented to the Society specimens of two Orkney plants collected by him last summer. *Sagina maritima*, Don, in a very contracted form, one-third to 1 inch high and one to three flowered, was collected at the Ness of Rannageo, Sandwick, on the mainland, on July 25. It grew between the short, densely-matted pasture, within a few feet of the edge of the cliffs, and in a situation exposed to the salt spray of the Atlantic Ocean, and the full force of the westerly gales which are so prevalent in the Orkney Islands. Professor Babington, to whom specimens of the Orkney *Sagina* were sent, wrote that he had apparently the same plant, rather more luxuriant, from Far-out Head. The pasture among which the *Sagina* grew was fully examined by Dr. Johnston, who found that it was composed of the following eleven species of plants, all of which were in a very stunted condition:—*Cochlearia officinalis*, Linn.; *b. alpina*, Wats. *Cerastium triviale*, Link.; *Sagina maritima*, Don; *Armeria maritima*, Willd.; *Euphrasia officinalis*, Linn.; *Plantago maritima*, Linn.; *b. minor*, Hook. and Arn.; *P. coronopus*, Linn.; *Festuca rubra*, Linn.; *Eurychium prostratum* (Linn.), Sch.; and an undetermined species of fungus, of which only one specimen was observed. The other plant exhibited was *Carex fulva*, Good.; *C. xanthocarpa*, Degl., which is described in *English Botany*, ed. 3, under the name of *C. fulva* var. *sterilis*, and is synonymous with *C. fulva*, Koch et Auct. plur. (non Smith). The specimens were collected in a marsh near North Dam, in Hoy, on August 9, 1886. The variety *sterilis* is distinguished from *C. fulva* by its denser tufted habit, pale yellow-green coloured leaves, uninflected perigynium, and by never producing mature fruit, either in the wild state or under cultivation.

Dr. Boswell, who first found this plant in Orkney, at Piggar, Swanbister, Orphir, on the mainland, contributed notes to the Report for 1876 of the Botanical Exchange Club, on specimens collected by him at that station in August, 1875. He then considered *sterilis* to be a hybrid between *C. fulva* and *C. flava*, both of which he found growing in the same marsh with it. Now however, he is of opinion that *sterilis* is a sterile form of *C. fulva*, though it is just possible that it may be a hybrid between *C. fulva* and *C. flava*, but it is certainly very much nearer to the *C. fulva*. Since Dr. Boswell's discovery of this interesting plant at Piggar, it has been found at three other stations in Orkney, viz., at Lavers Dale, Orphir, on the mainland, by Mr. W. Irvine Fortescue; near South Dam, in Hoy, on August 20, 1885, by Mr. Fortescue, in company with Dr. Johnston; and near North Dam, in Hoy, on August 9, 1886 by the Rev. W. R. Ginton, in company with Dr. Johnston.

REPORT FOR NOVEMBER, 1886, OF THE BOTANICAL GARDEN, EDINBURGH.

The past month of November has been very mild and dry generally. Seldom have we had so little frost to record, for the time of year and throughout the month has been most favourable for all outdoor gardening work. The thermometer was at or below the freezing point on ten mornings, indicating collectively 17° of frost as against 65° for the corresponding month last year. The lowest readings occurred on the 18th, when the glass registered 30°; 10th, 30°; 21st, 30°; 22d, 26°; 26th, 30°. The highest morning readings were on the 1st, 45°; 2d, 45°; 3d,

50°; 15th, 48°; 24th, 48°. Rain fell on ten days, and the prevailing winds were westerly. During the first week of the month severe storms of wind took place, which cleared off with but few exceptions, any leaves that still remained on deciduous trees. Many autumn flowering plants and annuals have had their flowering season prolonged to an extent quite unprecedented. At the end of the month large numbers were still in blossom. Early spring bulbs, such as Snowdrops, Scillas, Narcissi, and others, are already pushing through the soil, showing that a considerable amount of growth has taken place. Amongst the finest plants in flower out-of-doors during the month were *Primula capitata*, very dark seedling forms; Christmas Roses of different kinds, *Cyclanthemum*, and *Jasminum nudiflorum*.

For the handsome varieties of *Primula capitata* we are indebted to Dr. King, of Calcutta, one of the local secretaries of the Society, who, in December last, sent to the garden a valuable collection of rare Indian Primrose seeds. Many of the species are entirely new to European gardens. The seeds were gathered in high elevations of the Sikkim Himalayas. Nearly all the kinds have germinated and grown well at the garden, a few have already flowered, but we may expect to see them in greater perfection next spring. The most conspicuous shrubs in fruit were the various Hollies, Cotoneasters, Euonymus, and Snowberries.

The following plants came into flower on the rock garden during November, viz.:—*Aster Reevesii*, *Eucomis punctata*, *Geyerium argenteum*, *Helleborus olympicus*, *H. o. albus*, and *H. purpureus* variety. R. Lindsay.

REPORT FOR NOVEMBER, 1886, OF THE GLASGOW BOTANICAL GARDEN.

The thermometer has been at or below the freezing point eleven times during the month, the lowest temperature registered being 27°, 5° of frost, during the night of the 25th. The lowest day readings were 39° on the 7th, and 40° on the 15th and 30th respectively. The highest was 53°, on the 20th. Total frost recorded was only 27°.

Excepting the last few days, the weather has been fine for the month, and closes one of the mildest autumns of which I have any record.

A considerable quantity of green foliage still hangs on several species of *Cistus*, and many other deciduous trees have retained their leaves much longer than is usual, the young wood being as a consequence imperfectly matured.

In a nursery near here I saw a few fully developed Dahlia blooms on the 24th, and numbers of bedding Pelargoniums to all appearance very little injured. Various bushes of *Polyanthus*, double Daisy, and Wallflowers have made a premature appearance. R. Butler.

ON THE FLORA OF ICELAND.

NOTWITHSTANDING that the Icelandic flora is very poor, and most of the plants develop late before the month of May or June, to be stopped again in their growth already in September, the vegetation is as luxuriant and rapid (in sheltered localities) as in other more southern countries, but the spring storms—occurring here so very often and accompanied by severe cold—are very disadvantageous to all plants in their first period of development; this is also the cause of the dwarf appearance of all Icelandic species when they are not protected from the winds; vegetation is possible only for a few months, and when the summers are unfavourable it is almost at zero.

The flora of North and South Iceland is about the same in character, which is very remarkable, considering the great difference in mean temperature. Even the mountain flora presents no difference with that of the lowlands.

Compared with former times the vegetation of the island has decreased; it is known that the first settlers were obliged to cut a way through the Birch forests with the axe; the masses of bogwood dug up everywhere in the present time confirm the truth of these assertions; but the cause of this decrease of vegetation is not a change of climate or volcanic eruption, but simply the destruction of the trees by the natives themselves when using them as fuel or for other domestic purposes. A very good example of this destruction is the forest Halsekogar in the Pryoshallur. This was very extensive in the year 1752, but wholly cut down in 1814; in 1874 it was again of a considerable size; one of the largest of the Birch forests, or bushes, as they may be called, is the Nupstadorskogar, on the southern side of the Vatna Jökull; but the largest of all is the Hallormsbadarskogar, on the river Ligarðjot; many birds animate the scene in these bushes, so that it differs greatly from

the desolate and melancholy appearance of the lava fields that cover so large a part of the area of the island. Some of the trees reach 10 or 15 feet in height, but these are exceptions.

Sorbus aucuparia, L., is another plant that reaches in some places to 15 or more feet. At Akureyri, under 65° 40' N. latitude, there is a specimen of 25 feet, but it is protected by a wall; at some distance from this place there is also a Birch bush, where the trees are as large as common Hazel-nut plants. Some Birches (*Betula intermedia*, Thom.) in the northern parts reach also 20 feet in height. In the vicinity of Havamore there is a small lake with a grassy island in it; on this latter there is found a specimen of the Scotch Fir (*Pinus sylvestris*, L.), the only one in Iceland.

Now we will treat the flora more in detail. The arctic regions of Russia and Norway are relatively rich in species of plants compared with Iceland; this must be ascribed, in the first place, to their warmer summers. It would be difficult to find any other country on the globe of the same area, producing so few species of plants as Iceland. Notwithstanding this there are many plants to be found that would interest the botanist, as *Azalea procumbens*, L.; *Cardamine hastulata*, Sm.; *Rubus saxatilis*, L.; *Erigeron alpinum*, L.; *Saxifraga nivalis*, L.; *S. rivularis*, L.; *S. cernua*, L.; and *S. oppositifolia*, L.; *Silene acaulis*, L.; *Veronica alpina*, L., and *V. fruticulosa*, L., all found on the continent, but on the highest mountain peaks, while in Iceland they are to be seen in lowlands, near the coast.

Shore-plants, as for instance; *Silene maritima*, With.; *Lithyris maritima*, Bigelow; and *Elymus arenarius*, L., are seen many miles from the coast, in the interior, which is only to be explained by the sea climate and the complete insularity of Iceland.

Of 344 Icelandic species 123 are not found in Greenland, but all plants found on the island are also indigenous to Scandinavia, with the exception of only five species:—*Pleurogyne rotata*, Griseb.; *Epilobium latifolium*, L.; *Plantanthera hypoboræa*, L.f.; *Glyceria arctica*, Hook., var. *laxa*, Lange; and *Alchemilla conjuncta*, Bab. The four first-named plants are also found in Greenland, but the fifth must be regarded as naturalised from Europe.

The only species found on the lava plateau in the north (the Hraun) is *Silene acaulis*, L.

On a height of 4140 feet above the sea level the following plants were gathered:—*Empetrum nigrum*, L.; *Silene maritima*, With.; *Viscaria alpina*, Don; *Carabium alpinum*, L.; *Arabis petraea*, Crtz.; *Arabis alpina*, L.; *Saxifraga oppositifolia*, L.; *S. rivularis*, L.; and *S. decipiens*, Ehrh.; *Thymus serpyllum*, L.; *Achillea millefolium*, L.; *Salix glauca*, L.; *S. herbacea*, L.; *Carex incurva*, L.; *Elymus arenarius*, L.; *Poa alpina*, L.; *P. caesia*, Sm.; *Festuca ovina*, L.; *Juniperus alpina*, L.; *Equisetum variegatum*, Schleich., &c.; so it is almost impossible to fix a snow-line on this island—the plants growing on the mountains and in the lowlands are the same species.

Lindsay has found that out of 426 plants indigenous to Iceland only seventy-two species are not to be seen in the British flora, while Babington mentions out of 433 species sixty-two as not British. This proves the near relation between both floras. Very rare Scotch mountain plants, as *Silene acaulis*, L., and *Lychnis alpina*, L., are found in Iceland in the lowlands, and are the commonest of the whole flora.

Cardamine hirsuta, L., and *Capella Bursa pastoris*, Moench., reach only to 1 or 2 inches; *Caltha palustris*, L., and *Silene Armeria*, L., are mostly seen in morasses; *Alchemilla alpina*, L.; *A. vulgaris*, L.; *Rhodiola rosea*, L.; *Saxifraga aizoides*, L.; *Silene acaulis*, L.; *Dryas octopetala*, L.; *Empetrum nigrum*, L.; *Calluna vulgaris*, Sal.; *Vaccinium Myrtillus*, L.; *V. uliginosum*, and *V. vitis-idaea*, L., are all found on the mountains as well as on the shores.

Arctostaphylos Uva ursi, L., and some dwarf Willows cover the mountain plateau in the north, but everywhere the flowers of *Silene acaulis*, L., are seen through the branches of the shrubs just named.

The most striking contrast with the uniform brown colour of the surrounding desert presents the vegetation near the hot springs. Near those of Lauganes, *Poa annua*, L., and *Stellaria media*, Vill., were found with their roots in the hot water, the first in a vigorous state, but the latter dwarfish and of a yellow colour. In the vicinity of the springs there were seen the most common weeds in a very luxuriant

was limited and the market firm, especially towards the close, when 6d. to 1s. advance was generally obtained. The imports of foreign Wheat in the past week were also light, and the market equally firm to-day for these descriptions, ruling 6d. to 1s. per quarter above Monday last. Flour sustained a rise of fully 6d. per sack. Maize was quoted 6d. above the rates of this day se'night. Grinding Barley brought steady value, malting kinds met very little attention. Beans advanced 6d. to 1s. per quarter, and Peas were very firm from scanty supply. Oats unaltered.

Answers to Correspondents.

Dec. 15.—Business in Wheat and flour was limited, but both articles were firm; some kinds of red Wheat, including Baltic and American winter, were rather against buyers, as also was flour in some instances. Malting Barley met very little enquiry; grinding sorts were steady but quiet. Beans and Peas were firm; Oats, of which the stocks are heavy, were a dull sale; and Maize continued very firm.

Average prices of corn for the week ending Dec. 11 :—Wheat, 33s. 1d.; Barley, 27s.; Oats, 16s. 9d. For the corresponding period last year :—Wheat, 30s. 6d.; Barley, 29s. 8d.; Oats, 18s. 2d.

CATTLE.

THE CHRISTMAS MARKET: *Dec. 13*.—There was a falling off, as compared with last year, in the number of cattle and sheep sent to the Christmas cattle market at Selkirk, but all the noted breeds were splendidly represented. A reduction in the average weight of cattle was noticed, but this was compensated for by an improvement in point of quality for trade purposes. Business in the cattle department opened very slackly, but improved subsequently; nevertheless, the prices were disappointing to senders, ruling quite 6d. per 8 lb. under, or from £2 to £3 per head less than was realised on the Christmas market last year. The Scots brought 4s. 8d. to 5s.; Herefords, Runts, and Devons, 4d. to 4s. 10d.; and Shorthorns, 4s. 6d. to 4s. 6d. per 8 lb.

The sheep supplies were 2260 less than last year, and, on the whole, were not so good a show, but they included some excellent pens of Down wethers. The trade in this department was slow, but the prices realised compared well with last year, showing an advance of 2*d.* per 8 lb., or about 1*s.* 6*d.* to 2*s.* per head.

The total number of beasts on offer was 6920; there were 7470 sent in last year. The sheep numbered 11,390, against 13,650 in 1885.

FRUIT AND VEGETABLES

COLUMBIA (East London): *Dec. 15.*—Good supplies of all kinds of produce. Trade slow, at prices as follows:—Cauliflowers, 1s. 6d. to 2s. 6d. per dozen; Beet-roots, 4d. to 6d. do.; Savoy, 2s. to 3s. per tally; Cabbages, 1s. 6d. to 2s. do.; bunch Greens, 1s. to 1s. 6d. per dozen; bunch Turnips, 1s. 6d. to 2s. do.; bunch Carrots, 1s. to 2s. do.; Brussels Sprouts, 1s. to 1s. 6d. per half sieve; Celery, 6d. to 1s. per bundle; Onions, 3s. 6d. to 4s. 6d. per cwt.; Carrots, 18s. to 30s. per ton; Mangels, 14s. to 16s. do.; Apples, 3s. 6d. to 7s. per bushel. *Perkins.*

STRATFORD: Dec. 15.—There was a good supply of produce and a fair trade was done at the following

produce, and a full trade was done at the following prices:—Savoy, 3s. 6d. to 4s. per tally; Cauliflowers, 1s. per dozen; Turnips, 2s. to 2s. 6d. per dozen bunches; do. 3or. to 35s. per ton; Carrots (cattle feeding), 20s. to 27s. 6d. do.; Parsnips, 9d. 1s. per score; Mangels, 13s. 6d. to 17s. 6d. per ton; Swedes, 15s. to 22s. do.; Apples, English, 3s. 6d. to 4s. per bushel; Watercress, 6d. per dozen; Celery, 8d. to 10d. per roll.

POTATOS

POTATOS.
BOROUGH AND SPITALFIELDS: Dec. 14.—A quiet

COLUMBIA (East London): *Dec.* 18.—Quotations:—
Cambridge Regents 60s. to 65s.; Magnum Bonums

Cambridge Regents, 60s. to 65s.; Magnolia Bonitatis, 50s. to 70s.; Essex Regents, 60s. to 75s.; and York and Lincoln Regents, 60s. to 70s. per ton.

STRATFORD: Dec. 15.—Quotations:—Regents, 70s.

to 80s.; best Magnums, 60s. to 70s.; and Fenland do., 50s. to 60s. per ton.

Imports.—The imports into London last week con-

consisted of 6019 bags from Hamburg, 2456 Ghent, 2 Amsterdam, 330 Boulogne, 8 sacks from Rotterdam.

HAY.

WHITECHAPEL: *Dec. 14.*—There were moderate

supplies, and a dull trade at the following quotations :—
Clover, prime, 88s. to 100s. ; inferior, 70s. to 84s. ; hay,
prime, 70s. to 90s. ; inferior, 30s. to 65s. ; and straw,
28s. to 40s. per load.

Dec. 16.—A moderate supply was on sale. The trade was dull at the following prices :—Prime clover, 90s. to 100s. ; inferior, 70s. to 90s. ; prime meadow hay, 70s. to 80s. ; inferior, 60s. to 70s. ; and straw, 20s. to 30s. per ton.

CUMBERLAND (REGENT'S PARK): Dec. 14.—A large

supply was on offer, and trade, owing to the weather, in favour of buyers. Quotations :—Clover, best, 84s. to 85s.; second, 80s. to 82s.; hay, best, 78s. to 85s.; second, 75s. to 78s.; and straw 28s. to 29s. per load.

STRAFORD: *Dec. 15.*—Quotations:—Hay, 70s. to 80s.; Clover, 70s. to 90s.; and straw, 28s. to 32s. per

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On and after Jan. 1, 1887,
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Reduced to Three Pence.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.

4s. per bushel; 100 for 25s.; truck (loose, about 4 tons),
40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack;

BLACK FIBROUS PEAT, 5s. per sack; 5 sacks 22s.; sacks,
4d. each.

COARSE SILVER SAND, 12. 9d. per bushel; 12s. per half
ton, 26s. per ton in 2-bushel bags, 4d. each.

**YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-
MOULD**, 12s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

**MANURES, GARDEN STICKS, VIRGIN CORK, TO-
BACCO CLOTH, RUSSIA MATS, &c.** Write for
Price List.—H. G. SMYTH, F.R.S., 21, Goldsmith's
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PEAT and SAND.—Light Brown PEAT for
Nursery and Greenhouse Work, in four ton trucks of 20
yards each, at 10s. per yard. In bags, at 2s. 6d. per bag.
Rhododendron and American Plant Beds, at 15s. per ton.
Orchid Peat 5s. per bag; Fresh SPHAGNUM, 10s. 6d. per
bag. **SILVER SAND**, coarse or fine, 12s. per ton.
WALKER and CO., Farnboro' Station, Hants.

EPPS'S SELECTED PEAT AND GARDEN REQUISITES.

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TWO PRIZE MEDALS.

Quality, the BEST in the Market. (All sacks included.)

PEAT, best brown fibrous .. 5s. per sack; 5 sacks for 22s. 6d.

PEAT, best black fibrous .. 4s. 6d. " 5 sacks for 20s.

PEAT, extra selected Orchid .. 5s. 6d. " 5 sacks for 25s.

LOAM, best yellow fibrous .. 12s. per bushel, 3s. per sack.

PREPARED COMPOST, best .. 12s. per bushel, 3s. per sack.

LEAF MOULD, best only .. (sacks included).

PEAT MOULD, coarse, 12. 6d. per bushel, 12s. half ton, 24s. ton.

RATFIA FIBRE, best only .. 2s. per lb.

TOBACCO CLOTH, finest imported .. 8d. lb., 28 lb. 18s.

TOBACCO PAPER (Specialite) 8d. lb., 28 lb. 18s.

MUSHROOM SPAWN, finest Multrack .. 5s. per bushel.

SPHAGNUM MOSS, all selected, 2s. per bushel, 6s. per sack.

CHUBB'S "PERFECT" FERTILISER, the Best Food for
all kinds of Plants, Flowers, Fruits, Vegetables, &c. Tins, 12. 6d.

Bags—7 lb., 3s.; 14 lb., 5s.; 28 lb., 8s.; 56 lb., 14s.; 1 cwt., 22s.

VIRGIN CORK, best quality only—24 lb., 3s.; 28 lb., 5s. 6d.;
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HORTICULTURAL CHARCOAL, best quality only, 2s. 6d.

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sacks, 12. each; 20 sacks, 9s.; 15 sacks, 12s.; 20 sacks, 17s.;
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Plant's Poison.

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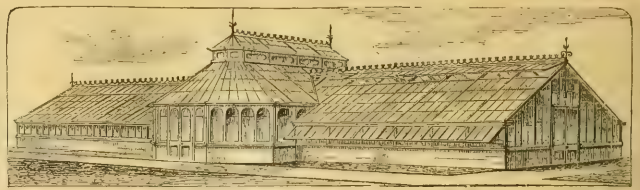
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Supply a superior class of Manures, each of
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Conservatories and Winter Gardens designed architecturally correct without the assistance of any one out of our firm,
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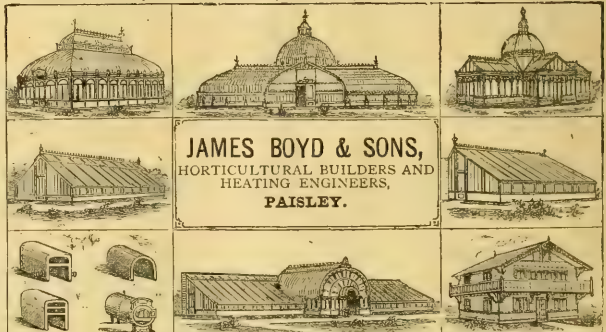
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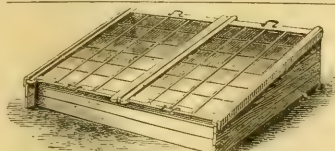
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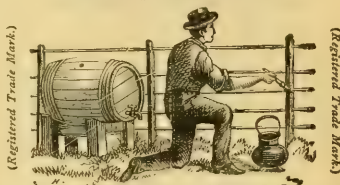
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FROM

TO

W. RICHARDS,

41, WELLINGTON STREET, STRAND,
LONDON, W.C.

1886.

Please send me "THE GARDENERS' CHRONICLE" for _____ Months, commencing January 1, 1887, for which I enclose P.O.O.

Please Note that all Copies Sent Direct from this Office must be paid for in advance.

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Cheques should be crossed "DRUMMOND."

G. C.
Dec. 18, 1886.

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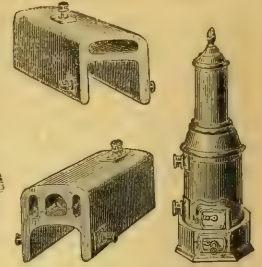
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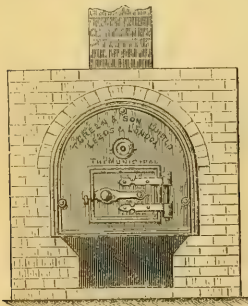
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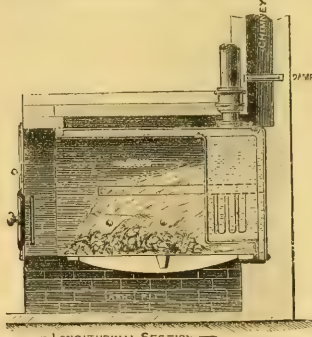
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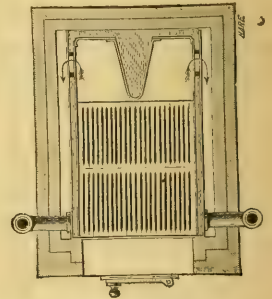
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Messrs. THOS. GREEN AND SON, LTD., NORTH ST., LEEDS.

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Borough Engineer's Office, Municipal Buildings, Leeds, January 9, 1886.

GENTLEMEN,—I have great pleasure in bearing testimony to the efficiency and satisfactory working of the Hot-water Heating Apparatus you erected in these public buildings. The buildings are four storeys high, and we have a total length of about 28,000 feet of piping in them, varying in size from 1½ in. to 6 in. diameter, with their connections, &c. The several offices and rooms can all be in operation at one time or separately, and the heat regulated by means of the valves to the temperature required, even in the coldest weather. Two of your Patent Municipal Pattern Boilers, No. 4, work the whole of this piping easily, although we have three of them fixed. They are very powerful and economical in the consumption of fuel, and I am pleased to be able to report of them and the apparatus so favourably.

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THOS. HEWSON, Borough Engineer.

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Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, December 13, 1886. Agent for Manchester—JOHN HAYWOOD.

GARDENERS' CHRONICLE.

Established 1841.

No. 678.—VOL. XXVI. { NEW SERIES. } SATURDAY, DECEMBER 25, 1886.

{ Registered at the General } Price 5d.
{ Post-office as a Newspaper. } POST-FREE, 5d.
WITH SUPPLEMENT.

SPECIAL NOTICE.—On and after Saturday next, January 1, 1887, the Price of the "Gardeners' Chronicle" will be THREE PENCE.

NOTICE TO SUBSCRIBERS.
With this Number is issued, Gratis, a COLOURED ALMANAC for 1887.

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Volume XXV, JANUARY to JUNE, 1886,
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SOCIETY. Royal Aquarium, Westminster.
THE MID-WINTER EXHIBITION will be held on WEDNESDAY and THURSDAY, January 22 and 23. CHRYSANTHEMUMS, CYCLAMEN, PRIMULAS, SOLANUMS, &c. Schedule and all particulars (free) at Mr. WILLIAM HOLMES, Frampton Park Nursery, Hackney, E. Miscellaneous Exhibits invited for Special Awards.

SHEPPERTON and THAMES VALLEY

HORTICULTURAL SOCIETY.
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Shepperton-on-Thames.

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COUNTIES CHRYSANTHEMUM, FRUIT, and FLORICULTURAL SOCIETY.—The TWENTY-SEVENTH ANNUAL EXHIBITION of CHRYSANTHEMUMS, will be held in the Town Hall, on WEDNESDAY and THURSDAY, November 16 and 17, 1887. Schedules are in course of preparation, and will be forwarded, when ready, on application to
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King's Acre, Hereford.—October 1, 1886.
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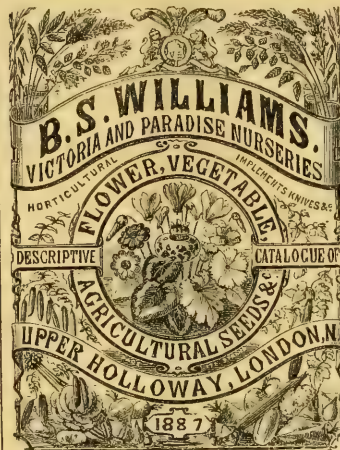
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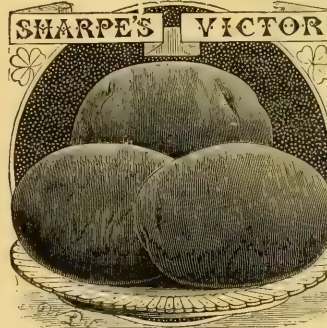
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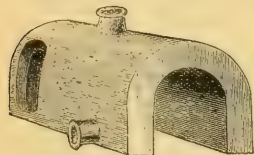
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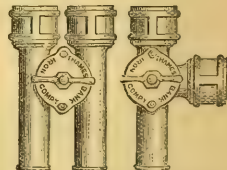
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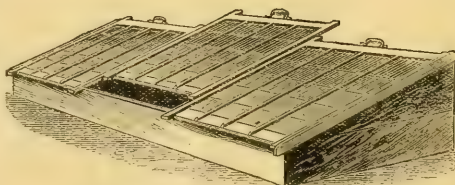
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Gardeners' Chronicle, August 28.

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Mr. MERRICK, Eborack Park Gardens.

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Mr. LYS, Sydmonston Court Gardens.

"Ne Plus Ultra" is the finest Runner Bean ever sent out, both for cropping and exhibition qualities; this season I grew them 14 inches long, and not a bit old, but quite fit for cooking. Every one should grow it who has a garden."

Mr. HORN, Middleton Park Gardens.

"If any one has any doubt as to 'Ne Plus Ultra' being a valuable novelty, I would strongly advise a trial of it; grown side by side of other improved Runner Beans here this year, none could come up to it. The vines ran to feet high, and were loaded with Beans of a beautiful quality. I never saw anything like it, and in future I intend growing no other."

Mr. WINGROVE, Rousham Park Gardens.

"I have been enabled to gather 3 bushels of 'Ne Plus Ultra' Beans where I could only gather 1 bushel (if the same number of rows of other 'crick' sorts). It is highly adapted for kitchen or the exhibition table. Keep your stock pure, and I have no doubt that the value of this Runner Bean is known it will be the Bean of the future."

Mr. DOWNEY, Wroton Abbey Gardens.

"Ne Plus Ultra" is an extraordinary cropper, and of excellent quality."

Oxford Chronicle, August 28.

"Winney Show.—Kidney Beans.—'Ne Plus Ultra,' level as a foot-rule, were met with in each division."

Mr. SMITH, The Grange, Bampton.

"I planted 24 Beans of the 'Ne Plus Ultra,' which yield sufficient for the requirements of a family of five from the middle of July, well into October. I also took the First Prize at the Oxford July Show."

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**CHARLES SHARPE & CO.,
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THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 25, 1886.

CHRISTMAS BOUQUETS.

"THE old order changeth to the new" may well say the visitor to Messrs. Hooper & Co.'s show-room under the Piazza in Covent Garden Market. Here are bouquets, &c., of various sizes and patterns, but as distinct in character compared with what prevailed a few years ago as can be—new agents, new styles, new developments, are the prevailing characteristics. In the matter of dried flowers, leaves and grasses, we have undoubtedly become much more aesthetic. Gone to a large extent are the old strong blues, striking crimsons, and vivid greens; they are replaced by softer and more tender hues—old gold, pale mauves, delicate browns, and silvery hues in abundance, have taken their place. In Paris, where the trade in dried and dyed flowers, &c., may be said to have reached its highest development, a little colour is still necessary, but in London, gold and silver, brown and white, with soft tints thrown in, are most appreciated; and there is a change in the subject too—many of the old ones are abandoned, and newer ones have taken their places. Even in this department of horticultural enterprise novelties must be sought for, but no old subject is abandoned until the character and fitness of the new are established beyond doubt; and the development of the trade in these subjects has become so enlarged that Messrs. Hooper & Co. now have two establishments in Paris, one in Germany, and one also in Hungary, and agencies in all parts where it is likely suitable subjects can be obtained.

It has just been remarked that a greater variety of subjects is one of the gains of the past few years. Among them may be mentioned a curious Thistle head from Africa, with a spiny involucre of good size, mounted with a charming delicate sea-weed from the Gulf of Florida, quite unique, and largely used. Then there are several unique Cape grasses, all of a beautiful character, specially collected for Messrs. Hooper & Co., brown in colour, but of various shades, and extremely useful in bouquets. Sprays of the Butcher's Broom (*Ruscus*), bleached in Germany, and of a delightful clear pale silvery hue, are also used in the larger bouquets, and have a very pleasing effect. Then there is an Echinops that comes from abroad, of almost similar character to the blue Thistle of our gardens, that is very useful also. But one of the most novel and at the same time most charming introductions, is what looks like a large and symmetrical silvery Scabious, formed of a seed-pod of an *Asclepias*, which produces a developed seed-head of a similar character to the Dandelion; the points of the hairy-like tubes are drawn together and tied, and when pulled away from the seed-pod assume this Scabious-like character; they are actually reversed, and when mounted are most attractive,

**H. DEVERILL,
ROYAL SEED STORES,
BANBURY.**

A Sorghum, with its millet-like heads, is also well worthy of notice.

Dried Palm leaves are being largely used for the backgrounds of bouquets: they come from Egypt, the leaves being blanched in the sun, and so perfect is the process that they retain their colour admirably. Various species of the genus *Phoenix* are used for this purpose, and especially *dactylifera* and *rupicola*; the Fan Palms also, especially *Latania* and *Thrinax*. The fronds from small plants are equally of service, and the *Geonomas* are also employed in the same way. The waste leaflets of *Phoenix*, and especially of *P. rupicola*, are curled, then mounted, and employed with excellent effect. *Uniola paniculata*, a very tall water-grass from the marshes of Florida, is a comparatively new-comer of decided value, and the male flowers of *Zea*, as they issue from the pod, are dried and utilised. *Bromus brizæformis* is such a useful agent in combinations that it is used by the ton.

The new "Makart" Fan bouquets are designed for the mantel-shelf or side-table, and they vary in size—some are 3 feet in height, others smaller. As a matter of course they face to a front, and for entrance halls, corridors, and such places they are of the greatest value. Here, in combination, may be seen the grasses and Palms of the tropics, combined with plumes of the Pampas grass. Some are more brightly coloured than others, to suit varying tastes; in some a few peacock feathers give brilliant hues not to be found in amongst dried grasses, but used sparingly; in others the skins and plumage of birds give variety of tint. Here is what may be termed a "love-gift;" it is an ornament standing a little over 2 feet in height; on one side is a bouquet of dried flowers, on the other there is an oval mirror in the centre, with a rustic tray and shell at the base. Above the mirror a white pigeon, bearing a gift—and what a pretty and novel Christmas present it makes! But this is only one of many elegant devices.

Artificial plants may be said to have had their day, and if found anywhere it will be only in dining-rooms, restaurants, and such-like places. In the change from the old order to the new, things purely artificial have given way to those of a natural character. The only exception to this is afforded by the beautiful wreaths, bouquets, crosses, &c., in china, manufactured in Messrs. Hooper & Co.'s Paris establishment. As many as thirty persons are employed in constructing flowers and foliage from the celebrated Limoges clay. It is of a grey colour, and by the deft hands of girls it is kneaded to the consistency of paste, then stamped according to the pattern required, baked, and coloured by artists specially employed on this work, both in London and Paris. The closest fidelity to Nature is observed in the artificial rendering of flowers and foliage. One charming wreath of Tea Roses and blue Forget-me-Not was worthy of all praise.

The old coloured grasses, *Gnaphaliums*, &c., representing the commoner type of dried flowers, are still largely employed, in the northern districts especially. They gild many a workman's home with grateful colouring at the Christmas season. They sell in abundance in the markets and seed shops.

Gaudy colours will always have their attraction for the masses, and if they can be made to relieve the gloom of humble homes, even if the degree of art they display be of the lowliest character, they should not be despised, for they are assuredly doing good service. *R. D.*

FAISLEY HORTICULTURAL SOCIETY.—The dates of the shows intended to be held by this Society in the forthcoming year are March 31, April 1, and September 1 and 2.

WHEAT IN PREHISTORIC TIMES.

OF late considerable attention has been directed to Wheat—on the one hand owing to the experiments of Messrs. Carter, and on the other by the remarks of Mr. Carruthers at the last meeting of the British Association at Birmingham. Messrs. Carter justly claim to have obtained great advances in the quality of Wheat, whilst Mr. Carruthers has said that "Wheat found in the purely British portion of the ancient village (Winklesbury) explored by General Pitt-Rivers is equal to the average of Wheat cultivated in the present day."

Without making any attempt to support or question the views of any writer, the accompanying illustration of actual Wheat grains (fig. 156) will probably be regarded with some interest. The upper grains, A, are from Robenhausen, in Switzerland, and belong to the polished stone age of that country. The bottom row, F, represents average Wheat as sold in the market place of Dunstable—a Wheat growing district. It will be seen that the stone age grains are very nearly equal in size to the average grains as now sold at

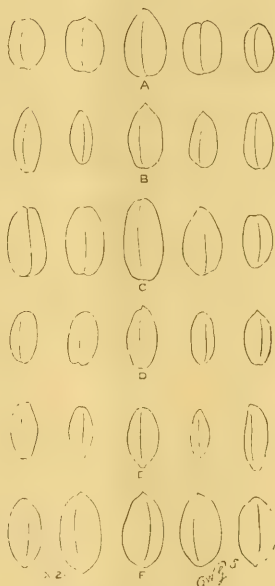


FIG. 156.—A TO E, PREHISTORIC WHEAT. F, WHEAT-GRAINS OF THE PRESENT DAY.

Dunstable. The second row is from a discovery made near Salisbury in June of the present year. Whilst some navvies were digging ballast for a railway about 18 miles south of Salisbury a small quantity of Barley and Oats was found together with some three or four sackfuls of charred Wheat in a hole which had probably been dug out as a rude granary. Blackened Wheat of the nature exhibited is often naturally carbonised by the action of the air; but in the Salisbury examples, furnished to me with particulars by Dr. H. P. Blackmore, of Salisbury, the Wheat had really been burnt, as was proved by the burnt condition of the sides of the rude pit or granary. The corn had been stored away unwinnowed, and was evidently a bearded Wheat, as was proved by the condition of a large quantity of broken charred spikes. The position was one where quantities of Roman coins and Romano-British pottery had been previously found, and Dr. Blackmore considers the corn to date from the close of the first century. The Salisbury Wheat is much smaller in size than the Robenhausen sample. In row C are grains from Winklesbury, Wilts, Pit 3; these grains are considered by General Pitt-Rivers to be British; they are equal in size to the average Wheat of the present day, and it is only reason-

able to suppose that the British grains are smaller in size now than at the time of threshing. Rows D and E are also from Winklesbury Pits 43 and 7; these are considered by General Pitt-Rivers to be Romano-British, and it is curious that they agree in their small size with the Romano-British examples from Salisbury. For the opportunity of illustrating the Winklesbury grains I am indebted to Mr. Carruthers. In referring to the small Winklesbury grains Mr. Carruthers says, "The two examples from the later Romano-British period are very much smaller" (than the truly British), although they are not unlike the small hard grains still cultivated on thin chalk soils. "I live in the immediate neighbourhood of a 'thin chalk soil,' and I have sometimes seen Wheat there growing quite as small as the Romano-British grains exhibited. In some positions near where I live the ploughing is extremely shallow; it appears to me to be little better than a mere raking of the soil. If deep, the chalk would absorb all the manure, but the ploughing being shallow the manure is kept to the immediate surface of the chalky ground.

Wheat is of very ancient culture in Britain, the oldest reference I know being that of Pytheas, the Greek merchant, in the fourth century before our era, who in his diary has described the abundance of Wheat and its threshing in covered barns in Kent.

In conclusion, I may perhaps be excused for suggesting the existence of a little exaggeration in some of the accounts descriptive of the amount of change wrought by man in the cultivation of Wheat since pre-historic times in the north of Europe. Most people are still far too credulous. As a great deal has been said about Egypt and its productions of late, and especially of the antiquity of man in that country, the works of Palaeolithic man having probably been found there, I will conclude by mentioning a remarkable "mare's nest" quite recently discovered by H. Villiers Stuart, and published in his *Nile Gleanings*. In visiting the Libyan desert, Mr. Stuart, of course, met with the abundant fossil wood of that place. "I found," writes Mr. Villiers Stuart, "a fossil stick showing three very distinct cuts made with an axe of some kind, while the wood was still in its natural state."

The examples of Wheat illustrated are now in the Department of Botany, British Museum, South Kensington, Worthington G. Smith, Dunstable.

New Garden Plants.

BILLBERGIA CAPEPEI—BREAUTEANA,
Hort. Morren.

THIS is a fine plant, distinct from a horticultural point of view, and now flowering at Kew. We bought it under this name last year from the collection of the late lamented Professor Morren. I can find any record of the name, but it is so exactly intermediate between two well-known species, *B. vittata* and *B. pallens*, *Bul. Mag.*, t. 6342 (B. Bakeri, Morren), that I strongly suspect it to be a garden hybrid. Can any of your readers state if such is really the case and place on record its history, for it is a type quite worth preserving as a garden plant?

Acaulescent. Leaves about ten in a rosette, lanceolate, rather horny in texture, narrowed gradually to an acute point, thinly white-lipidote on the glossy green face, copiously banded with white on the back, the central ones 1½–2 feet long, 2–2½ inches broad at the middle, the outer much smaller; marginal prickles minute, distant, erecto-patent, yellowish-green. Peduncle cernuous, 1 foot long; bracts lanceolate, bright crimson, 2–3 inches long, the three to four lower subtending the lower branches of the panicle. Panicle very lax; lower branches forked; proper bracts minute. Ovary cylindrical-trigonus, three-quarters of an inch long, pale green, faintly sulcate; sepals as long as the ovary, very pale green tipped with violet. Petals protruding an inch beyond the calyx, oblancoate-unguiculate, violet. Stamens about as long as the petals; anthers bright yellow, slightly versatile.—P.S. Since writing the above I find that B. Capepei is substantially identical with B. Breautiana André, figured in the *Revue Horticole*, 1885, p. 302, a cross between *vittata* and *pallens* made by M. André's Gardener, M. Breauté. J. G. Baker.

ANTHURIUM PUNCTATUM, *N. E. Brown, n. sp.*

This belongs to the same group as *A. Harrisii*, *A. Bakeri*, &c., and is about equal to the former as a decorative plant. It was introduced from Ecuador by Mr. Bull, and presented by him to the Royal Gardens, Kew, in 1879.

Stemless. Cataphyllary or scale-leaves 2–3 inches long, attenuate to an acute apex, soon becoming brown and fibrous. Petioles 6–8 inches long, 2–3 lines thick, somewhat compressed, rounded, or with an acute keel on the back; sometimes the keel is confined to the upper part, deeply and acutely channelled down the face, with acute edges to the channel; geniculus tumid, $\frac{1}{2}$ – $\frac{3}{4}$ of an inch long. Blade of the leaf 14–20 inches long, 2 $\frac{1}{2}$ –4 $\frac{1}{2}$ inches broad, in adult forms usually about 3 inches broad, elongate-oblong, cuneate at the base from about a quarter of the way up, apex rather abruptly acute or subobtusely, with a short mucro; bright dark green above, paler beneath, marked with very numerous blackish dots whence the name; midrib rounded above, acutely

(*alias* *Coelandria*), no other species having to my knowledge such long bracts, which are nearly as long as the flower. But for this one might compare them to those of *Dendrobium cumulatum*, though they are smaller. Even the purple of the sepals and petals is similar to that of the just named species. I have at hand a fresh inflorescence on its stem and two dried wild inflorescences, which came over in the finest condition in alcohol. Messrs. Linden thought it was better to send these in a good state than to risk the ruin of the fragile contents of the bottle by pressing them into a box to save trouble to the packers. (I have at my side a number of glorious Orchids gathered by one of the most zealous collectors in a fresh district, and which are in the most abominable state, broken, crushed, pressed into boxes, after having been extracted from the bottles.)

Those inflorescences form capitate masses. The bracts are ligulate acuminate, purple-mauve at the base, green at the upper part. The basilar bract is blunt, and forms a transition to the presumptive scales. The sepals are triangular and keeled. The mentum

12 to 15 inches high, and covered profusely with large double flowers (fig. 157). The shape of the latter differs from that of all classes of Asters in cultivation, and resembles very closely that of a large-flowered Japanese *Chrysanthemum*. The petals are long and somewhat twisted or wavy and curled, recurved from the centre of the flower outwards in such a regular manner as to form a loose but still dense semi-globe. Well grown plants produce from twenty-five to thirty perfectly double flowers, measuring from 3 $\frac{1}{2}$ to 5 $\frac{1}{2}$ inches in diameter. The colour is a delicate pink bordered with white. This new section differs just as conspicuously from the other classes of Asters known and cultivated up to the present day, as the Japanese *Chrysanthemum* from the ordinary large-flowering varieties. The variety was raised by Messrs. Haage & Schmidt, of Erfurt.

WINTER FLOWERS AT TRING PARK.

IN the gardens of the Right Hon. Lord Rothschild, Mr. E. Hill, the gardener, seems to have attained perfection in the production of seasonable flowers, and more especially those which may be grown for winter flowering. It is always pleasant to make the tour of the gardens at Tring Park, the perfect neatness and order which prevail in it, from the Orchid-houses to the stokeholes, from the flower garden to the woodland drives, afford an excellent example of a thoroughly well-managed garden and its surroundings. At the present time the large span-roofed houses are gay with flowers, and much taste is displayed in their arrangement.

The houses of Carnations contain a large quantity of well-grown and profusely-flowered plants, which fill the air with their delightful perfume. After trying many varieties, Mr. Hill comes to the conclusion that for really efficient work the choice should fall on a few, and these generally the older kinds. In pursuance of this evidently correct idea the main crop now in flower and for succession are *La Belle*, pure white; *Irma*, rosy-carmine; *Lucifer*, brilliant scarlet; *Attila*, scarlet and white flake; *Andalusia*, yellow; *Miss Jolliffe*, bluish; and *Empress of Germany*, large white, with occasional red tip; these produce their flowers naturally in winter, and are much better than many of the new varieties, which are in many cases but summer-flowering garden kinds. A few of *Guellders Rose*, white; *Laura*, fringed pink; *C. A. Hooper*, yellow, with crimson edge, and some other kinds, are grown for the sake of variety, and for early summer flower many hundreds of superb plants of *Souvenir de la Malmaison*, which is always successfully managed here.

The zonal *Pelargoniums* also give a rich display, the single varieties, and chiefly of *Cannell's* varieties, being mostly grown. The whole house is a blaze of colour, great trusses of every tint of crimson-scarlet, red, and pink being there in countless numbers. For winter flowering white, *Cannell's Eureka* is the only one found to come pure white, and it well shows its good qualities among the coloured varieties, of which *Placidi*, a large rosy-crimson; *Florence Durant*, crimson; *Henri Jacoby*, blood-red; *Dr. Rawson*, dark crimson; *Agnes Emily*, large white, with pink eye; *Glow*, salmon-orange; *Arthur Pearson*, bluish-crimson; *Celia*, large rosy-mauve; *W. B. Miller*, scarlet; *Alfred*, yellowish-scarlet, of *Vesuvius* habit; and *Circulator*, a fine reddish-pink, appear to be the best.

The house of *Cyclamens* contains plants which are individually and collectively as near perfection as possible; for size and colour of the flowers, and vigour and beauty of leaf nothing better could be desired; they are of Mr. Charles Turner's strain, and were sown in September, 1885. The plants are effectively set up with neat table plants of *Grevillea robusta* here and there among them, and a few well-flowered plants of *Bouvardias* at the back.

The houses of *Pointsettias* just expanding their showy scarlet heads are equally well arranged, the whole of the staging being filled with *Adiantum cuneatum*, among which the scarlet *Pointsettias* are arranged, the whole having a very pleasing effect. In other houses are some magnificent *Eucharis* and other flowers, and in the Orchid-houses the *Calanthes*, *Sophrontes*, *Odontoglossums*, &c., are effectively in flower; while the two large houses of *Cattleyas*, and the house of *Phalenopsis*—both of which are cultivated to the very highest point of excellence at Tring Park—are heavily cropped with flower-spikes and buds.



FIG. 157.—COMET ASTER.

keeled beneath; primary lateral veins sixteen to twenty on each side of the midrib, slender, straight, all united to the intramarginal vein, which is one-quarter to one-third of an inch from the margin; peduncle 12–18 inches long, terete, green or reddish; spathe spreading or reflexed, 3 $\frac{1}{2}$ –4 $\frac{1}{2}$ inches long, seven lines broad, linear-oblong, cuspidate-acuminate, with reflexed or revolute margins, reddish above, green beneath, becoming greyish-green or pale purplish-green with age; spadix a little tapering, 7–9 inches long (probably ranging from 6–8 inches), four lines thick, green when young, changing at the time of flowering to a peculiar brownish olive-green, and finally becoming dark olive-green. A native of Ecuador. *N. E. Brown, Herbarium, Kew.*

DENDROBIUM (PEDILONUM) BRACTEOSUM,
*nov. sp.**

This is a new Papuan introduction of Messrs. Linden. It constitutes a new section of *Pedilonum*

is about three-fifths of the length of the free parts of the lateral sepals, rather blunt, and contracted before the apex. Petals narrower. Lip nearly spatulate, a little convex on the upper sides, much thicker at the base, where the thick part is abruptly limited by an insistent triangle, greenish-yellow, changing to yellow at last on my table, bordered with some reddish tints at the anterior margins. Column green. There are as many as thirty flowers in the capitate mass in the wild specimens. *H. G. Rehb. f.*

CONTINENTAL NOVELTIES.

ASTER COMET.—This represents a new and beautiful section, of the same height and habit as the Dwarf *Paeony Perfection* Asters, forming fine, regular pyramids

densifloris multifloris capitatis; bracteis ligulatis acutis ovaria pedicellata bene superantibus; sepalis triangulis, lateralibus in mentum obtusum nunc apice libero paulo constrictum extensis, omnibus supra nervum medium carinatis; tepalibus ligulatis acutis, labello ligulato pandurato denso signo angulato retroso ante basin incassatam; columnae apice trifida, lacinia mediana lineari, lacinias lateralibus retusis hinc minutissime denticulatis pollinibus atroviolaceis. *H. G. Rehb.*

* *Dendrobium (Pedilonum) bracteosum*, n. sp.—Caulibus teretibus (ad articulos, subincrassatis, an semper?); ramis

MARKET PLANTS.

CYCLAMENS AT TWICKENHAM.—What has been written of the *Chrysanthemum* may, in a somewhat modified form, be applied to the *Cyclamen*. Their beauty is all the more appreciated because they come to us as the last "sheaf" of a whole year's flower harvest. This flower is well grown by Mr. R. Clarke, Pope's Grove, Twickenham; and apart from the interest attaching to the flowers grown there, the place itself must ever possess attractions for admirers of the great poet, Pope. The ground now covered with glass structures was once the kitchen garden attached to Pope's Villa, and forming an object of peculiar interest is a grotto, where, in all likelihood, the poet received, "far from the madding crowd," his glowing inspirations. Close by is Strawberry Hill, once the residence of the Countess Waldegrave, and whereas so many brilliant parties took place in the "good old days."

A general idea of the extent of the culture of these beautiful flowers by Mr. Clarke may be gleaned from the fact that nearly 900 feet of glass are devoted to them. They are to be seen in all stages of development—from seedlings showing their first leaves through the soil, to plants one, two, three, four, and five years old. Rather than give a full description of them I would prefer to single out for special notice a few deserving sorts.

We may well begin with one named *Albert Victor*, which has very dark reddish-crimson coloured flowers—perhaps one of the richest ever produced; leaves prettily marbled, plant of vigorous habit. There was one plant especially of this variety that arrested my attention; it was in a 24-sized pot, and gave the idea of a perfect specimen of culture, and a very *Anak* amongst its kind, clothed with flowers, which were set off to advantage by the healthy foliage. A seedling from *Albert Victor* was very noticeable; its flowers of that colour which may be fairly classed as indescribable, of a rich velvety texture. Brilliant, a distinct variety of the perisperm type; flowers of an intensely brilliant crimson colour, deepening at the base to dark blood-red, forming a pretty and effective contrast. *Giganteum album*, as its name implies, of the giganteum section; a plant of compact habit, the flower stem well thrown up above the foliage, and a profusion of pure white blossoms of great substance. It may be mentioned, in passing, that the Twickenham collection is particularly strong in good whites. *Rosy Morn*, a fine flower, deep rose, flushed faint purple. *Sunrise*, of a beautiful light purplish hue.

Mr. Clarke is not only a successful *Cyclamen* grower, he "goes in" largely for forcing *Strawberries*. For this purpose, he states, there is none better than the old *Sir Charles Napier*. As evidence of the appreciation in which this particular variety is held at Twickenham on account of its fetching a good price—an infallible test—it may be mentioned that from 12,000 to 14,000 plants of it are forced annually. It may be of interest to put on record here that "Napier," as it is popularly called amongst the growers and dealers, owns its birthplace to Twickenham, having been raised in the grounds of a Mr. Smith, a noted *Strawberry* grower in the picturesque Surrey village. *B.*

THE BULB GARDEN.

DOES NARCISSUS VIRIDIFLORUS PRODUCE LEAVES?

At a meeting of the Royal Horticultural Society at South Kensington on December 7 Mr. G. Maw expressed an opinion that *N. viridiflorus* produces no true leaves. Some of the strongest of my bulbs after flowering send up from the crown additional growths of smaller size than the flower-scapes, which I have hitherto taken for leaves, and in spring, when their growth is completed, I shall send some to Mr. Maw for examination. Being unable to work with a microscope I cannot assert that these leaves have any different structure from the flower-scapes. In outline they are similar—quite cylindric. About this time last year I drew attention to this in a note to the *Gardeners' Chronicle*, remarking that this *N. viridiflorus* was the only *Narcissus* I had seen which was truly *Rush-leaved*. Next to it come *N. serotinus* and *N. elegans*, and then *N. jonquilla*, whilst the typical "*Rush-leaved*" (*N. juncifolius*) has flatter leaves than any of the section except perhaps the white forms of *N.*

triandrus from Oporto. *C. Wolley Dod*, *Ventnor*, *Dec. 11.*

The question raised by the Rev. C. Wolley Dod is one of some interest. In their leaf-producing aspect autumn-flowering bulbous plants are separable into two distinct sections, those that produce leaves contemporaneously with the flowers, and those, as in the autumnal *Colchicums*, and ten or eleven species of autumn-flowering *Crocus*, in which the leaves are dormant at the flowering-time, and are not produced till the ensuing spring. I take exception to the term "*Rush-leaved*" as applied to a group of *Narcissi*, because it brings together a number of species which have obviously little natural affinity, and not one of the species in the so-called group have cylindrical leaves, or leaf-like organs, excepting *Narcissus viridiflorus* and *N. serotinus*, and these I contend are not true leaves. If *Narcissus viridiflorus* produces leaves, to which of the above sections does it belong? Are the leaves contemporaneous, or do they form a distinct and subsequent growth in the spring? I have seen many hundreds of *N. viridiflorus* and of *N. serotinus* in the wild state, and have also flowered them in cultivation, but have never observed a leaf-like organ produced from the same points of growth as the scape, nor have I observed after three years' cultivation of *Narcissus viridiflorus* a second growth, commencing after the autumnal growth. My pots of *N. viridiflorus* are full of *Rush-like* growths and flowering-scapes, but they all appeared together, or in rapid succession, and in no case can I detect that a "leaf" and scape are produced from the same axis of growth; and I contend, therefore, that the leaf-like growths are merely small scapes that are not strong enough to produce flowers. *George Maw, F.L.S., Benthall, Kenley, Surrey.*

NARCISSUS PANIZIANUS IN PORTUGAL.

I have just been favoured by Mr. A. W. Tait with fresh specimens of this species flowered in his garden at Oporto from roots collected last February in the province of Algarve, South Portugal. Mr. Tait's specimens exactly match those shown in Panizzi's photograph of the species from San Remo, and I am not aware that it has been previously recorded from Portugal. It is notably a smaller species than the nearly allied *N. papyraceus*, from the Riviera, Gibraltar, and Northern Morocco. I believe some of the *Narcissus* cultivated under the name of *Paper White* to be *Narcissus Panizianus*, while others belong to *N. papyraceus*; *N. Panizianus* is not nearly so large and ornamental as the beautiful white *Narcissus papyraceus*, *Gawl.* = *N. niveus*, *Lois*, which grows so abundantly on the Rock of Gibraltar. Good figures of both species are to be found in Moggridge's *Flora of Mentone and the Riviera*. *George Maw, F.L.S.*

ON THE FLORA OF ICELAND.

(Continued from p. 794.)

PLANTS useful to the natives in one way or the other are:—

Angelica archangelica, *L.*, is used as food; the root is daily used as such in times of scarcity, or when other food is difficult to be had, especially in spring; in autumn the natives gather the roots, and preserve them in sand, or they are kept under the earth at a sufficient depth to be out of reach of the frost. They are eaten with butter, as all other food, and also the roots of *Silene acaulis*, *L.*, and *Statice Armeria*, *L.* Sometimes they are dug up in spring and eaten either raw or boiled in milk.

Lichen islandicus, *L.*, the Icelandic moss, is collected in autumn for winter use; it is also boiled with milk, and is then a very nutritious food. This moss is also used to dye woollen clothes by the people of the Borgafjord; this is done in the following manner:—They put some of the moss in the cloth intended to be dyed, to which it readily attaches itself; the piece of clothing is then wound on a wooden cylinder, and the whole boiled in an iron pot for six hours; afterwards it is taken out of the water, unwound, and dried; the colour thus acquired is a dark but excellent yellow.

Dryas octopetala, *L.*, is the leaves of this plant are used as tea.

Eriophorum polystachyum, *L.*; the pappus of this species is used for wicks.

Holcus lanatus, *L.*, is used as a perfumery for clothes and rooms; it is burned for this purpose.

Of the different species of *Rumex*, the leaves are eaten in the same way as on the continent.

Arenaria peploides, *L.*, is first put in sour milk; then the latter is poured off and fresh water added; this beverage is then drunk by the natives with some olive oil.

Of *Potentilla Anserina*, *L.*, the root is often eaten, especially in the southern part of the country.

Thymus Serrillan, *L.*, is used to give the sour milk an agreeable flavour.

Of *Achillea Millefolium*, *L.*, a salve is made with butter for wounds.

Zistera marina, *L.*, is eaten by the cattle; it is also used for filling beds.

Cobresia barbaea; of this plant and of some species of *Willow*, the hairs of the fruits are used for covering wounds; of the wood ink is made, by putting it in a decoction of the leaves.

The different species of *Equisetum* are also used as food for cattle and horses, as is the case in Siberia.

Lichens are represented by but few species; especially those growing on trees are rare. This is explained by the latter being found in very few specimens on the island; even those growing on rocks are not at all plentiful because the lava does not favour the vegetation of these plants.

Of mosses, some rare or new species are found in Iceland; many species of the genus *Jungmannia* are indigenous to the island; yet the moss flora of Greenland, Spitzbergen, and Lipland is relatively rich in species compared with that of Iceland. Of 279 Icelandic species, 215 are also found in the countries just named.

The coasts of the island are exposed to a very heavy swell, hence of *Algae* there are only a few of the coarse species to be found; the others cannot grow on the rocky soil under such circumstances.

Of Fungi there occur very few species, and these are of no importance to the natives.

The cultivation of corn (*Oats*, *Barley*, and *Wheat*) has never led to any result; yet the culture was carried on in former times on a large scale because nothing was imported. Of the *Barley* ripe seeds can be gathered when the summer is very favourable, but culture on a large scale is too uncertain.

Of *Potatoes* the first were cultivated in 1758, and notwithstanding the culture is not very profitable, it is carried on on a larger scale than before.

The grass is the principal plant for the Icelandic agriculture. Of *Elymus arenarius*, *L.*, the seeds are used in the same way as those of the *Wheat* on the continent. The plant is named *Melur*.

The grass vegetation is better in the northern than in the southern parts of the island; this may be regarded as very remarkable, taking the great difference in climate into consideration; but the snow shelters it from the frost in a greater degree than is the case in the north. The harvest begins in July, when the grass has reached its greatest size, and lasts till the end of September. *Elymus arenarius*, *L.*, is cut in August.

The growth is very rapid when the snow melts, and very often the young plants appear out of the snow itself when there is sufficient sunshine in spring. In the latter season it is, in the first place, the east wind that prevents growth by its severe cold, and the quantity of salt which it carries from the Atlantic Ocean to the island, and which is often deposited as crystals on the window panes of the houses.

The whole area of meadow land where hay is harvested is about 100 square miles; other grass-land, of less good quality, comprises about 800 square miles. The soil is not ploughed or sown, but everything is left to be done by Nature itself, there being no materials for that purpose on the island. No doubt many of the lands now lying waste could be changed into excellent meadows were the necessary means at hand.

Many of the houses at Reykjavik have small gardens, where Cabbages, Turnips, and *Potatoes*, sometimes also Carrots, are cultivated; the Turnips are of common size, and also the *Potatoes*; Radishes grow very good, and are to be had in July and August; Mustard and Cress do very well, and are used as vegetables; Flax and Hemp were sown, but with no result.

All possible means have been tried to cultivate trees on the island, but the attempts have universally failed even with the most hardy species.

The following plants are cultivated in a few places:—*Atroplex hortensis*, *L.*; *Origanum Majorana*, *L.*; *Lactuca sativa*, *Petroselinum sativum*, *Hoffm.*; *Apium graveolens*, *L.*; *Pisum sativum*, *L.*; *Cher-*

anthus Cheiri, L.; *Lupinus luteus*, L.; *Lavatera trimestris*, L.; *Ribes nigrum*, L.; *Nigella damascena*, L.

The whole flora (Phanerogamæ and Cryptogamæ vasculares) consists, according to Strömfelt, of 371 species, when all doubtful ones are omitted; a small number for such an area as that of Iceland.

Many tropical fruits, as those of *Mimosa scandens*, L.; *Piscidia Erythrina*, L.; *Cocos nucifera*, L.; *Cucurbita Lagenaria*, L.; *Cassia Fistula*, L.; and *Anacardium occidentale*, L., are often found washed on the shores by the warm north-east current originating from Tropical America; they are also seen on the shores of Scotland, the Faröes, and Norway, but in the latter country never south of 62° 20' N. lat.

The fossil flora of the miocene period consists, according to Heer, of thirty-seven species; the principal are:—*Araucites Sternbergi*, Göpp; *Pinus thalensis Steersi*, P. Martini, Heer; *P. microsperma*, Heer; *P. æmula*, Heer; *P. Steenstrupiana*, Heer; *P. Ingol-fiana*, Steenstr.; *Betula macrophylla*, Göp; *B. prisca*, Litz.; *B. Forchhammeri*, Heer; *Alnus Kestersteini*, Göp.; *Salix macrophylla*, Heer; *Corylus grossedentata*, Heer; *Quercus Olafseni*, Heer; *Platanus acroides*, Göp.; *Acer otocleria*, Göp.; *Vitis islandica*, Heer; *Liriodendron proctorii*, Ung.

The character of the whole fossil flora is decidedly North American, while that of the present flora is European; but the miocene flora of Europe was also that of North America. Of thirty-one fossil species found in Iceland, fifteen are also discovered in Europe, and of these thirteen were trees very common on the island. Thus the European flora reached with thirteen species up to Iceland; tropical floras are not found. The genera *Liriodendron*, *Juglans*, *Vitis*, and *Araucites* are the most southern types.

The fossil flora of Iceland must have required for its existence a mean annual temperature of about 52°, while the present is only 32°; yet some of the species would also vegetate by a mean 7° higher than the mean of Reikiavik.

The decidedly poor flora of Iceland proves that a real sea climate under such a high latitude is very disadvantageous to vegetation in general, while it is the best for southern latitudes. The difference between the Siberian and the Icelandic vegetation shows that when comparing these extremes of climate the continental has the advantage. *M. Buysman*.

Orchid Notes and Cleanings.

DENDROBIUM MACFARLANEI, Rehb. j., *Gard. Chron.*, October 21, 1882, p. 520.

MR. J. O'BRIEN has kindly forwarded me a spray of flowers and a sketch of the stem of this very rare plant which had previously only been known to me from some dried flowers gathered by Mr. Macfarlane, and kindly sent me by Mr. Harry Veitch. I learn from Mr. J. O'Brien that it came from Mr. C. Herriin, of Chalfont Park Gardens, Slough. The bulb is stated by Mr. J. O'Brien to be exactly that of *Dendrobium Farmeri*. A fusiform, furrowed bulb exceeds the length of a middle-sized span. One leaf of oblong outline is sketched, one or more having fallen away before. There are vestiges of four racemose inflorescences. The flowers are quite excellent; they surpass those of *Dendrobium Phalenopsis*, and are as large as those of *Dendrobium formosum* Berkeley, though the inequality of the sepals and petals changes considerably the impression. Sepals triangular, with a blunt rectangular mentum, snow-white, with some little purple margin at the base; petals much longer, rhomboid, acuminate, snow-white, much longer. Lip nearly or quite as long as petals, trid; side lacinie basilar, oblong, mid-lacinia cuneate oblong acute. A ligulate callus, broader at the base, furrowed in the middle, runs from the very base of the lip to the base of the mid-lacinia. The lip is white, with a purple area around the purple callus, and a big purple spot at the end of each side-lacinia. Column white, purple on both sides of fovea.

This *Dendro*, in its chaste and glowing beauty, may one day be an object of the most ardent interest of those who understand the perhaps not very easy art of keeping *Dendrobia* for a longer time. I believe the great question is to keep them at rest for a long while. *H. G. Rehb. f.*

A NEW "BLUE" CATTLEYA.

Dr. John Duke, The Glen, Lewisham, has been so very kind as to send me a most remarkable flower of *Cattleya Loddigesii* which is nearly white, though not so white as that of Mr. Tautz. Sepals and petals bordered with fine rose and the lip too. The last mentioned part has the disc with a light wash of sulphur. Whether this is constant we must wait to know—I believe it.

Rolled around the stalked ovary appeared a piece of white paper with blue (genuine blue, lightest Prussian-blue) lines and two carmine borders. It is written on it (not by Dr. Duke):—"Sir, we are of the opinion that this is a blue colour." I should have thought the meaning was, that the lines were blue, and to this I should have had no objection; yet Dr. Duke tells me the flower is alluded to. As to me, I do not think the borders of the flowers are blue. But it is difficult to dispute about colours. Perhaps blue has another meaning in old England than with us. An excellent English lady showed me the other day a "blue" cat, which to my German eyes looked remarkably grey. *H. G. Rehb. f.*

BOLLEA PULVINARIA.

This fine species has triangular flowers, nearly 4 inches across; segments ovate acute, lilac; lip convex, with very prominent yellow ridges. A moderately high temperature is required for its culture, and the plant should be grown in a basket with coarse peat and sphagnum. *Lindenia*, t. 61.

MILTONIA SPECTABILIS, var. LINEATA,

is an improvement on the type, the lip being of a delicate hue with nerves of a beautiful carmine. The Miltonias, says M. Linden, should be grown under full exposure to the sun when their pseudobulbs and leaves become yellowish. If kept in the shade the colour becomes green, but at the expense of the flowers. *Lindenia*, t. 62.

CYMBIDIUM GIGANTEUM.

A very fine variety of this is now in flower with Mr. F. W. Moore, at the Royal Botanic Gardens, Glasnevin, Dublin. The flowers, which are over 3 inches across, are borne fourteen or fifteen on a spike, and are very richly coloured, the broad labelum being very brightly blotched with reddish-chestnut on a pale yellow ground. *Cypripedium insigne* var. maculata, a very rare and beautiful variety, is also in bloom at Glasnevin. Its flowers are light in colour, and of the Maulei shape, a trace of that variety also appearing in a purple dot or two on the top sepal, which in other respects resembles the top sepal of *C. i. albo marginata*, but is much larger and flatter.

The Flower Garden.

WINTER-WORK.

SNOW should not be allowed to accumulate on the trees and shrubs, but steps taken to relieve them—if possible—from it as fast as it falls. Long poles should be used, and the snow-laden branches should be moved gently upwards and allowed to fall down, when the bulk will drop off. One man should go first with a long pole to ease the higher branches, while another should follow with a shorter one. The necessary quantity of flower stakes should be got in readiness for next year. The old stock should be gone over on wet days, and the decayed points should be resharpended. Where there is abundance of Hazel copses, there an ample stock of flower sticks can be obtained for the cutting. These should be secured when snow prevents other work from being carried on. They should be all trimmed, sized, and tied in bundles ready for use. A good assortment of wooden labels should also be made for use in due season, as also pegs for Verbenas, Petunias, &c.

HEDGE TRIMMINGS AND CHARRING SOIL.

The clipping of hedges may now be undertaken, as also the trimming of shrubs. The straggling shoots should only be shortened back. Avoid a stiff formal shape. All trimmings and dead wood should be made into faggots as they are cut; these, if kept in reserve, will serve to char the accumulated rubbish from the garden, or to burn the clay soils of flower-

beds. Remove two spadess deep from the centre of such beds as it is deemed necessary to char, to a diameter of about 6 feet; then rear the faggots on end pyramid fashion, set fire to the pile, and keep building the soil removed around the mass, preventing it bursting into flame if possible. The idea is to keep it smouldering. As the red fire appears at the outer edge, keep adding more faggots and covering up with more soil until the whole of the soil in the bed will be one mass of charred material. This will have completely changed the character of the soil, and the most delicate rooting subjects will prosper, where formerly they could make no way at all. It also gets rid of all weeds, vermin, &c., and a fresh start is thus obtained. *William M. Battie, Lulun Hoe.*

FRUITS UNDER GLASS.

CUTTING AND POTTING GRAPES.

LATE Grapes should be cut next week with a good length of wood attached for inserting in bottles nearly filled with water, and having a few pieces of charcoal in each to keep the water sweet. The bottles should be allowed a sufficient angle on the shelves in the Grape-room to prevent the weight of the individual bunches from overbalancing them, and the space in the bottle around the shoot should be filled with cotton-wool to prevent evaporation. The bottles should be re-filled with water once or twice during the next four or five months, so that the end of the wood attached to the bunch of Grapes shall be in contact with the water.

PRUNING THE VINES.

I never observe any hard-and-fast line in carrying out this operation, but simply prune back to a good plump bud irrespective of its being the first or fourth one from the main stem; if the latter bud is selected the two immediately preceding it are cut clean away, leaving the bud close to the rod to make bearing wood for another year, the long spurs being cut hard back at pruning time next year, as should be done where any such are found on the Vines this year if found advisable. If the wounds are likely to bleed dress with Thomson's styptic. After thoroughly cleansing the house inside and out proceed to remove with the hand the loose bark on the Vines, and then wash them with a solution consisting of 4 oz. of soft-soap dissolved in a gallon of warm water and two handfuls of sulphur, well mixed, rubbing it well into the crevices round the spurs, &c., with a stiff brush, taking care, however, not to injure the buds in doing so.

THE BORDERS.

These should next have attention. The loose surface soil to the depth of a few inches—indeed, down to the roots—should be removed and replaced with a compost consisting of fibry loam, old mortar rubble, wood-ashes, and horse-droppings, at the rate of five cartloads of loam, one load of mortar rubble, and the same quantity of wood ashes and horse-droppings, and three or four barrowfuls of fresh soot, and three or four hundredweight of Thomson's Vine and plant manure, well mixed; following this with a surface-dressing of horse-droppings, and a good soaking of tepid water, as well as a liberal circulation of fresh air, until the time for starting the Vines in the respective houses arrives.

EARLY VINES.

Pot Vines and others early started should have all superfluous shoots rubbed off as soon as it can be seen which are best to be left on each Vine; and all the bunches showing on the individual laterals but one should be removed as they appear, leaving, as a matter of course, the best; and these, after the berries are set, should be reduced in number to, from seven to nine, according to the length and strength of each permanent Vine, and five bunches will be enough for each pot Vine to carry. As soon as the buds show signs of bursting, the night temperature should be raised to 55°, and 5° higher as soon as the bunches appear, and 3° more when they come into flower and until the berries are set, with a corresponding increase in the day temperature. The atmosphere in the house up to the time of the Grapes coming into flower should be moist rather than otherwise, and the reverse of this when the bunches are in flower, so as to secure a good set, and with this object in view, a camel-hair brush or a rabbit's tail tied on to a stick, should be passed over the bunches about mid-day until the berries are set, when they should be thinned, and a growing temperature be maintained. *H. W. Ward, Longford Castle.*

Appointments for the Ensuing Week.

SALES.

WEDNESDAY, Dec. 29,	{ Sale of Hardy Plants and Bulbs, at Stevens' Rooms.
THURSDAY, Dec. 30,	{ Sale of Lilies imported from Japan, at Stevens' Rooms.
FRIDAY, Dec. 31,	{ Sale of Imported Orchids, at Pro- theroe & Morris' Rooms.
SATURDAY, JAN. 1,	{ Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

ANY one who turns over the pages of the gardening journals for the present year, or who indulges in a little retrospection, will see that the year now drawing to a close has been a particularly busy one. Nor will the retrospect prove anything but satisfactory. In spite of the dismal Jeremiahs of the LAUREATE, there has been real progress. Evolution, no doubt, has been accompanied by reversion; it must be so; but on the whole a real march forward has been made. We have not yet become stagnant in the cycle of Cathay, and we, as horticulturists—happier than the LAUREATE—can still look forward with confident hope to the future. We have had our cynical growls over rates and taxation, extraordinary tithes, allotments, depression of trade, and the miserable returns obtained by the growers and manufacturers of garden produce; but, then, we always have such little elements of bitterness in our cups, and we cannot think that, on the whole, the draught has been more unpleasant than usual. At any rate there has been no relaxation of work, and work of itself is a boon and is sure to tell in the long run. It is not for us to speak of the work of individuals, but collectively the work of the year has been great, and we cannot doubt its ultimate good result.

Alluding as we do in particular to public work, we have first in order to note the success of the Primula Conference. Specialisation is the order of the day, but it involves no new principles, but only an expansion of the old, and we may venture to say that the special action in this case has very materially aided the cause of Horticulture, and shown that the *cultus* of florists' flowers is by no means necessarily the narrow and restricted affair it is often made to be. Another proof of the same kind was afforded by the Potato Tercentenary, which was the last celebration of the kind for the year, and which, though badly managed and poorly attended, elicited a large amount of information of a very varied character. Between these two celebrations, if we may so call them, there was a host of others. Roses, Carnations, Dahlias, Chrysanthemums, Apples, Pears, Gooseberries, and Grapes, each had its gala day in the metropolis and endless commemorations elsewhere.

The most important of the whole was the great Provincial Exhibition at Liverpool—an admirable show, which excited keen interest among horticulturists, but which we are sorry and astonished to add was met with utter indifference by the Liverpool public. We cannot stay now to discuss how or why this was so; most of the conditions were favourable, not even excepting the weather; the political weather at the time was, however, stormy. Let us attribute the failure to that cause.

The great interest of the year, however, culminates in the magnificent Indo-Colonial Exhibition. It is impossible to over-estimate the importance of this to the country at large, and so far as our special subject was concerned, no finer display of the possibilities of plant-culture, forest-conservancy, and of the resources of the vegetable kingdom generally, has ever been got together. All this was palpable and tangible, and the lessons it conveyed must sink deeply into our minds. If

in some respects the display was discouraging as regards the British farmer and gardener, the boundless possibilities it opened in other directions ought to supply ample compensation.

Less strikingly apparent, but in their way equally important, are the slow and sure advances of science. Practical experience must ever be the most important factor in a practical art, but if that experience is to be utilised and turned to good account by improving old and opening up new methods, it must be by the aid of science. Accumulated experience is only simple addition—add to it the teachings of science, and it becomes multiplication; and more than this, science—that is, increased knowledge—opens up prospects which mere experience never could attain to or utilise. The steady increase of our knowledge of root-action, of the mode of life of Bacteria, on which the fertility of our soils depends; of the co-operation of fungi and other plants, may be cited as among the many cases where increased knowledge must inevitably tend to amelioration of practice, and greater economy of production. From this point of view the experiments made at Chiswick on the mode of growth of Potatoes under various circumstances, the experiments carried out with so much spirit by Messrs. SUTTON at Reading in the case of Potatoes, and by Messrs. CARTER in the case of Wheat, are encouraging for the future. When practical men thus see the desirability of adopting scientific methods in the conduct of their business the outlook is indeed hopeful, and as such may be commended to the attention of the cynical LAUREATE. Though less distinctly scientific, the experiments on Tobacco culture made by Messrs. CARTER and others are deserving of all commendation; for, even if they should ultimately prove unsatisfactory, they will at least emphasise the necessity of getting out of narrow routine, and prove useful by devising new methods to meet the exigencies of the times.

Conscious of the necessity for an enlarged education of our young gardeners, in order to enable them to compete on equal terms with their much better equipped brethren of the Continent, we offered some prizes, which were awarded at the Liverpool show by Sir TREVOR LAWRENCE, the President of the Royal Horticultural Society, and which, we are glad to say, elicited much attention on the part of young gardeners, and brought out some excellent papers.

Among new books relating to our subject, the *Lectures on Physiology* of Dr. VINES must necessarily hold a foremost place, though exclusively scientific. Mr. MAW'S *Monograph of Crocuses* is a first-rate illustration of what a monograph should be, and shows how manifold are the studies required in the investigation of so common a thing as a Crocus. Messrs. CASSELL'S *Popular Gardening* is noteworthy for containing not only the latest résumé of practical matter, but a general sketch of modern theoretical horticulture, such as is not to be found elsewhere. Mr. GILL'S *Dictionary of Gardening*, edited by Mr. NICHOLSON, may also be mentioned as within its limits by far the best and most reliable dictionary of garden plants yet published. Dr. MASTERS' *Vegetable Teratology* has been re-published in Germany, with large additions by the author and the editor, Herr DAMMER, so as to render its information as complete as possible. A similar remark may be made with reference to Dr. SORAUER'S *Treatise on Plant Diseases*.

At New Mr. MORRIS has been appointed Assistant Director, and by his zeal and energy the work done by this magnificent establishment may confidently be expected to be even more extended than it is now. Mr. NICHOLSON and Mr. WATSON jointly fill the post vacated by Mr. JOHN SMITH, whose retirement will be regretted by many who experienced his kindness.

The condition of the Royal Horticultural Society excites the gravest apprehensions among its adherents. The ordinary work of the year has indeed been carried on vigorously and well, but there is a thick cloud overhanging its affairs which we may hope the Council will soon be able to dispel, or at least let us know the worst.

The Gardeners' Benevolent is, on the other hand, prosperous, and effecting a great deal of good. It is impossible to mention this Institution without an allusion to the Secretary, Mr. CUTLER, who has made it what it is, and who may be trusted to develop its usefulness still further if backed up, as he should be, by the efforts of the gardening community.

The Obituary list of the year is not so long as in some years. The historian of British gardening, and so long connected with the *Journal of Horticulture* as one of its editors, has concluded a long life of honourable activity and marked usefulness. ZADOK STEVENS will be mourned as an excellent example of a first-class practical gardener, and CHARLES GREEN will long be remembered for his almost unique knowledge of plants and their culture. Horticulture generally has not of late years sustained so severe a loss as that occasioned by the death of the learned, the energetic, and genial EDWARD MORREN. Day after day as journalists we experience the magnitude of our loss and note the void made by the death of a man who, though so eminent and so useful, must have been personally unknown to the great majority of our readers. To our Belgian friends the loss must of course be more severe than to ourselves. We can only hope that in that prosperous little kingdom some one may be found in a measure to supply his place.

Of the New Plants of the year we hope to be able to speak on another occasion. This sketch—fragmentary and superficial as it is—may serve to show that horticulturists have reason to be well satisfied on the whole with the progress made in 1886, and with the promise of future development in 1887.

—OUR ALMANAC.—With this number we present our readers with a supplement in the form of a coloured almanac for the coming year, and which embodies as usual a large amount of information useful to the gardening fraternity. The daily mean temperature is that deduced from the records kept at Chiswick for so many years, and corrected by Mr. GLAISHER. It cannot, of course, be accepted as a certain indication of the temperature, but, at any rate, it shows the average results for about half a century. The body of the almanac contains a complete list of the most important metropolitan meetings and exhibitions as announced up to the present time. If the arrangements of many provincial and local societies are not included, it is because their schedules are not issued till late in the year. The meetings of the greatest importance to the horticultural public, such as those of the Royal Horticultural Society and Royal Botanic Society, are all inserted, as well as those of the Linnean Society, the Chrysanthemum, Carnation, and Auricula Societies. As to the design, while we are afraid that the artist would not find favour with the florists, he at least deserves some credit for his arrangement of the flowers, which in the matter of lightness and individuality and gradation of shadow sets a lesson to the bouquetists of Covent Garden. The design may furnish a hint to those of our readers who have to decorate corridors and similar large spaces, for which the large bowl, filled as in our design and raised on an elegant tripod, is well suited.

—POLYGONUM SACHALINENSE.—Docks and their allies, as a class, are not looked on with much favour in the garden, nevertheless there are some among them which, on account of their bold habit, brilliant flowers, or other qualities, are worthy inmates even of the most select garden. Among them is the subject of our illustration (fig. 158), first described by F. SCHMIDT, in his *Primitia Flore Amurensis*, 1853, p. 233, and in our columns in 1870, p. 1599,



FIG. 158.—POLYGONUM SACHALINENSE: HARDY PERENNIAL, SHOWING THE SEED-VESSELS (SEE P. 812.)

when first introduced into English gardens by Mr. W. EULL. In a wild state in the island of Sachalin, north of Japan, the plant exceeds the height of a man, and in this country it attains nearly as large proportions. It forms a bold tuft of stout reddish slightly arching stems, with broad, ovate, acute leaves, 12—18 inches long, and a multitude of small greenish-white flowers, which are succeeded by the obovate winged seed cases, shown in our illustration. On its first introduction we commended it as suitable for shrubberies and waste places, but its massive statelyness of habit has since won it a place on the lawn as a specimen plant, than which few are more effective. It is, however, objectionable in such a situation, from its propensity to throw up suckers at a distance from the parent plant. It is perfectly hardy and the seeds might be useful in covers where game is preserved. There is a coloured figure and description of the plant by Sir JOSEPH HOOKER, in the *Botanical Magazine*, t. 6540

—“VEITCH'S MANUAL OF ORCHIDACEOUS PLANTS.”—This work, the early publication of which is announced, is uniform with the *Manual of Coniferae*, royal 8vo, and will be illustrated with maps and numerous engravings. The work contains descriptions of all the most important species and varieties cultivated under glass in Great Britain, with information concerning their origin, botanical history, date of introduction, together with cultural notes, &c. It is compiled to supply amateurs and cultivators of exotic Orchids with a fuller account of the principal genera, species, and varieties cultivated under glass than is contained in the manuals hitherto in use. The rapid extension of Orchid culture during the last quarter of a century, resulting from the increased taste for, and appreciation of, this beautiful and interesting order of plants, has, in Messrs. VEITCH'S opinion, created a demand which they are now attempting to supply. So numerous are the species and varieties of Orchids at present in cultivation, and to which additions are constantly being made by new discoveries and by artificial hybridisation, that the labour attending the compilation of a manual sufficiently comprehensive to meet the wants of cultivators must necessarily demand much time. Messrs. VEITCH have, therefore, decided upon issuing the work in parts, each part containing a monograph of the cultivated species and varieties of one of the most important genera, or of a group of genera. Part I., *Odontoglossum*, is now ready, and will be followed by Part II., *Cattleya* and *Lælia*; Part III., *Dendrobium*; Part IV., *Cypripedium*, &c.

—“THE GARDENERS' MAGAZINE.”—The Christmas number of our contemporary is looked for with eagerness, for, intermingled with the business-like records and solid information which are provided weekly, there is sure to be some fun and some paths provided for this special occasion. Grave and gay, poetic and prosaic, but never prosy, and with lots of pictures, those who indeed be desired to please who do not find something to their taste in the Christmas number of the *Magazine*. “A Cool Market in the Snowy North” has a wonderful resemblance to Covent Garden.

—“SUTTON'S POCKET GARDEN CALENDAR FOR 1887” will be found a useful reminder to amateurs and others, who will not be distressed with the weight of the book, while they will have something of value in their pockets if this be included among their contents.

—“THE BOTANICAL MAGAZINE.”—The December number of this centenary publication contains figures of:—

Alpinia mutica, t. 6908.—A noble species, with lanceolate leaves, sheathing stalks, and spike-like cymes of flowers, the segments of which are of an ivory colour tipped with pink, the large lip being trowel-shaped, orange, with radiating red lines. It is a native of Borneo, and flowered at Kew.

Aristolochia elegans, t. 6909, and *Carpenteria californica*, t. 6911, have already been figured in our columns.

Geranium tuberosum, t. 6910.—This is the Afghan form of the species, and is here distinguished under the varietal name Charlesi. It has a singular necklace shaped rhizome, the joint of which are superposed one upon the other like beads in a necklace. The leaves are palmate, deeply divided into numerous narrow segments, and the flowers are borne in cymes, each of

the diameter of a sixpence, rosy-pink, with darker coloured veins.

Aster Stracheyi, t. 6912, has the habit, stolons and foliage of *Hieracium Pilosella*, with erect flower-stalks terminated by a head of lilac-rayed flowers resembling those of *Erigeron mucronatus*, but with the florets rather less narrow. It is a native of the Western Himalayas, and flowered at Kew in 1885.

—“BRITISH ORCHIDS.”—Mr. A. D. WEBSTER has published a handy little volume on the structure and life-history of British Orchids, with special reference to their culture. It will be our duty to lay before our readers an account of the little volume, for the preparation of which Mr. WEBSTER has, as we know, had special facilities; but we must, in view of the extensive literature pertaining to the subject since DARWIN first popularised it, express our surprise at Mr. WEBSTER'S statement that “There are few plants that have received less attention and about which greater ignorance prevails than our native Orchids.” We should have said that of all our wild plants there are none that have received more attention of late years.

—MESSRS. CARTER'S SEED CATALOGUE AND VADE MECUM.—This useful guide in matters pertaining to gardening, especially to the amateur, is now before us. It is profusely illustrated with woodcuts and coloured plates representing the newest and most popular varieties of roots, vegetables, and flowers—amongst the figures of vegetables there being a life-sized one of a growing plant of Pea Carter's Anticipation, a variety whose quality, may be judged from the testimonials adduced. The colours of the florists' flowers are of the brightest, and the forms of the flowers and roots are of the usual distressing regularity of outline. The sketch of the Model Cucumber seems to be “out of focus,” as the ground is piled with examples that are of Titanic proportions.

—“THE BUILDING NEWS.”—This journal is almost too generous. When so much is given for a small sum doubts as to quality arise. To allay these at once, we advise all concerned to buy a copy, and judge for themselves. Having done so, if they do not say they have got value for their money in all ways we shall not set much store on their opinion. Moreton Hall, Cheshire, and some of the other illustrations, in widely different styles of architecture, should be valuable as suggestions to the landscape gardener, who, too often, does not sufficiently harmonise the outlines of his flower-beds with those of the buildings near which they are placed.

—ROSE HER MAJESTY.—Mr. BENNETT asks us to insert the following note:—“I am compelled once more to refute a misstatement of ‘Wild Rose’ in the *Gardeners' Chronicle* of December 11. He states that I ‘announced ‘Her Majesty’ as a cross between two H.P.’s, I believe, although I never happened to see his announcements.’ I desire to give the most emphatic contradiction to this statement. In point of fact I have never announced this Rose, having disposed of the whole property privately to an American florist. H. Bennett, Shepperton.”

—MISTLETO.—The cider orchards of Normandy contribute largely to the supply of this essential in our festivities at this season; in fact, it is from that part of France that by far the largest quantity is received in London daily, coming in crates of about 27 cubic feet capacity. These crates are numbered by thousands per diem.

—CHISWICK HORTICULTURAL SOCIETY.—At a meeting of the committee, held on December 16, it was decided to hold the summer show on Thursday, July 14, 1887; and the autumn show on Thursday, November 17.

—FRENCH BEANS.—These can now be bought from retail shops for 4½ per pound, and the question naturally arises—where do they come from? It is from Madeira and the south of France, but chiefly from the former island, whence they arrive at Covent Garden Market in large quantities, packed in cases consisting of four boxes bound together; each box is about 3 feet by 4 inches, and the entire case contains about 14 lb. weight. The supply from the south of France is much smaller, and the packages hold only

about 1 lb. each. These Beans are quite fresh, very clean, and being sold at 4½ per pound, must run the forced English Beans out of the market.

—GHENT “CHAMBRE SYNDICALE.”—At a meeting held on Monday, the 13th inst., the following awards were made:—

First-class Certificate.—To M. Ad. D'Haene, for *Calanthe Veitchii rosea-alba*; to M. Louis Van Houtte, for *Cypripedium Leeanum* and for *Cypripedium Leeanum superbum*; to M. Jules Hye, for *Cypripedium caudatum roseum splendens*, *Cypripedium polium*, and for *Cypripedium Lawrenceanum* var. extra; to Messrs Boelens Bros., for *Odontoglossum Alexandræ* var. alba; to M. Louis Desmet-Duvivier, for *Dracena fragrans aurea lineata*.

Cultural Certificate.—To Madame V. Van Acker-Maenhout, for *Tillandsia tessellata*; to M. Bernard Spae, for *Cycas circinalis*; and to M. Jules Hye, for *Restrepia antennifera*.

Commendation for Culture.—To M. Jules Hye, for *Cypripedium tonsum* and for *Cypripedium sylhetense*; to M. Spae-Vandermeulen, for *Cycas siamensis*.

—MIDWINTER CHRYSANTHEMUMS.—The National Chrysanthemum Society, with the object of encouraging the cultivation of this flower in mid-winter, when greenhouse flowers proper are but few, are offering good money prizes to be competed for at the Aquarium, Westminster, on Wednesday and Thursday, January 12 and 13 next. There are various prizes for cut blooms of any varieties, for collections of cut blooms of special kinds, and for bouquets, but none for Chrysanthemum plants.

—NORTH OF SCOTLAND HORTICULTURAL ASSOCIATION.—The last monthly meeting of the year of this Association was held on Friday evening, the 17th inst., in the Christian Institute, Aberdeen. There was a full attendance of members, and the President, Mr. A. ROBSON, occupied the chair. Papers on “Rare Vegetables,” were read by Mr. J. WILSON, Charleston Gardens, and Mr. R. GRIGGS, Sunnybank, both of whom treated the subject in a very intelligent and entertaining manner. A paper on “Potatoes,” by Mr. R. FARQUHAR, Fyvie Castle, was read by the Secretary. Votes of thanks were accorded to several exhibitors for specimens of Chrysanthemums, plants and vegetables, that were brought under the notice of the Association, and to the Chairman.

—BAUHINIA TOMENTOSA VAR. GLABRA.—There is a figure of this variety in the *Botanical Magazine*, t. 5560, taken from a plant that flowered at Kew in 1866 from seeds sent from Bembe in Benguela six years previously. Taking the species in its widest sense, it occurs wild in Ceylon, India, and several parts of Africa, such as Natal, Senegal, and Dammaria Land. With such an extensive distribution, it is not surprising to find some variation in the plant. The form under notice differs from the type in being finely pubescent, while the latter is distinctly villous. The flowers in both cases are yellow, with a dark brown or almost black blotch on the base of the upper petal, and are produced two or three together, terminating the branches. In Ceylon it is said to attain a height of 6—12 feet, but under cultivation and restricted for root-room in a pot it flowers when 3 or 4 feet high, and has a close branching and bushy habit. The recent fog was by no means favourable to the longevity of the flowers, which are somewhat campanulate, and never spread out so flat as B. purpurea. Nor are they so freely produced as those of B. natalensis, a very dwarf bush, from Natal, with almost pure white flowers, and now fruiting freely in the Palm-house. Both species are readily amenable to pot culture, requiring no special treatment beyond a stove temperature and good rich, fibrous loam, with sufficient sand to keep the soil sweet and open, with plentiful supplies of water during the growing season.

—GARDENING APPOINTMENTS.—Mr. W. BRITAIN, late of the Royal Horticultural Society's Gardens, South Kensington, has been appointed Head Gardener to Lady POLLOCK, Hatton Park, Feltham, Middlesex.—Mr. EDWARD COCKBELL, late Foreman at Rolleston Hall Gardens, Burton-on-Trent, has been appointed Head Gardener to CHARLES HILL, Esq., Clevedon Hall, Somerset. The following appointments were offered by Mr. JOHN DOWNING, Edinburgh:—Mr. PATRICK BERMINGHAM, as Head Gardener to the Rev. A. MASSON, the Manse, Kirkliston, N.B.—Mr. ALEXANDER MACLEAN, as Head Gardener to Col. HANBURY BARCLAY, Cross Oak, Great Berkhamstead.—Mr. GEORGE WRIGHT, as Head Gardener to W. D. CREVEDON, Esq., Helme Lodge, Kendal.—Mr. ANDREW BOGIE, as Head Gardener to H. T. STANTON, Esq., Mountfield, Lewisham, London, S.E.—Mr. WM. SCOTT, as

Head Gardener to Hon. H.V. BOURKE, Hayes House, Beau Park, co. Meath.—MR. ANDREW SMITH, as Head Gardener to GEORGE URK, Esq., Whatlands House, Bonnybridge.

Florists' Flowers.

GREENHOUSES: THE AZALEA.

THE principal collection of plants intended to flower in May and June require but little attention at present. They should be placed in a cool-house, well ventilated, and arranged so that they are not too much crowded. Some persons keep their plants too dry at the roots during the winter, evidently with the best intentions, the main object being to rest them. This over-dryness at the roots is an evil which tells upon the health of the plants for a long time after the winter is past. The sandy peat in which the plants have been potted is generally so thoroughly permeated with roots, that it is difficult to get water through the mass, when once they have become dusty dry. The plants ought to be moderately dry before being supplied with water, and when it is applied enough should be given to thoroughly saturate the soil. In an over-dry warm greenhouse thrips and red-spider will not only exist during winter, but will increase and do mischief. Tobacco-smoke will destroy the thrips, but does not touch the red-spider: it cannot however stand Tobacco in solution. Soft soap dissolved at the rate of two ounces to the gallon of water and half a pint of Tobacco liquor added to two gallons of this soft-soapy water, will destroy both spider and thrips. The dead and decaying leaves should be removed with as little delay as possible. The early flowering varieties should be placed in a gentle heat early in the year. The double white varieties are excellent for early flowering. The leaves may be syringed daily underneath after the plants are placed in heat.

CAMELLIAS.

Every autumn and winter we hear complaints of the flower-buds dropping off, and the cause of this is often a puzzle to the owner of the plant. No one takes blame to himself for this. As a matter of fact, however, it is the cultural details that are to blame. Leave the plants out-of-doors planted out in the open ground with no care whatever, and the buds do not drop off. Sharp frosts have but little effect upon them, or planted out in a prepared border of a conservatory, and well watered, with sufficient ventilation, they do not drop either, unless exposed to bad draughts of air; and I must admit that I saw the buds scattered thickly underneath some well-managed plants in a conservatory border a few days ago, but they were exposed to a dense fog in London—one of the worst ever experienced. Over-dryness at the roots of the plants, or a very dry atmosphere caused by fires or hot-water pipes, will cause the buds to drop. Any sudden changes will cause it, such as bringing the plants inside after being out late in the autumn; the change from the leaves being nightly saturated with heavy dews, to the relatively dry atmosphere of greenhouse or conservatory, is an illustration of this. The change should be gradual. Let the leaves be kept quite clean during winter by sponging when time can be spared; the plants also like a fair supply of water at the roots. *J. Douglas.*

CHRYSANTHEMUMS AT THE BIRMINGHAM BOTANICAL GARDENS.

This year Chrysanthemums have been grown extensively and well at these gardens, and although the season is getting advanced as far as the Midlands are concerned, there is still a very pretty show of these beautiful flowers remaining.

Five weeks ago such grand old varieties as Elaine, James Salter, and the newer Lady Selborne, stood out conspicuously, and were followed at no great distance as to date by that most reliable of all the Japanese exhibition varieties, Madame C. Audigier, and more conspicuous, but by no means so massive, was Soleil Levant in all its beauty—a variety which has done exceedingly well this season at the Gardens. Very beautiful, and perhaps even more admired by the majority of the visitors, have been the smaller flowered varieties, such as *La Charmeuse*, *Tendresse*,

Tokio, and *Etoile du Midi*—this latter one of the brightest and, as grown here, of first-rate lasting properties, a great consideration where only a limited quantity can be cultivated.

Culligfordi is exceedingly brilliant and good; and standing out in good form is that grand old white in the Anemone section, *Fleur de Marie*, the chaste beauty of which, as seen in the dull winter days, when most of its companions are "faded and gone," is almost sufficient to make an enthusiastic lover of the Chrysanthemum exclaim, "If limited to one I would grow thee!"

The able Curator of these gardens is to be highly complimented on the condition of his plants, and having now at command a capital range of glass in which to arrange them, and occupying as he does the position of President of the Birmingham Chrysanthemum Society, visitors may rely upon an annual repetition of the treat they have been provided with at the Botanical Gardens. *J. H. H., December 17.*

BIRTH OF AN OVULARIAN ZOOSPORE.

BRIGHT little mystery! I shall never forget you. Many and many a time have I resolved to tell the



FIG. 150.—LIBERATION OF OVULARIAN ZOOSPORE.

world the story of your birth. You were the most marvellous thing in vegetable life that ever objective conveyed to my brain. In 1881 I discovered a new Ovularian blackening the leaves of Lilac in the same way as the *P. infestans* blackens the leaves of the Potato. Its parasitic mycelium ramifies in the tissues, and sends up conidiophores through the stomata of the under surface of the leaf, carrying single conidia at the tip of a much larger size than those of *P. infestans*.

As was natural, I gave close attention to many phases in the character of the new parasite. But with only one of these am I at present concerned. It is known that various parasitic conidia perpetuate the life-circle in various ways. The contents, which are at first granular plasma, either remain granular plasma, which germinates into tubes of mycelium issuing from the ostium, and sometimes through the walls of the conidium in all directions; or they sometimes escape by the ostium in the same granular form which they had when inside, and then increase into larger sporidia, from which issue webs of mycelium; or the contents of the conidium sometimes more or less completely develop into zoospores. These methods have been described as different modes of germination; but in reality when they are considered, it is seen that they are only varying details of one principle—the contents of the conidium in each case are simply going on to the

next stage, the production of resting-spores and other forms of the non-parasitic mycelium.

It was Sunday morning, November 6. "The works of the Lord are great, sought out of all them that have pleasure therein." The leaves of the Lilac were still green, except where the parasite had germinated, and they were covered with dew. I knew that the night must have given rise to great numbers of conidia; and going out for a leaf, I scraped off the material from the under side at the border of a black spot, and placed it in a film of water upon a slide, and placed it under a quarter-inch. The very first point I focused upon enclosed a conidium nearly full of magnificent zoospores. They were moving about in all directions like tigers in a cage. I did my best to count them, and thought there were sixteen. Round and round the walls they went. They pressed upon each other and thus assumed irregular shapes. But they had also amoeboid faculty, and sometimes threw out arms, and drew them in again. It was clear that they had tendencies within their walls. A bright nucleus glowed in each of them, and the currents of protoplasm were in eager activity. Round they go, pressing upon each other, in the manifest desire to escape into a wider world. But how shall they escape? Will the walls of their house burst and launch them into the flood? There seems no reason that they should, for there is a good deal of unoccupied space. And now they approach the ostium. But is there any open door? If there is, it is far too small to permit of the exit of any one of the family. An impatient rover approaches the door; but how will he get out? Will the door open wider? He is much too big for the round pore of an opening. Will the crowd behind push him out? But they have mostly retired from contact with him. But has he not amoeboid instincts? And will he not bring them into play? Look at that (fig. 159, 1). He has thrust an amoeboid arm into the ostium. What of that? His round circumference is behind, and cannot get through so small an aperture. He can be only feeling if there is a door of escape. No! He is wiser than Solomon. Observe that stream of protoplasm rushing up the arm; see the little ball accumulating on the apex of the papilla; and now he has assumed the form of dumb-bells (fig. 159, 2). One-half is already outside, with a ligament reaching back to the other half inside; and still the stream rolls forward and the granular current carries the joyous life outward and outward. The rate increases; and now nothing is left inside but an arm like that which pioneered the little adventurer (fig. 159, 3). A jerk, and the arm is withdrawn through the door and falls into the globular mass, which now with waving cilia bids adieu to his brothers left behind, and plunges many a millimetre wide through the bright blue waves, and away beyond the entranced field of vision (fig. 159, 4, 5). *A. Stephen Wilson.*

PLANTS AND THEIR CULTURE.

THE CONSERVATORY.

THE most difficult season to keep up a gay appearance is now past, and from this date, if a good assortment of forcing plants has been selected and started in regular succession, the clearing out of the early winter flowering plants gives the opportunity of thoroughly cleaning glass, stages, and regulating any creepers that may require it. Camellias that are now coming in will be most acceptable. See that the plants are not near the hot-water pipes, as they soon get dry, and always then cast their buds. Foliage plants suitable for the cool house during the winter season are not very plentiful, but there are several very useful, and that produce a graceful effect when mixed with flowering subjects.—*Aspidistra lurida variegata*, *Aralia Sieboldii variegata*, *Ophiopogon Jaburan variegatus* (this is a most useful foliage plant at all times), *Grevillea robusta*, *Coprosma Baueriana*, *Lomatia ferruginea*, *Melanthus major*, *Dracaena*; of the more hardy kinds, such as *D. australis*, *eongesta*, *indivisa*, *lineata*, and *rubra*; *Abutilon Darwinii tessellatum*, *A. Sellowianum marmoratum*; these, with a few *Yuccas* and *Dasylirops*, comprise those usually found. The plants of *Tropeolum* Bill of Fire, which were put in their flowering-pots in September, will now be nicely in bloom, and may be brought into this house, and trained in a suitable place. Be careful not to allow more moisture about the house than is really required, as it causes the flowers to damp. *A. Evans, Lythe Hill, Haslemere.*

MESSRS. SUTTON'S POTATO EXPERIMENTS.

WE are indebted to Messrs. SUTTON for the following tables, which supply the complement to their former records (see *ante*, p. 656, and 1885, vol. xxiv, p. 530 :—

Specific Weight of Messrs. Sutton's Potato Crosses weighed in Distilled Water at Standard Temperature.

Cross.	Numbers.	Weights.		Specific Gravity.
		In air.	In water.	
Sir Charles Douglas x Kew Solanum	1+84, 2	2091	166	1.086
	1+84, 3	2219	190	1.092
	1+84, 4	1694	177	1.099
	1+84, 5	2012	150	1.080
Reading Russet x Kew Solanum	2+85, 1	863	55	1.068
	2+85, 2	1002	75	1.080
	2+85, 3	838	59	1.075
Victoria x Kew Solanum	3+85, 1	1173	98	1.087
	3+85, 2	1013	81	1.080
	3+85, 3	1239	115	1.090
Walker's Regent x Kew Solanum	6+85, 1	1377	126	1.100

List of the Number and Colour of the Tubers Raised from Crosses made in 1885.

Reading Russet on Kew Solanum tuberosum.

No.	Number of Tubers.	Colour of Tubers.
1	4	Pink.
2	167	Dark red.
3	43	White.
4	25	Red, netted brown.
5	39	White.
6	25	White.
7	56	Dark red.
8	12	Red.
94	76	1 Brown, purple speckled (cutting plant)
96	18	1 Brown, purple speckled (cutting from above)
10	11	White, purple speckled.
11	12	Brown, purple speckled.
12	1	White
13	4	White
14 (failed).		
15	40	Red
16	24	Red
17	1	Red
18	3	Red
19	16	Red
20	27	White
21	2	Brown
22	40	Red
23	6	White
24	221	White

Paterson's Victoria on Kew Solanum tuberosum.

25	59	White
26	67	White
27	114	Purple
28 (failed).		
29	11	White
30	44	Purple (seedling plant)
30b	18	Purple (cutting from above)
31	23	Red
32	4	Brown
33 (failed).		

Walker's Regent on Kew Solanum tuberosum.

34	5	White
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TRADE NOTICES.

HOOPER & CO.

AN announcement has been received that this old and respected firm is to be converted into a limited liability company under the management of Mr. C. A. Hooper. The capital required is £100,000, in £10 shares. The firm has business houses in London, New York, and Paris. It is proposed that the firm shall be amalgamated with that of E. G. Henderson & Co., Maida Vale, and also with a wholesale seed house in the City.

THE COMPAGNIE CONTINENTALE OF GHENT.

We understand that the business of this Company will be transferred shortly to Brussels, where MM. Linden will create a vast establishment for the introduction of new plants, especially Orchids, under the name of Messrs. Linden & Co. The nursery at Ghent will be discontinued, the site being required for building purposes.

MIDDLETON PARK FAVOURITE BEET.

Mr. H. Deverill, Royal Seed Stores, Banbury, states that he has had placed in his hands by Mr. Hope the stock of the Middleton Park Favourite Beet, which he is now distributing to the trade.

HOME CORRESPONDENCE.

Active Plant Growth Throughout the Winter.—It has been well said that vegetation, as regards deciduous trees, does not rest in the form of becoming really inactive during the winter months. As regards certain kinds of trees or shrubs, it is too much to say the constant activity they display during the winter season nearly equals that of summer? That this is so in the matter of fruit-bud development I am able to prove. Take, for instance, the Aucuba. In regard to them the flowers are fertilised in the spring—and that somewhat early—following which the embryo fruits do not seem to advance in size by one-half during the whole of summer. As the sun's power declines, and during the month of October, the berries commence to swell, and thence onward throughout the winter months they continue to enlarge until the spring arrives, when they have grown to their full size, at which period the process of stoning commences, followed, as the sun gains power, by ripening into their characteristic glowing colour. Again, are not similar facts observable in connection with the *Arbutus*, which flowers at the most unfavourable time of the year, the individual blooms of which are so formed, however, as to afford the greatest possible protection from frost and moisture. I add one more instance—that of *Hedera*, which bloom so sweetly in the waning warmth of summer. Nature permits insects that are partial to saccharine food to come forth once more and sip the nectar thus offered. Ivy berries, in like manner, swell unchecked throughout our night of winter. We may infer from these facts that one reason why evergreen plants exist in cold climates is, that the season of fructification being too long to permit of leaf-nakedness—though I am not long-sighted enough to attribute to evolution—that this influence may have given us evergreens or plants that do not dispense with their foliage entirely. *William Earley.*

Pandanus variegatus.—It may be worth while giving this plant—which is a fine example now growing in the Botanic Gardens at Jamaica was recently figured in the *Gardeners' Chronicle*—its full name, there being no species of *Pandanus* named variegatus, and at least two well known garden kinds having silvery variegated leaves. Mr. Morris, who is of course well acquainted with the Jamaica species, informs me that it is *P. javanicus* var. *variegatus* (*P. candelabrum* variegatus of some), or rather, that it was that plant, for it seems the leaves on this old plant are all green, like the type, although suckers from the base of the stems have leaves more or less striped. We have at Kew both the green and the variegated forms of this species, but they are both comparatively small plants. It is curious how many plants have variegated leaves in the early stage and deni, which has the leaves prettily variegated with yellow when in a small state, becomes green-leaved when large; the variegated *Rhipis* soon loses its attractive streaks of white when it gets beyond a foot or so in height; *Aralia Sieboldii*, *Crimum asiaticum*, *Musa zebrina*, *Cucurlogis recurvata*, and *Aspidistra lurida*, are in some forms variegated when young, but become almost or entirely green when mature; and there are other well known instances of the same kind. *Pandanus Veitchii* is handsomely variegated with us, can any one say if the leaves are green in old plants? *W. Watson, Kew.*

Adiantum Farleyense.—I quite agree with Mr. A. Hemsley when he states that *Adiantum Farleyense* can be increased by other means than spores, and that portions of rhizomes will produce young plants. Mr. Hemsley thinks it "remarkable that a seedling should spring up where no fertile fronds were known to exist," and throws out a suggestion that "if it was almost any other Fern, means would be found by which spores might be transmitted." Why should spores not be transmitted from an *Adiantum Farleyense* as well as any other, although of a very rare occurrence in the one case? I have no doubt what-

ever that the plant found here was a seedling, it being absolutely impossible for any other than a spore to get into the pot in question. In other pots beside the one *A. Farleyense* was found in there were other seedling Ferns, such as *A. cuneatum*, *Pteris*, &c., and no one will question that they were other than spores at first. I would count it an occurrence remarkable if a part of rhizome would get into the pot that the *A. Farleyense* seedling was found in—the one was 5 or 6 feet from the other; while the *A. Farleyense* had been reported, the other had neither been reported nor top-dressed, so the rhizome could not get into the pot that way, as Mr. Hemsley points out it may have done; neither could it be a small portion broken off with an old frond, as the position of the pots would prevent such an occurrence from taking place. *F. F. E.* [Very small pieces of a rhizome of a Fern can be carried from one place to another by various unsuspected agencies, and we know that young plants springing from such pieces have all the appearance of having grown from a spore. Ed.]

Calvary Clover.—In answer to "Quilon," p. 762, you say of the Calvary Clover, "It is curious to find this plant should succeed in the open air of Cheltenham." I may supplement your remark by saying, that here, at Windermere, it succeeds with out any trouble whatever and ripens its seeds perfectly. This year I have had in the open garden this summer six plants, from which have been gathered 280 seeds, all ripe, and from which I have now young plants. In our moist climate we have only to leave the seeds hanging on the plants, and about October the cotyledons begin to force their way through the prickly pods. When the two seed-leaves are well through, I take off the pod, place it in an ordinary pot, and raise the plants without the least difficulty. I shall be glad to know what you consider its true botanical name: I believe it is *Medicago hystrix*, but I have seen other names given to it. *A. R.* [*Medicago echinus*, see fig. 244, 1873, p. 1148. Ed.]

Rose Stocks.—Mr. B. R. Cant, in speaking on this subject at the recent meeting of the National Rose Society, said that he wished experiments were made with Roses on the three stocks—Manetti, seedling Brier, and Brier cuttings, and added that he would be happy to supply any rosarian who would undertake the trial with a number of Brier cutting plants, and I believe Mr. George Prince would do the same with Brier seedlings, while Manetti plants are to be had anywhere. It is to be hoped that this offer may be accepted, and the experiment made. *Wild Rose.*

Celery White Plume.—This new kind, when first introduced, was not spoken very highly of, but has since gained favour. It is very useful for early work, as it requires less blanching, and also less room, being dwarf. It is very good for stewing purposes, being very white and clear. The beautiful white foliage is very pretty mixed with the flowers, and not easily recognised as Celery. It lasts a long time in water without changing colour. Taking all its good points into consideration it may be called a useful variety. It will not bear frost, the delicate parts changing to brown on the first pinch. *W. D., Winton, Maidstone.*

Berberidopsis corallina.—In a recent issue of a contemporary it is remarked that this beautiful shrub is slow to propagate. Such is not the case if the right method be taken with it. It is undoubtedly slow when done out-of-doors, as in the case alluded to; indeed, in the colder parts of the country it will not do at all in that position, and the writer referred to has to thank his exceptional position and climate for the small measure of success he records. If good, sturdy, short-jointed cuttings, or even strong single eyes with the leaf attached, are put into a bed or pot of sandy cocoanut fibre, and the plants are put in five or six weeks afterwards. Establish and grow them under glass till July, when they may be placed out-of-doors, and by autumn will be fine plants, having more vigour and bulk than those raised out-of-doors would have in three or four years. *W. S.*

Celery Fungus (Puccinia bullata).—R. Irwin Lynch, the Botanic Gardens, Cambridge, would be greatly obliged to any friend who would be so good as to forward him a bundle of leaves infested with this fungus (see *Gardeners' Chronicle*, December 11). He would be glad to return stamps for postage.

Transplanting Machines.—Your correspondent, "C. S. F.," under the head "Removal," says, "Many machines have been invented for this purpose, notably McGlashan's and Barron's, and while each has its several advantages, none has come into general use," &c. As an undoubted contributor to this statement I hand you one of our catalogues, which I beg you will forward to him, which proves

that our machines have been let out on hire for over thirty years; independently of what had been accomplished at Elvaston Castle, ever since February, 1831. The high testimonials of success therein contained, which have been selected from a very large number, prove the general use of our machines over England, Scotland, Wales, and Ireland. Besides having supplied machines to order of different sizes, we keep six sizes for hire, capable of removing trees from 12 tons to half a ton, which have this autumn been employed on several estates in five different counties. *William Barron, Berrigrah.*

Reports of Societies.

LINNEAN: December 16.

H.R.H. the PRINCE OF WALES was elected an Honorary Member.

PREHISTORIC GRAIN.

Mr. W. Carruthers exhibited a spike of Maize from an ancient Peruvian grave, and samples of Wheat from ancient British and Romano-British burial-grounds near Salisbury.

Sisal Hemp.

Mr. D. Morris exhibited the fresh cut leaves and the fibres of two species of Agave, viz., *A. ixtli*, and *A. salmtyckii*. The former has been traced as one of the plants yielding the Sisal Hemp of commerce. The fibre prepared from these two plants was shown, and the merits of each dwelt upon at some length. The fibre of *A. salmtyckii* is peculiar in possessing a purely nature so as to render it unfit for commercial purposes; and hence attempts to utilise the fibre of this plant, which is very common in the West Indies, have hitherto proved fruitless. On the contrary, however, the fibre extracted from the allied narrower-leaved species, *A. ixtli*, consists of glossy strong threads, which are admirably adapted for rope making, and consequently are a valuable produce. In proof of this, the export of Sisal Hemp from Yucatan, is stated to reach the sum of £500,000 annually.

ASPOSPORY.

A paper was read on "Aspospory, and Allied Phenomena," by Professor F. O. Bower.

The paper describes the phenomena in detail, and shows how, in the Polystichum at least, four different modes of origin of the oophores may be distinguished, two being in connection with the sorus, while two are at points apart from the sorus, and may even occur on fronds which bear no sort at all. The latter part of the paper is occupied by comparing these phenomena with others already known in the higher and lower plants. The general conclusion drawn from this comparison and from the facts themselves is that the whole phenomenon of aspospory is to be regarded rather as a sport or bud-variation than as a reversion bearing deep morphological conclusions with it.

Mr. C. T. Drury gave a communication on a new instance of Aspospory in Polystichum angulare var. policherrima, Willd. From his observations he infers that the information of this prothallus is preceded by a very different series of phenomena from those already recorded. In the one case the prothallus are simple extensions of the cellular substance of the tips of the pinules, commencing at points quite beyond the venation, and produce no root hairs unless brought into contact with the soil. In the other case, however, the prothallus is a direct outgrowth of the tip of a veinlet protruded through the upper surface of the pinule, and at once produces root-hairs in abundance long before it assumes any other characteristic of a prothallus, and finally the resulting prothallus is much thicker in substance.

FOSSIL GRASSES.

WE can imagine some readers shrugging their shoulders at such a thing, as one too speculative and transcendental to come within the domain of practical thought. That it is not so, however, is shown by Mr. J. STARKIE GARDNER's paper on the subject, recently reprinted from the *Proceedings of the Geologists' Association*. Mr. GARDNER begins by pointing out the vastness of the practical interests concerning grasses, and estimates that the products of grasses, cereal grains, sugar, fibre, &c., amount up to about £100,000,000 annually. That will do for Mr. GRADGRIND. Then Mr. GARDNER goes off into facts and inferences of a different character, which Mr. GRADGRIND would not appreciate, but which, nevertheless, measured even by GRADGRIND's standard, enormously outweigh the economic importance of grasses

as computed in merchant's ledgers. What sort of a globe could it have been when there were no grasses?—a question of no practical importance it will be said; but put the question in another form, and ask how the earth became what it is, how it became habitable by insects, by animals, by man himself?—and then the answer comes with no uncertain sound. It is the grasses that have mainly contributed to make the earth habitable, and without them it would be so no longer. How this is so, is clearly shown in Mr. GARDNER's pamphlet, where he shows the probability that there were no social grasses before Late Tertiary times (geologically a very recent period). Millet and Rice had their prototypes in the Tertiary deposits of Ormington. [Through the long ages of the Red Sandstone, the Lias, the Oolites, the Wealden, up to the Tertiary times there were no great mammals fitted for grass-eating, and there was no grass for them to eat, or at least there is no evidence of the existence of anything like pastures. Butterflies, beetles, bees, grasshoppers, could not have existed. "The introduction," says Mr. GARDNER, "of the grasses in vast numbers, and of habit different to that of pre-existing vegetation, exerted an influence on terrestrial life that is without parallel, the immediate effects of which were:—The development of meadows, a prairie vegetation as distinct from that of the marsh, scrub, and forest; the introduction of vast herds of grazing mammals as distinct from the herbivorous mammals previously existing, and of the larger kinds of carnivora which prey upon them; the introduction of meadow insects, distinct from aquatic and woodland forms, including butterflies, bees, grasshoppers, &c.; and lastly, the introduction of a food supply, both animal and vegetable, in the absence of which, it is doubtful whether man himself would have been enabled to reach his present stage of development."

Law Notes.

WARWICK COUNTY COURT.

The December sitting of this Court was held on the 14th inst., at the Shire Hall, before Sir R. Hargrton, Bart., Judge.

AN UNSATISFACTORY SALE OF SAND AND PEAT.

Kesterton v. Greenfield.—Plaintiff was John Kesterton, sand merchant, Devonshire Street, Cheltenham, and the defendant Robert Greenfield, of The Priory Gardens, Warwick.—Claim 18s. for peat and siltsand supplied to defendant in August last.—The defence was that the goods were inferior to sample, and that the sand was nearly two bushels short in measure. Plaintiff had had due notice of their rejection. Upon the sand being measured it was found to be nearly two bushels short, while the peat was simply worthless. Mr. Boddington informed the judge that his client held a responsible position at The Priory, and to have paid the plaintiff the sum demanded for such stuff as he sent to him would have been to subject his employer to gross imposition. Therefore he defended the action purely on principle. Mr. Boddington quoted the case of *Grimlaby v. Wells*, tried in the Court of Common Pleas, in which it was decided that the buyer is under no obligation either to return or offer to return goods to the seller, or to place them in neutral custody, when upon inspection the bulk proves to be inferior to sample. It was sufficient for the buyer to give clear notice to the seller that he rejected the goods, and that they were at the seller's risk, and it then rested with the seller to remove them.—His Honour, without calling upon the defendant's witnesses, decided to go down to The Priory gardens, inspect the sand and peat, and compare them with the samples shown by plaintiff. Having done this he gave judgment for the defendant, believing that the peat was not according to sample, and that the defendant had a right to reject the whole. He could not conceive that a person occupying the defendant's position would come forward and deliberately perjure himself. Judgment for the defendant, costs to follow in the ordinary way. *Warwick paper.*

Obituary.

MR. THOMAS BROWN, formerly the senior partner in the firm of Thomas and Edward Brown, of the Royal Nursery, Slough, died at Honolulu, Sandwich island, on October 22 last, at the advanced age of eighty-two years. To many of the younger generation of florists Mr. Thomas Brown will scarcely be remembered by name, but to not a few of an older time Brown's nursery, and what the firm did for floriculture half a century ago, will always be a pleasant recollection.

The story of the foundation of the Royal Nursery at Slough has been told in the columns of the *Gardener's Chronicle*: suffice it for the present purpose to state that in 1835, on the death of their brother Charles, Thomas and Edward Brown became the sole partners. Edward retired in 1837. Thomas carried on the business until 1840, when it passed into the hands of Mr. Cutter, and in 1844 the late Mr. C. Turner became the proprietor.

Thomas Brown was born at Slough on July 27, 1824. He emigrated to Honolulu in 1846, and engaged in stock raising on Kanai. In 1852 he went to the American States, but returned to the islands in 1856. He soon afterwards entered the Office of Conveyances as clerk, then became Deputy Registrar, and finally was appointed as head of the department, which position he held up to the time of his death. He was a man of sterling business qualities, his unaffected and affable manner won him hosts of friends, and he was regarded as one of the oldest and most respected citizens. On October 15 he celebrated the fiftieth anniversary of his marriage, since then his health gradually failed, until he passed away peacefully surrounded by his family. He leaves a widow, four sons, and a daughter, the eldest of the former being the Hon. Cecil Brown, a member of the Legislative Assembly. Thomas Brown lies at rest in the Nunau Valley Cemetery, far removed from the place of his birth.

—DR. LYONS, M.P.—All who are interested in the development of the resources of Ireland must lament the death of this gentleman, who did so much to advocate the afforestation of that country, than which a more beneficial thing can scarcely be imagined where the conditions are favourable.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, DECEMBER 22, 1886.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DE- DUCTIONS FROM GLAISHER'S TABLES 5th Edition.		WIND.	RAINFALL.
	Actual Reading reduced to 32° Fahr.	Depression from 30 in.	Highest.	Lowest.	Range.	Mean for Day.	Dew Point.	Degree of Humidity at Sat. Def.		
Dec. 16.	In. 30.24	0.58	39.7	35.0	4.7	37.8	91	N.E.	0.00	
17.	30.48	0.34	33.5	30.0	3.5	31.3	89	N.E.	0.01	
18.	30.54	0.28	31.0	27.5	3.5	27.5	72	N.E.	0.07	
19.	30.62	0.21	30.0	22.0	8.0	25.8	83	S.E.	1.00	
20.	30.83	0.00	33.0	21.0	12.0	26.0	93	N.E.	0.00	
21.	30.63	0.20	38.0	25.0	13.0	30.0	84	S.W.	0.00	
22.	30.64	0.20	38.0	25.0	13.0	30.0	91	S.	1.10	
Mean	30.66	0.17	34.2	25.0	9.2	27.2	86	N.E.	0.27	

Dec. 16.—Misty, with light rain early in the morning, fine and bright at about noon, and overcast afterwards.
— 17.—Fog in morning. Overcast all day. A shower of rain in the evening.
— 18.—Snow in early morning. Fine and bright from noon. Ice night.
— 19.—Fine and bright generally till afternoon, misty at 4 P.M., and fog in the evening.
— 20.—Overcast and dull throughout.
— 21.—Dark and very dull till afternoon, then foggy, and clear at night.
— 22.—The minimum temperature of 18° took place shortly after midnight of the 21st; the temperature then rose rapidly to 24°, by 2 A.M., to 36° by 9 A.M., and to maximum, 43°, by 4 P.M. The morning was fine, but then rain began to fall at about noon, and continued to the evening.

ENGLAND: *Temperatures*.—During the week ending December 18, the highest temperatures were 55° at Truro, 54° at Plymouth, and 49° 5' at Bristol; the highest at Newcastle was 41°, at Sunderland 45°, and at Sheffield and Liverpool 40°. The general mean was 47° 9'.

The lowest temperatures in the week were at Wolverhampton 19° 5', at Nottingham 20° 2', and at Sheffield 21°; the lowest at Truro was 30°, at Plymouth 29° 2', and at Brighton 26° 8'. The general mean was 24°.

The greatest ranges of temperature were at Nottingham 29° 1, at Wolverhampton 28° 4, and at Bradford 25° 5; the least ranges were at Newcastle 17° 9, at Liverpool 19° 6, and at Brighton and Sunderland 22°. The general mean was 23° 9.

The mean of the seven high day temperatures was highest at Truro, 49° 3, at Plymouth 48° 9, and at Brighton 43° 7, and lowest at Newcastle, 35° 8, at Sheffield 39° 1, and at Liverpool 39° 9. The general mean was 41° 9.

The mean of the seven low night temperatures was lowest at Newcastle, 30° 8, at Wolverhampton 31° 7, and at Sheffield and Sunderland, 32° 1; the lowest at Truro was 37° 7, at Plymouth 37° 5, and at Brighton 37°. The general mean was 33° 9.

The mean of the seven daily ranges was greatest at Truro, 11° 6, at Plymouth 11° 4, and at Nottingham 9° 6; and least at Brighton and Newcastle, 6°, and at Blackheath 6° 1. The general mean was 8°.

The mean temperature was highest at Truro, 43° 5, at Plymouth 43° 2, and at Brighton 40° 5; and lowest at Newcastle, 33° 8, at Sheffield 35° 6, and at Wolverhampton 35° 9. The general mean was 37° 9.

Rain.—The largest falls were 1.92 inch at Newcastle, 1.88 inch at Bradford, and 1.87 inch at Preston; the smallest falls were 0.61 inch at Blackheath, 0.69 inch at Sheffield, and 0.91 inch at Wolverhampton and Liverpool. The general mean fall was 1.47 inch.

LONDON: Atmospheric Pressure.—During the week ending December 18, the reading of the barometer at the level of the sea decreased from 29.43 inches at the beginning of the week, to 29.34 inches by the morning of the 12th, increased to 29.73 inches by 1 P.M. on the 13th, decreased to 29.11 inches by the afternoon of the 15th, increased to 29.72 inches by the morning of the 17th, decreased to 29.62 inches by the afternoon of the same day, and was 29.75 inches at the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.50 inches, being 0.20 inch higher than last week, and 0.49 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 47° on the 14th; the highest on the 18th was 31° 7. The mean of the seven high day temperatures was 41° 4.

The lowest in the week was 23° 5 on the 18th; the lowest on the 18th was 41° 2. The mean of the seven low night temperatures was 35° 3.

The greatest range of temperature in one day was 8° 5, on the 14th; the smallest was 3° 5 on the 17th. The mean of the seven daily ranges was 6°.

The mean daily temperatures were 43° 3 on the 12th, 43° 4 on the 13th, 43° 5 on the 14th, 43° 3 on the 15th, 36° 6 on the 16th, 31° 9 on the 17th, and 27° 5 on the 18th. These were above their averages on the 12th, 13th, 14th, and 15th by 2° 6, 2° 8, 2° 8, and 2° 6 above; and below on the 16th, 17th, and 18th by 4° 1, 8° 6, and 12° 7 respectively.

The mean temperature of the week was 38° 7, being 3° 7 lower than last week, and 1° 9 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 71° on the 12th. The mean of the seven readings was 54° 5.

Rain.—Rain fell on four days, to the amount of 0.61 inch.

SCOTLAND: Temperature.—During the week ending December 18, the highest temperature was 40° 8, at Leith; the highest at Perth was 38° 2. The general mean was 39° 8.

The lowest temperature was 21°, at Perth; the lowest at Paisley was 24° 5. The general mean was 23°.

The mean temperature was highest at Leith, 34° 4; and lowest at Perth, 30° 4. The general mean was 23°.

Rain.—The largest fall was 0.90 inch, at Aberdeen. No rain fell at Perth. The general mean fall was 0.55 inch.

JAMES GLAISHER, F.R.S.

NOVA-SCOTIAN APPLES.—Some idea of the immense consumption of Apples from across the Atlantic may be gathered from the fact that frequently in a single day one auctioneer in Covent Garden Market sells under the hammer 10,000 or more barrels of fruits from Nova Scotia. And the same may be said of other salesmen.

Answers to Correspondents.

ÆSTHETIC FLOWERS: W. R. We scarcely understand the meaning of the term, unless it be meant for such plants as Helianthus, both single and double flowered; single Dahlias, Chrysanthemums, single Chineses (seedlings), and British wild species: under the designation might be put Gaillardias, Zinnias, Calandrinias, Petunias, &c.

CATALOGUES: Viridis. We cannot undertake to recommend price-lists. Examine our advertising columns.

CORNUS: Omega. We could only find one twig, which we were unable to identify. *Cornus sanguinea* varies considerably in the depth of its coloration. *C. sibirica* is a variety of *C. alba*, and is generally darker in colour than *C. sanguinea*.

ERRATUM: P. 777, first col., "The Onion," tenth line. Instead of "conqueror" read "congener."

FLOWER GARDEN PLANS: C. W. A. Kemp's How to Lay-out a Garden, published by Bradbury, Agnew & Co., 9, Boulevard Street, Fleet Street, London, E.C.

CANDIDIA ROOTS: F. & Co. The knobs on the roots are due to the presence of minute worms, which are those which cause one form of Cucumber disease. Turn out the soil, burn the plants, and start afresh.

HEATING AND COAL: W. H. S. We think the quantity of coal used was small, considering the amount of 4-inch pipes. The boilers and pipes must have been carefully arranged and fixed, or else, in spite of your mild locality, more fuel would have been required.

INSECTS: G. T. The shrivelled-up specimens sent of grubs which have attacked your *Carototus* are, judging the leaves and stems, are the larvae of a small two-winged fly belonging to the family Muscidae. Please send some live specimens with the attacked plants, that we may rear them. *I. O. W.*

NAMES OF FRUITS: F. & A. D. & Sons, 1, Rymer; 2, Boston Russet;—Pear: Ed. Morse. Name uncertain—a worthless variety.

NAMES OF PLANTS: S. Douglas. Probably *Odontoglossum Dawsonianum*. *C. G.* Conical, a rather common *C. M. S.*, *Altrichium*. Probably a *Carex*, but the specimen sent is insufficient for determination.

CATALOGUES RECEIVED.

JAMES VEITCH & SON, Royal Exotic Nursery, King's Road, Chelsea, S.W.—Seeds and Implements. **WEBB & SONS, Wordsley, Stourbridge—Spring Catalogue.**

SUTTON & SONS, Reading—Amateurs' Guide in Horticulture and General Catalogue, 1887.

W. B. BOYES, Chelsea Potagers, Archway Road, Highgate—Chrysanthemums.

T. LAXTON, Bedford—List of Novelties, Fruits, Vegetables, Roses and other Flowers, for Sale by Private Treaty.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.—Flower, Vegetable, and Agricultural Seeds.

OTTO MANN—Leipzig, Saxony—Trade Seed Catalogue. **JOHN LAING & CO., Forest Hill, London, S.E.**

CHARLES AYRES, Cape Town, South Africa—Trade List of Cape Bulbs, &c.

DICKSON, BROWN & TAIT, 43 and 45, Corporation Street, Manchester—Vegetable and Flower Seeds.

DICKSON & ROBINSON, 12, Old Millgate, Manchester—Vegetable and Flower Seeds.

ROBINSON-LOVER & FILLS, Route d'Olivet, 7 and 9, Olivet près Orleans (Loire)—Azaleas and Roses.

COMMUNICATIONS RECEIVED.—W. B.—R. G.—Lucien Linden, Ghent—C. W. S.—G. J. A.—C. D'Ancona, Florence.—F. W. B.—W. Bidsal.—A. S.—D. W.—H. E.—Ernest Bergmann, Paris.—J. McL.—R. McL.—J. M.—G. M.—T. G. F.—H. J. P.—R. D.—G. M.—H. E.—H. Corveon, Geneva.—H. E.—H. W. W.—A. H. S.—H. V. G.—M. C.—W. D.—M.—Sir T. L.—Messrs. Carter.—N. E. B.—W. T. D.—W. H. K.—L. P. C.—Brook.—Les Yaux—M. B., Middleburgh.—Le Moniteur Horticole.—Miss O.—E. R. C.—J. H. H.—Rev. Canon Burbridge.—R. E. D.—D. T. F.—W. S.—J. R.—J. A.—D. W. W.—N. B.—C. J. F.—J. F. T.—D.—W. M. P. Co.

Markets.

COVENT GARDEN, December 23.

OUR Christmas trade has been somewhat below the average, notwithstanding the low prices, and many goods have only been cleared against the grower. *James Weiber, Wholesale Apple Market.*

VEGETABLES—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, per doz. 4 0	Mushrooms, punnet 1 6
Asparagus, doz. 1 0	Mustard and Cress, punnet 0 4
Beet, red, per dozen 1 0	Onions, per bushel, 3 0
Brussels Sprouts, lb. 0 3	Parley, dozen bushels 1 0
Carrots, per bushel, 0 6	Peas, per bushel, 1 0
Cauliflowers, per doz. 3 0	Potatoes, per cwt. 4 0
Celery, per bundle, 1 6	Shallots, per cwt. 4 0
Cucumbers, each, 0 6	Spinach, per bushel 6 0
Endive, per dozen 1 0	Tomatoes, per lb. 1 0
Herbs, per bunch 0 4	Turnips, per bushel 0 4
Leeks, per bunch 0 3	
Lettuce, per dozen 1 0	

POTATOES: 1—Kent Regents, 8s. to 10s.; Schoolmasters, 7s. Reauty of Hebron, 10s.; 2—Majors, 8s. to 8 1/2s. per ton.

FRUIT—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, 1/4-sieve 1 6	Lemons, per case 12 0
Nov. Scotia, bil. 8 0	Pears, per dozen 3 0
Grapes, per lb. 1 0	Massachusetts, Eng. lb. 1 0
Kent Cobs, 100 lb. 1 6	St. Michael, each 1 0

PLANTS IN POTS—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0	Evergreens, in var., per dozen 6 0
Aurum Lilies, dozen 18 0	Ficus elastica, each 1 6
Asaleas, per dozen 24 0	Ferns, in var., doz. 4 0
Begonias, per dozen 6 0	Foliage Plants, various, each 2 0
Bouvardias, doz. 9 0	Hyacinths, Daisy, per dozen 6 0
Chrysanth., per doz. 4 0	Magnolia, per doz. 4 0
Cypripediums, dozen 12 0	Myrtles, per dozen 6 0
Dracena terminalis, per dozen 30 0	Palm-trees, in var., each 2 0
—viridis, per doz. 12 0	Pelargoniums, scarlet, 3 0
Epiphyllum, dozen 18 0	Poinsettias, dozen 12 0
Erica gracilis, doz. 9 0	Primula sinensis, per dozen 4 0
—hymalis, doz. 12 0	Solanum, per dozen 9 0
—reginae, doz. 8 0	
—various, dozen 9 0	
Eucyrtus, in var., per dozen 6 0	

CUT FLOWERS—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aurum Lilies, 12 blms. 4 0	Pelargoniums, per 12 10 1 6
Andromeda, 12 sprays 0 6	—scarlet, 12 brusses 6 0
Bouvardias, per bun. 0 6	Prunella, single, 12 4 0
Camellias, 12 blooms 2 0	—bunches 4 0
Carototus, 12 blms. 1 0	Roses, 12 blms. 4 0
—12 bunches 4 0	—red, per dozen 2 0
Eucharis, 12 spr. 4 0	—white, per dozen 2 0
Gerardia, 12 blooms 0 6	—Saffron, Fr., doz. 6 0
Heliotrope, 12 spr. 0 6	Stephanotis, 12 spr. 6 0
Jasmine, white, bun. 0 6	—Tulips, 12 blms. 1 0
—yellow, red, doz. 0 6	—Tulips, 12 blms. 1 0
—white, 12 blooms 1 0	—Violets, 12 bunches 1 0
—various, per 12 3 0	—Violets, 12 bunches 1 0
—bunches 3 0	—Violets, 12 bunches 1 0
Mignonette, 12 bun. 1 0	—Violets, 12 bunches 1 0

SEEDS.

LONDON: Dec. 22.—Messrs. John Shaw & Sons, Seed Merchants, of 37, Mark Lane, E.C., state that with a little attendance on the Seed Market but little business was transacted to-day. Operations in Clover seed, and indeed in most other articles, have been generally postponed until after the holidays, meantime values all round keep firm. For choice red seed somewhat higher prices are asked. Rye-grasses steadily maintain the recent advance. There is no change to be noted with regard to bird seed. Blue Peas have been generally improved sale. Linseed continues to tend in favour of holders.

CORN.

MARK LANE: Dec. 22.—The market opened very firm, but the finish was tame, owing to an extensive lack of demand. English Wheat was generally held above the views of buyers, and very little was done, 1s. over the rates of Monday last being paid. Foreign Wheat met a fair demand at 6d. advance, but 1s. being in many cases required, checked business. Flour, of which the supplies have been lightened a good deal, is 6d. to 1s. per sack dearer on the week, with a fair inquiry. Very little was doing in malting barley, and prices were unchanged. Grinding barley was in moderate demand, and rather higher than on Monday, 1s. 6d. per quarter from the rates of Monday last, and Peas, which continue very scarce, were the turn dearer. No quotable change occurred in the value of flat Maize, but round corn was 6d. per quarter higher. Oats met rather a better sale, and the market was firmer.

Dec. 22.—Wheat was very quiet, but there was rather more tone about the market at the close. Flour was in moderate request, with prices tending against buyers. Grinding barley supported Monday's value, and met a moderate inquiry. Malting descriptions were dull of sale. Beans and Peas, of which the supplies continue in very poor compass, tended against buyers. Oats moved off slowly without quotable change in value. Maize was steady.

Average prices of corn for the week ending Dec. 18:—Wheat, 33s. 4d.; Barley, 19s. 7d.; Oats, 16s. 7d. For the corresponding period last year:—Wheat, 30s. 6d.; Barley, 19s. 3d.; Oats, 18s. 1d.

FRUIT AND VEGETABLES.

COLUMBIA (East London): Dec. 22.—Good supplies, and trade brisk at advanced prices. Quotations:—Apples, 4s. to 7s. per bushel; Pears (eating), 5s. to 10s. 1s. stewing do., 2s. 6d. to 5s. do.; Cauliflowers, 2s. to 4s. per dozen; Spinach, 2s. 6d. to 3s. per dozen; Brussels Sprouts, 2s. 6d. to 4s. per bushel; Cabbages, 2s. to 4s. per tally; Savoy, 2s. to 3s. do.; Greens, 3s. to 5s. per dozen bunches; Turnips, 2s. to 3s. do.; Carrots, 1s. 6d. to 2s. do.; Onions, 3s. to 5s. per bushel; Mangels, 1s. to 2s. per cwt.; Mangel, 1s. to 1s. 6d. per cwt.; Mangels, 1s. to 1s. 6d. per cwt.

STAFFORD: Dec. 21.—The market has been well supplied, and a good trade was done at the following prices:—Savoy, 4s. to 5s. per tally; Parsnips, 10s. to 12s. per score; Turnips, 2s. to 2s. 6d. per dozen bunches; do. 3s. to 4s. per ton; Carrots (household), 3s. to 3s. 6d.; cattle feeding, 3s. to 3s. 6d.; Mangels, 1s. to 1s. 6d.; Salsify, 1s. to 1s. 6d.; Onions, 8s. do.; Watercress, 6d. per dozen; Celery, 9s. to 12s. per dozen; Mistletoe, 10s. per crate; Holly, 1s. to 1s. 6d. per market bale; Apples, 3s. to 3s. 6d. per bushel; Hops, 1s. to 1s. 6d. to 1s. per bale; Laurels, 6d. per bunch; Box, 3s. do.; Sprouts, 9d. to 2s. per half-sieve.

THE GARDENERS' CHRONICLE

(Established 1841)

CONTAINS ARTICLES ON ALL DEPARTMENTS OF

GARDENING, PRACTICAL AND SCIENTIFIC,

REPORTS OF EXHIBITIONS, REVIEWS OF BOOKS, and NOTICES of all HORTICULTURAL MATTERS of CURRENT INTEREST,

HOME, COLONIAL, and FOREIGN CORRESPONDENCE.

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BEES.—BOTANY.	GREENHOUSE PLANTS.	PLEASURE GROUNDS.	TREES.—Deciduous and Evergreen.
BULBOUS PLANTS.	HERBACEOUS PLANTS.	POTOMOLOGY.	VEGETABLE CULTURE.
CHEMISTRY OF PLANTS.	IMPLEMENTS.—INSECTS.	POTATOS.	VEGETABLE PHYSIOLOGY
CONIFERS.	KITCHEN GARDENING.	RHODODENDRONS.	VINES.—WALKS.—WALLS.
DISEASES OF PLANTS.	LANDSCAPE GARDENING.	ROCKERIES.—ROSES.	WEATHER.—WEEDS.
EVERGREENS.	LAWNS.—LILIES.	SHRUBS and SHRUBBERIES.	WINDOW GARDENING.
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FLORISTS' FLOWERS.	MANURES.—Analyses of.	SUCCULENT PLANTS.	

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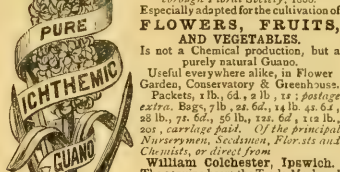
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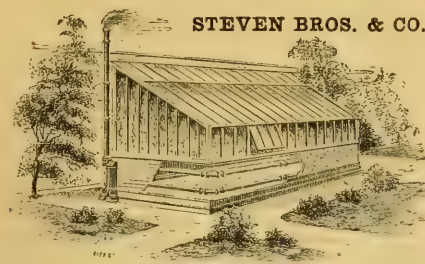
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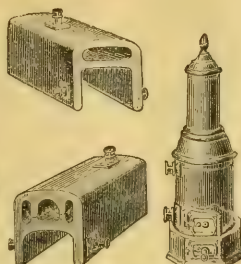
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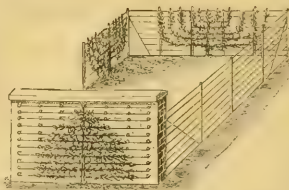
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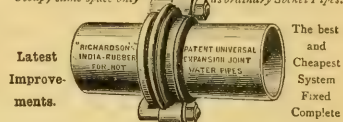
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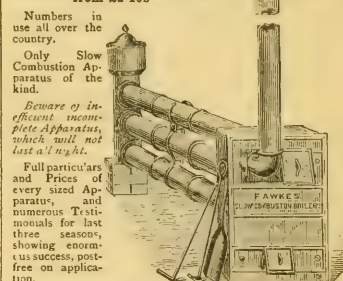
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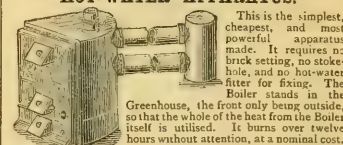
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12 x 12 " 12	15 x 12 " 12	15 x 12 " 12	15 x 12 " 12
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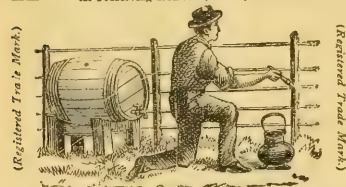
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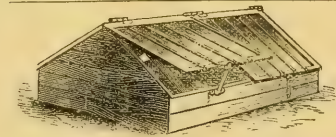
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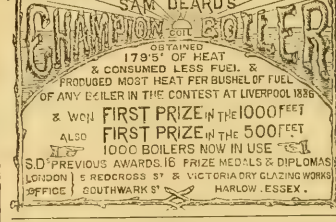
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